

CI 00 SC 0 P L # 13  
 Anslow, Peter Nortel Networks

Comment Type E Comment Status A

The copyright date for the entire draft should be 2010 rather than 2009

*SuggestedRemedy*

Change the copyright date throughout to 2010

Response Response Status C

ACCEPT.

CI 00 SC 0 P 0 L 0 # 30  
 Turner, Michelle

Comment Type ER Comment Status A

This draft meets all editorial requirements

*SuggestedRemedy*

Response Response Status C

ACCEPT.

As per the Publication Editor the draft meets all editorial requirements, hence no action required on this comment.

CI 00 SC 0 P 409 L 5 # 37  
 Petrilla, John Avago Technologies

Comment Type T Comment Status A

Measurement of electrical signal attributes in 83A.5 call for "a receiver with an equivalent minimum -3 dB bandwidth of at least 18 GHz." while 86A.5.3.3, page 450, (see also 86A.5.3.4, 86A.5.3.5 and 86A.5.3.6) calls for "the waveform is observed through a 12 GHz low pass filter response". To ease the burden on implementers, these requirements should be harmonized. If a common BW cannot be found, then explicit accommodation of methods to compensate for BW differences should be added to the document.

*SuggestedRemedy*

Apply either "a receiver with an equivalent minimum -3 dB bandwidth of at least 18 GHz" or "the waveform is observed through a 12 GHz low pass filter response" throughout 83A, 83B and 86A for electrical time domain signals.

Response Response Status C

ACCEPT IN PRINCIPLE.

Comment #94 changes the measurement bandwidth in 85.8.3.8 for DDJ to 12 GHz (from 20 GHz).

In 86A.5.3.3 Transition time, change "12 GHz low pass filter response" to "12 GHz low pass filter response (such as a Bessel-Thomson response)"  
 In 86A.5.3.4 DDPWS, change "measurement bandwidth is 12 GHz" to "measurement bandwidth is 12 GHz (such as a Bessel-Thomson response)"  
 In 86A.5.3.6 Eye mask, change "bandwidth of 12 GHz." to "bandwidth of 12 GHz (such as a Bessel-Thomson response)."

Page 409, line 5 (section 83A.5)

Modify: The signal waveform, eye, and jitter may be measured using a receiver with an equivalent minimum -3 dB bandwidth of at least 18 GHz.

To:

The signal waveform, eye, and jitter may be measured using a receiver with at least an equivalent 12 GHz low pass filter response.

A straw poll of the Task force was taken:

Do you think that the measurement bandwidth should be harmonised across clauses 83A, 83B, 86A?

Yes 10

No 2

A second straw poll was taken:

Should the measurement bandwidth be changed to:

A 12 GHz low pass filter response

B an equivalent minimum -3 dB bandwidth of at least 18 GHz

A 6  
B 1

A third straw poll was taken:  
Should the draft be changed due to this comment?  
Yes 13  
No 8

Cl 30 SC 30.5.1.1.10a P36 L37 # 44

Dawe, Piers J G Independant

Comment Type E Comment Status A  
Formatting

SuggestedRemedy

Use en dash or similar for minus, in place of hyphen. As N is a variable, it could be in italics. To align with the clauses, change N to n. Also in 80.3, n and N could be in italics.

Response Response Status C

ACCEPT IN PRINCIPLE.

Use ALT-0150 to denote subtraction. (2 instances)

Change N to n. (4 instances)  
Italics would be inconsistent with surrounding text.

Cl 45 SC 45.2.1.1.4 P45 L43 # 15

Anslow, Peter Nortel Networks

Comment Type T Comment Status A

45.2.1.1.4 has been modified by 802.3av, but the change is not shown.

SuggestedRemedy

Change the editing instruction to "Change 45.2.1.1.4 (as modified by IEEE Std 802.3av) to distinguish from remote loopback."  
Also change "except 2BASE-TL and 10PASS-TS," to "except 2BASE-TL, 10PASS-TS, and 10/1GBASE-PRX," in normal font.

Response Response Status C

ACCEPT.

Cl 45 SC 45.2.1.1.4a P45 L20 # 14

Anslow, Peter Nortel Networks

Comment Type E Comment Status A

The example numbering scheme for inserted clauses in comment 754 against D 3.0 was:  
"For example to insert two subclauses before 43.2.1 the subclauses would be numbered 43.2.a and 43.2.b. Two subclauses between 43.2.1 and 43.2.2 would be numbered 43.2.1a and 43.2.1b. Two subclauses added after the last subclause 43.2.2 would be numbered 43.2.3 and 43.2.4."

The subclause describing "PMA remote loopback (1.0.1)" should be between subclauses 45.2.1.1.3 and 45.2.1.1.4. According to the above examples it should be numbered 45.2.1.1.3a

SuggestedRemedy

Change the subclause number from 45.2.1.1.4a to 45.2.1.1.3a

Response Response Status C

ACCEPT.

Cl 45 SC 45.2.1.10 P52 L4 # 16

Anslow, Peter Nortel Networks

Comment Type E Comment Status A

The title of 45.2.1.10 has a spurious "." at the beginning. "45.2.1.10 .PMA/PMD extended ability register (Register 1.11)"

SuggestedRemedy

Remove the "."

Response Response Status C

ACCEPT.

Cl 45 SC 45.2.1.10 P54 L19 # 45

Dawe, Piers J G Independant

Comment Type E Comment Status A

In 45.2.1.10 .PMA/PMD extended

SuggestedRemedy

there's an unwanted dot

Response Response Status C

ACCEPT IN PRINCIPLE.

Delete as per comment #16

CI 45 SC 45.2.1.10 P54 L21 # 46  
Dawe, Piers J G Independant

Comment Type E Comment Status A  
Gratuitous capitals (see D3.0 comment 316).

*SuggestedRemedy*

In the subclause title, change "Extended Ability" to "extended ability", matching the table title.

Response Response Status C  
ACCEPT IN PRINCIPLE.

Use lower case for the table title (as in the clause title). Additionally make Extended lower case for the bit name.

CI 45 SC 45.2.1.10 P54 L27 # 47  
Dawe, Piers J G Independant

Comment Type E Comment Status A  
Gratuitous capital (see D3.0 comment 316).

*SuggestedRemedy*

Change "40G/100G Extended abilities" to "40G/100G Extended abilities" (but see another comment).

Response Response Status C  
ACCEPT IN PRINCIPLE.

Change "40G/100G Extended abilities" to "40G/100G extended abilities"

CI 45 SC 45.2.1.11a P55 L5 # 48  
Dawe, Piers J G Independant

Comment Type ER Comment Status R

Misleading register name: this isn't an extended ability register, it's the first and only 40G/100G PMA/PMD ability register. What if we wanted another 40G/100G PMA/PMD ability register (when we have more port types); what would we call that? (Register 1.11 was called "extended" because it's the overflow from 1.8 10G PMA/PMD status 2 register)

*SuggestedRemedy*

Change "40G/100G PMA/PMD extended ability register" to "40G/100G PMA/PMD ability register" throughout the document.

Response Response Status C  
REJECT.

This register is extending the abilities indicated in register 1.11 (PMA/PMD extended ability register). Register 1.13 only exists if register bit 1.11.10 is asserted.

CI 45 SC 45.2.1.79 P59 L51 # 49  
Dawe, Piers J G Independant

Comment Type E Comment Status A  
identical behavior as the original register

*SuggestedRemedy*

Would "behavior identical to the original register" read better? Several times.

Response Response Status C  
ACCEPT IN PRINCIPLE.

Change:

If implemented, all accesses to the copy have identical behavior as the original register.

To:

If implemented, all accesses to the copy have identical behavior as accesses to the original register.

45.2.1.79, 80, 81, 82, 87, 88

CI 45 SC 45.2.1.87 P63 L32 # 7  
Marris, Arthur Cadence Design Syste

Comment Type E Comment Status A  
Font size in Tables 45-64 and 45-65 appears wrong.

*SuggestedRemedy*

please correct

Response Response Status C  
ACCEPT.

Well spotted!

CI 45 SC 45.2.1.95 P66 L20 # 2  
Marris, Arthur Cadence Design Syste

Comment Type T Comment Status A

1.1500.5 bit description does not agree with PRBS9 Tx generation ability

*SuggestedRemedy*

For bit 1.1500.5 change 'PRBS31 pattern testing' to 'PRBS9 Transmit direction pattern generator'  
For bit 1.1500.4 add 'Receive direction'

Response Response Status C

ACCEPT.

CI 45 SC 45.2.1.95 P69 L31 # 50  
Dawe, Piers J G Independant

Comment Type TR Comment Status A

PRBS31 ability (line 40) has been rewritten so that Tx, Rx, generation and checking can be implemented in any combination. PRBS9 is simpler, but while sending a PRBS9 out of a chip is useful, sending PRBS9 further into a chip (e.g. to the PCS) may not be. Bit 1.1500.4 isn't mentioned at present.

*SuggestedRemedy*

Rewrite this paragraph to describe bit 1.1500.4 and allow either Tx or Rx PRBS9 generation (as well as both or neither).

Response Response Status C

ACCEPT IN PRINCIPLE.

In paragraph on p.66, l. 40.

Change 1.1500.6 to 1.1500.4

This allows indication of Tx or Rx PRBS9 generation independantly as the commenter requests.

CI 45 SC 45.2.1.96 P67 L3 # 17  
Anslow, Peter Nortel Networks

Comment Type T Comment Status A

Clause 45 in the base standard (and also as modified by 802.3av) is organised in the order of the registers being described. 45.2.1.96 and 45.2.1.97 relate to registers 1.1510 and 1.1501 respectively, which violates this.

*SuggestedRemedy*

Swap the content of subclauses 45.2.1.96 and 45.2.1.97 so that 45.2.1.96 is "PRBS pattern testing control (Register 1.1501)" and 45.2.1.97 is Square wave testing control (Register 1.1510). Also swap table numbers.

Response Response Status C

ACCEPT.

Also ensure that any cross references from Clause 83 are updated appropriately.

CI 45 SC 45.2.1.96 P70 L3 # 176  
Dawe, Piers J G Independant

Comment Type E Comment Status A

Why does Register 1.1510 come between 1.1500 and 1.1501?

*SuggestedRemedy*

Re-order.

Response Response Status C

ACCEPT IN PRINCIPLE.

Re-order as per comment #17

CI 45 SC 45.2.1.96 P70 L3 # 51  
Dawe, Piers J G Independant

Comment Type T Comment Status R

As the PMA generates square waves but doesn't check or do anything with them,

*SuggestedRemedy*

It would be better to rename "Square wave testing control" to "Square wave control"

Response Response Status C

REJECT.

It should be assumed that the square waves are generated for the purposes of testing. This register controls them, therefore the word "testing" is appropriate. It also helps to avoid implying that this might be a functional mode.

CI 45 SC 45.2.3.15 P80 L12 # 52  
Dawe, Piers J G Independant

Comment Type T Comment Status A

Misleading text.

*SuggestedRemedy*

Change "PRBS9, PRBS31, pseudo random and square wave test patterns are defined for 10GBASE-R only." to "Within the 10GBASE-R PCS definition, there is provision for PRBS9, PRBS31, pseudo random and square wave test patterns (some of these patterns are provided in the 40/100GBASE-R PMA definition).".

Response Response Status C

ACCEPT IN PRINCIPLE.

The paragraph highlighted is correct within the context of the PCS.

Add "PCS" between "10GBASE-R" and "only." Also add "PCS" between "40/100GBASE-R" and "only."

CI 45 SC 45.2.3.15 P80 L14 # 53  
Dawe, Piers J G Independant

Comment Type T Comment Status A

The sentence "The PHY may ignore writes and read zeros for register bits related to undefined functions." isn't in the base document, but 45.2 says "The operation of an MMD shall not be affected by writes to reserved and unsupported register bits, and such register bits shall return a value of zero when read." This register is for just the PCS, not the PHY.

*SuggestedRemedy*

Delete the sentence here.

Response Response Status C

ACCEPT.

CI 45 SC 45.2.3.16c P79 L1 # 19  
Anslow, Peter Nortel Networks

Comment Type E Comment Status A

In the base standard, Table 45-95 describes register 3.43 and Table 45-96 is register 3.60. IEEE 802.3av-2009 inserted a new Table 45-12 and so these tables have now been re-numbered to 45-96 and 45-97. Draft 3.1 inserts new tables for registers 3.44 and 3.45 (in 45.2.3.16a and 16b), correctly numbering the new tables 45-96a and 45-96b. However, for registers 3.50 through 3.53 (in 45.2.3.16c through 45.2.3.16f), the tables are numbered 45-97a through 45-97d, which is not correct because these tables come before Table 45-97.

*SuggestedRemedy*

Change the numbers of Tables 45-97a through 45-97d to 45-96c through 45-96f

Response Response Status C

ACCEPT.

CI 45 SC 45.2.3.36 P86 L47 # 20  
Anslow, Peter Nortel Networks

Comment Type E Comment Status A

Subclause 45.2.3.28 in the base standard contains Table 45-107. IEEE 802.3av-2009 inserted a new Table 45-12, so this table has been re-numbered to Table 45-118. Then 802.3av inserted a new subclause 45.2.3.29 containing a table incorrectly numbered Table 45-107. This should have been Table 45-109. Consequently, the table in subclause 45.2.3.35 of 802.3av should be numbered Table 45-115 (not 45-113). This means that the table introduced in draft 3.1 subclause 45.2.3.36 should be numbered Table 45-115a (not 45-114a).

*SuggestedRemedy*

Change Tables 45-114a and 45-114b to Tables 45-115a and 45-115b.

Response Response Status C

ACCEPT.

Cl 45 SC 45.2.3.38 P87 L8 # 21  
 Anslow, Peter Nortel Networks

Comment Type T Comment Status A

The title of 45.2.3.38 is "Lane mapping register 0 (Register 3.400)". However, for other registers, this is composed of the register name followed by "register". Here, the lane number follows the word register and hence is not properly part of the register name. Better choices for this name (and associated name for 45.2.3.39) are either:  
 45.2.3.38 Lane 0 mapping register, 45.2.3.39 Lanes 1 through 19 mapping registers  
 or  
 45.2.3.38 Lane mapping 0 register, 45.2.3.39 Lane mapping 1 through 19 registers

SuggestedRemedy

Change the titles of 45.2.3.38 and 45.2.3.39 to either:  
 45.2.3.38 Lane 0 mapping register, 45.2.3.39 Lanes 1 through 19 mapping registers  
 or  
 45.2.3.38 Lane mapping 0 register, 45.2.3.39 Lane mapping 1 through 19 registers  
 Change title of Table 45--114b, entries in Table 45-83 and Table 82-7 accordingly.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change to "Lane 0 mapping ." etc. - i.e. use first option.

Also in clause 82, page 196, line 35, change to:  
 Lane x Mapping register for the PCS register name.

Cl 45 SC 45.2.3.7.4a P72 L46 # 18  
 Anslow, Peter Nortel Networks

Comment Type E Comment Status A

The example numbering scheme for inserted clauses in comment 754 against D 3.0 was:  
 "For example to insert two subclauses before 43.2.1 the subclauses would be numbered 43.2.a and 43.2.b. Two subclauses between 43.2.1 and 43.2.2 would be numbered 43.2.1a and 43.2.1b. Two subclauses added after the last subclause 43.2.2 would be numbered 43.2.3 and 43.2.4."

The subclauses describing "100GBASE-R capable (3.8.5)" and "40GBASE-R capable (3.8.4)" should be between subclauses 45.2.3.7.3 and 45.2.3.7.4. According to the above examples they should be numbered 45.2.3.7.3a and 45.2.3.7.3b.

SuggestedRemedy

Change the subclause numbers from 45.2.3.7.4a and 45.2.3.7.4b to 45.2.3.7.3a and 45.2.3.7.3b respectively.

Response Response Status C

ACCEPT.

Cl 45 SC 45.5.3.3 P93 L17 # 22  
 Anslow, Peter Nortel Networks

Comment Type T Comment Status A

MM47b says "Register 1.1500.12 is set to one", but 1.1500.12 is a bit not a register.

SuggestedRemedy

Change "Register 1.1500.12" to "Bit 1.1500.12"

Response Response Status C

ACCEPT.

Cl 69 SC 69.2.3 P101 L25 # 55  
 Dawe, Piers J G Independant

Comment Type T Comment Status R

There's no reason why 83B could not be used here. It might not be of interest to most but could allow some mezzanine implementations. Anyway, we should not tell the implementers that they can't do something harmless that the standard allows.

SuggestedRemedy

Add a column for 83B, optional for 40GBASE-KR4.

Response Response Status C

REJECT.

See response to comment 68 against Clause 80.

This comment is out-of-scope as it is not against modified text.

Cl 69 SC 69.2.3 P101 L30 # 54  
 Dawe, Piers J G Independant

Comment Type ER Comment Status A

Gratuitous capitals (see D3.0 comment 316 and compare Table 80-2).

SuggestedRemedy

Change "AUTO-NEGOTIATION" to "Auto-negotiation" or "Auto-Negotiation"

Response Response Status C

ACCEPT IN PRINCIPLE.

Change to "Auto-Negotiation" to match similar text in Clauses 84 and 85.

CI 73 SC 73 P L4 # 56  
Dawe, Piers J G Independent

Comment Type TR Comment Status A

The base document Clause 73 title is "73. Auto-Negotiation for Backplane Ethernet". It contains several functions e.g. "Arbitration function". AN isn't a function, it's a sublayer. In this draft, the clause title is "Auto-Negotiation function for backplane Ethernet and copper cable assembly", and "function" is not underlined.

SuggestedRemedy

Delete "function" from the title (and consequently in PICS).

Response Response Status C

ACCEPT IN PRINCIPLE.

Delete 'function' and show change in capitalisation for 'backplane'. Also change PICS.

CI 73 SC 73 P103 L9 # 57  
Dawe, Piers J G Independent

Comment Type ER Comment Status R

The style manual tries to distinguish between normative footnotes and not-part-of-the-standard NOTES. It is not clear what category "Note that" falls into. The words don't mean anything.

SuggestedRemedy

As this sentence is informative but does not contain requirements, change it to NOTE-- Although the Auto-Negotiation defined. . . Review and if appropriate change any other "note that"s.

Response Response Status C

REJECT.

This comment is out of scope (against unchanged text) and the proposed change is unnecessary.

CI 73 SC 73.2 P103 L9 # 58  
Dawe, Piers J G Independent

Comment Type E Comment Status A

Text for OSI layer names has been stretched.

SuggestedRemedy

Reset stretch to 100%.

Response Response Status C

ACCEPT.

Simple editorial fix, so OK to implement even though it is against unchanged text.

CI 74 SC 74.1 P113 L15 # 60  
Dawe, Piers J G Independent

Comment Type TR Comment Status R

"The FEC sublayer can be placed in between the PCS and PMA sublayers" contradicts new text in 74.4.

SuggestedRemedy

After this sentence, insert "For 40GBASE-R and 100GBASE-R, the FEC sublayer can be placed between two PMA sublayers."

Response Response Status U

REJECT.

The text reads fine as is.

As the commenter points out placing the FEC between two PMA sublayers is explained appropriately in 74.4.

Adding the proposed text in 74.1 might confuse the reader.

CI 74 SC 74.1 P113 L15 # 59  
Dawe, Piers J G Independent

Comment Type T Comment Status R

Backplane channels aren't defined in Clause 69.

SuggestedRemedy

Change "Clause 69" to "Annex 69B".

Response Response Status C

REJECT.

This comment is out-of-scope and refers to unchanged text in the base document. The suggested change is not necessary.

CI 74 SC 74.11.3 P131 L12 # 6  
Marris, Arthur Cadence Design Syste

Comment Type T Comment Status A

For consistency change 6144 BT to 12 pause quanta. Note this is really an editorial change rather than a technical change as 6144 BT is equivalent to 12 pause quanta.

SuggestedRemedy

as above.

Response Response Status C

ACCEPT.

**Cl 74**    **SC 74.11.3**    **P133**    **L9**    # **63**

Dawe, Piers J G    Independant

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

This table would benefit from resizing the columns.

**SuggestedRemedy**  
Resize the columns to use the space better.

**Response**    **Response Status C**

REJECT.

IEEE editors have the ability to make changes to table formats as appropriate.

**Cl 74**    **SC 74.11.5**    **P133**    **L43**    # **65**

Dawe, Piers J G    Independant

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

Gratuitous capitals and not consistent with clause.

**SuggestedRemedy**  
Change "Gear Box" to "gearbox" or as most functions in 74 have capitals, Gearbox.

**Response**    **Response Status C**

ACCEPT IN PRINCIPLE.

change to "gearbox"

**Cl 74**    **SC 74.11.5**    **P133**    **L43**    # **64**

Dawe, Piers J G    Independant

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

"If implemented: M" isn't a familiar PICS status. PICS implies all gearboxes need to comply to 82.2.11, not just 40G/100G.

**SuggestedRemedy**  
Change "Feature" from "Reverse Gear Box function" to "Reverse gearbox function for 40GBASE-R and 100GBASE-R" (or "Reverse Gearbox function for 40GBASE-R and 100GBASE-R". Change to "O" and add "No [ ]" to Status cell. Add major options for speed to do this properly.

**Response**    **Response Status C**

ACCEPT IN PRINCIPLE.

Change FE3a "Feature" from "Reverse Gear Box function" to "Reverse gearbox function for 40GBASE-R and 100GBASE-R". Change to "O" and add "No [ ]" to Status cell.

Change "Feature" column for FE3 from "Reverse Gear Box function" to "Reverse gearbox function for 10GBASE-R". Change reference from 74.7.4.1 to 74.7.4.1.1

**Cl 74**    **SC 74.4**    **P114**    **L51**    # **61**

Dawe, Piers J G    Independant

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

as illustrated Figure 83-2 where

**SuggestedRemedy**  
as illustrated in Figure 83-2 comma where

**Response**    **Response Status C**

ACCEPT IN PRINCIPLE.

Add the word 'in'

**Cl 74**    **SC 74.4.1**    **P115**    **L12**    # **62**

Dawe, Piers J G    Independant

**Comment Type ER**    **Comment Status A**

Gratuitous capitals (see D3.0 comment 316 and rubric for Figure 74-2).

**SuggestedRemedy**  
Change "74.4.1 Functional Block Diagram for 10GBASE-R PHYs" to "74.4.1 Functional block diagram for 10GBASE-R PHYs". Similarly for 74.4.2 and 74.4.3.

**Response**    **Response Status C**

ACCEPT.

**Cl 74**    **SC 74.8.1**    **P127**    **L45**    # **5**

Marris, Arthur    Cadence Design Syste

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

Change '10GBASE-R PHY' to 'BASE-R PHY'

**SuggestedRemedy**  
as above

**Response**    **Response Status C**

ACCEPT.



**Cl 80**    **SC 80.1.4**    **P135**    **L13**    # **66**  
 Dawe, Piers J G    Independant

**Comment Type**    **E**    **Comment Status**    **A**  
 Physical layer

**SuggestedRemedy**  
 Physical Layer

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

"Physical Layer" should always be capitalized for consistency with 802.3 base standard.

Change "physical layer" and "Physical layer" to "Physical Layer" throughout the document.

Three instances of "Physical layer": see 80.1.2, 80.1.4 and Table 88-1 (table title).

Seven instances of "physical layer": see 80.1.4, 80.3 and 1.4.

**Cl 80**    **SC 80.1.4**    **P135**    **L20**    # **67**  
 Dawe, Piers J G    Independant

**Comment Type**    **E**    **Comment Status**    **R**  
 Table 80-1, 40 Gb/s and 100 Gb/s PHYs, would be better with fewer words and more columns.

**SuggestedRemedy**

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

The above comment is made against unchanged text.

The table, definitions, and column formatting are technically correct as documented and the table with current format has been in the draft since D2.2. Moreover the commenter has not provided specific remedy to make it better.

**Cl 80**    **SC 80.1.5**    **P137**    **L14**    # **68**  
 Dawe, Piers J G    Independant

**Comment Type**    **T**    **Comment Status**    **R**  
 Chip-module XLAUI and CAUI per 83B are applicable to 40GBASE-KR, 40GBASE-CR and 100GBASE-CR just as they are for other port types; it's a modular architecture.

**SuggestedRemedy**  
 Add "O" for 83B XLAUI 40GBASE-KR and 40GBASE-CR, and 83B CAUI 100GBASE-CR.

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

Annex 83B defines electrical characteristics and compliance points for pluggable module applications.  
 It's unnecessary to add "O" for 83B XLAUI to 40GBASE-KR4 and 40GBASE-CR4, and 83B CAUI to 100GBASE-CR10 as the specifications for these port types don't constrain the user of the standard to a particular implementation, i.e., as long as the specifications of the respective clauses are met.

Also see comment #55

**Cl 80**    **SC 80.2.4**    **P138**    **L**    # **69**  
 Dawe, Piers J G    Independant

**Comment Type**    **T**    **Comment Status**    **R**  
 Wrong fix for D3.0 comment 86. As it says in 80.3.3.1.1 and 80.3.3.2.1, the PMA and PMD deal in streams of encoded bits, not data.

**SuggestedRemedy**  
 At line 14, change "data" back to "bit". At lines 12 and 15, change "data" to "bit". In 82.2.2 line 52-53, consider changing "distribute the data" to "distribute the encoded bits", and "encoded data" to "encoded bit streams".

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

The D3.0 comment #86 has been implemented correctly as per the final response.

See: [http://ieee802.org/3/ba/public/jan10/P8023ba-D30-Final\\_Responses\\_byCls.pdf#page=41](http://ieee802.org/3/ba/public/jan10/P8023ba-D30-Final_Responses_byCls.pdf#page=41)

The term "data stream" has been used throughout the document and also in the base document. Data is a generic term and a data unit could be single bit as in this case.

**CI 80**    **SC 80.3**    **P138**    **L51**    # **70**  
 Dawe, Piers J G    Independant

**Comment Type**    **T**    **Comment Status**    **A**  
 Gratuitous capitals (see D3.0 comment 316).

**SuggestedRemedy**  
 Change "80.3 Service Interface specification method and notation" to "80.3 Service interface specification method and notation". Change "80.3.2 Instances of the Inter-sublayer service interface" to "80.3.2 Instances of the inter-sublayer service interface". Similarly at 80.3.3.

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

Change capitalization as suggested to be consistent with rest of the document.

**CI 80**    **SC 80.3.2**    **P139**    **L27**    # **72**  
 Dawe, Piers J G    Independant

**Comment Type**    **T**    **Comment Status**    **R**  
 Hard to read

**SuggestedRemedy**  
 Add commas before "called the", three times.

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

The above comment is made against unchanged text.

The text as it is written is technically correct and reads fine without the suggested punctuation mark

**CI 80**    **SC 80.3.2**    **P139**    **L27**    # **71**  
 Dawe, Piers J G    Independant

**Comment Type**    **TR**    **Comment Status**    **R**  
 PMD:, for primitives issued on the interface between the PMD sublayer and the PMA sublayer called the PMD service interface.  
 b) PMA:, for primitives issued on the interface between the PMA sublayer and the PCS (or the FEC) sublayer called the PMA service interface.

**SuggestedRemedy**  
 PMD:, for primitives issued on the interface between the PMD sublayer and \*a\* PMA sublayer...  
 b) PMA:, for primitives issued on the interface between \*a\* PMA sublayer and the PCS,FEC or another PMA sublayer...

**Response**    **Response Status**    **U**  
 REJECT.

The above comment is made against unchanged text.

The text as it is written is technically correct and from the context it is clear that it refers to the PMA sublayer adjacent to the PMD sublayer.

**CI 80**    **SC 80.5**    **P146**    **L42**    # **75**  
 Dawe, Piers J G    Independant

**Comment Type**    **ER**    **Comment Status**    **R**  
 The style manual tries to distinguish between normative footnotes and not-part-of-the-standard NOTES, and we have suddenly become very picky about this. It is not clear which category this "Note that" falls into. The words don't serve any purpose anyway.

**SuggestedRemedy**  
 Delete "Note that", twice.  
 Review and if appropriate change any other "note that"s.

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

These are table footnotes (identified by lowercase letters a, b, and c) that are part of the standard.

CI 80 SC 80.5 P149 L23 # 74  
 Dawe, Piers J G Independent

Comment Type ER Comment Status R

"Note that" 4 times. The style manual tries to distinguish between normative footnotes and not-part-of-the-standard NOTES, and we have suddenly become very picky about this. It is not clear which category this "Note that" falls into. The words don't serve any purpose anyway.

*SuggestedRemedy*

Delete "Note that" or "Note that ? indicates", four times.

Response Response Status C

REJECT.

These are table footnotes (identified by lowercase letters a, b, c, and d) that are part of the standard.

CI 80 SC 80.5 P149 L6 # 73  
 Dawe, Piers J G Independent

Comment Type E Comment Status R

Column widths.

*SuggestedRemedy*

Tweak column widths to make better use of space.

Response Response Status C

REJECT.

The column widths looks fine as documented.

CI 81 SC 81 P149 L1 # 77  
 Dawe, Piers J G Independent

Comment Type TR Comment Status R

According to 1.4.218, Media Independent Interface (MII) is "A transparent signal interface at the bottom of the Reconciliation sublayer. (See IEEE 802.3, Clause 22.)" and 22.1 says "It is capable of supporting 10 Mb/s and 100 Mb/s rates for data transfer". So a 40G or 100G PCS service interface can't be called MII.

*SuggestedRemedy*

Either modify the definition of Media Independent Interface (MII), or don't use Media Independent Interface (with capitals) or MII for 40G or 100G.

Response Response Status C

REJECT.

Based on previous discussions in the task force, it was decided to not use the abbreviation MII in this clause (except in the title of Figure 81-1), however the group decided to use the expanded form and hence the current draft is the consensus decision of the task force. Similar concerns have been discussed in the resolution of comments #40 and 55 against draft 3.0 in [http://ieee802.org/3/ba/public/jan10/P8023ba-D30-Final\\_Responses\\_byID.pdf](http://ieee802.org/3/ba/public/jan10/P8023ba-D30-Final_Responses_byID.pdf)

CI 81 SC 81 P149 L1 # 76  
 Dawe, Piers J G Independent

Comment Type E Comment Status A

It would be nice to have the abbreviations in the title as for other sublayers, so a string search of the contents will find them.

*SuggestedRemedy*

Suggest "Reconciliation Sublayer (RS), XLGMII and CGMII for 40 Gb/s and 100 Gb/s operation"

Response Response Status C

ACCEPT IN PRINCIPLE.

Change:

Reconciliation Sublayer (RS) and Media Independent Interface for 40 Gb/s and 100 Gb/s operation

To:

Reconciliation Sublayer (RS) and Media Independent Interface for 40 Gb/s and 100 Gb/s operation (XLGMII and CGMII)

CI 81 SC 81.1 P149 L # 78  
Dawe, Piers J G Independant

Comment Type TR Comment Status A

An "instantiation" would be an instance, which is a single physical entity e.g. with a serial number, not a class of similar things. Here we do mean a class.

SuggestedRemedy

Change "instantiations" to "variants".

Response Response Status C

ACCEPT.

Note that this is on line 10.

CI 81 SC 81.3.4.2 P167 L24 # 79  
Dawe, Piers J G Independant

Comment Type T Comment Status R

If Figure 81-9 is the same as Figure 46-9, it will help readers who are familiar with the latter to be informed, rather than starting from square one again.

SuggestedRemedy

Add informative NOTE pointing out that Figure 81-9 is the same as Figure 46-9.

Response Response Status C

REJECT.

This is not necessary, and can create a maintenance issue if figure 46-9 were to change.

CI 81 SC 81.4 P169 L29 # 80  
Dawe, Piers J G Independant

Comment Type T Comment Status R

Something that says "required" obviously isn't an informative NOTE (a NOTE is not part of the standard)

SuggestedRemedy

Change "NOTES" to "Advice to user" (or delete), renumber NOTE 1 NOTE 2 NOTE 3 to just 1 2 3. Similarly in other clauses and annexes.

Response Response Status C

REJECT.

This format is consistent with usage in the base standard and also with the PICS in recently published amendments to 802.3-2008

CI 82 SC 82.1.3.1 P175 L42 # 81  
Dawe, Piers J G Independant

Comment Type TR Comment Status A

An "instantiation" would be an instance, which is one of the members of an "implementation", not what we mean here.

SuggestedRemedy

Change "instantiation" to "variant", twice.

Response Response Status C

ACCEPT.

CI 82 SC 82.2.13 P189 L2 # 8  
Marris, Arthur Cadence Design Syste

Comment Type T Comment Status A

Style

SuggestedRemedy

Change:

"Transmit PCS lanes can be received on different lanes of the service interface than they were originally transmitted on due to skew and multiplexing, and so the receive PCS shall handle receiving any transmit PCS lane on any receive lane of the service interface. The receive PCS orders the received PCS lanes according to the PCS lane number."

To:

"Transmit PCS lanes can be received on different lanes of the service interface from which they were originally transmitted due to skew between lanes and multiplexing by the PMA. The receive PCS shall order the received PCS lanes according to the PCS lane number."

Response Response Status C

ACCEPT.

CI 82 SC 82.2.18.3 P194 L25 # 9  
Marris, Arthur Cadence Design Syste

Comment Type T Comment Status R

Previous text was easier to understand.

*SuggestedRemedy*

On line 25 change:  
"lane of the service interface"  
back to:  
"PCS lane"  
On lines 25 and 26 change:  
"lane of the service interface"  
back to:  
"PCS lane"

Response Response Status C

REJECT.  
Correct as is.

CI 82 SC 82.2.18.3 P199 L35 # 84  
Dawe, Piers J G Independant

Comment Type TR Comment Status A

In general, management is optional, and if there is management, MDIO registers are only one way to implement it (as stated in 82.3 and 82.3.1). Is recording receive lane mappings more special than other status info? PICS says it's conditional.

*SuggestedRemedy*

Insert words in the middle of the sentence "When the alignment marker lock process achieves lock for a lane, if MDIO is implemented, the PCS shall record the number of the PCS lane received on a particular lane of the service interface in the appropriate lane mapping register (3.400 to 3.419)."

Response Response Status C

ACCEPT IN PRINCIPLE.  
Change to:  
"When the alignment marker lock process achieves lock for a lane, and if a Clause 45 MDIO is implemented, the PCS shall record the number of the PCS lane received on that lane of the service interface in the appropriate lane mapping register (3.400 to 3.419)."

CI 82 SC 82.2.3.6 P186 L26 # 82  
Dawe, Piers J G Independant

Comment Type E Comment Status A

Inconsistent capitals (see D3.0 comment 316). Here we have "Control Code", at line 38 we have "control code".

*SuggestedRemedy*

Reconcile. Also remove gratuitous capitals in other table header rows.

Response Response Status C

ACCEPT IN PRINCIPLE.  
Change to 'control code' in this table.

CI 82 SC 82.2.3.6 P186 L28 # 83  
Dawe, Piers J G Independant

Comment Type E Comment Status A

Column widths, empty line in header row.

*SuggestedRemedy*

Please fix.

Response Response Status C

ACCEPT.

CI 82 SC 82.6 P197 L3 # 23  
Anslow, Peter Nortel Networks

Comment Type E Comment Status A

"40GBASECR4" is missing a "-"

*SuggestedRemedy*

Change "40GBASECR4" to "40GBASE-CR4"

Response Response Status C

ACCEPT.

CI 82 SC 82.7.6.3 P220 L26 # 85  
Dawe, Piers J G Independant

Comment Type E Comment Status A

Delay Constraints

*SuggestedRemedy*

Delay constraints

Response Response Status C

ACCEPT.

CI 83 SC 83.5.10 P223 L10 # 3  
Marris, Arthur Cadence Design System

Comment Type T Comment Status A

Table 45-65a has been updated so these bit references are wrong. For example bit 1.1500.7 does not exist.

*SuggestedRemedy*

Update the second and third paragraphs of 83.5.10 to match Table 45-65a.

Response Response Status C

ACCEPT IN PRINCIPLE.

Replace:

"The ability to perform this function is indicated in the PRBS\_pattern\_ability status variable, which if a Clause 45 MDIO is implemented is accessible through the Test pattern ability register (bit 1.1500.7, see 45.2.1.95). Support for PRBS31 is indicated by the PRBS31\_pattern\_ability status variable and support for PRBS9 is indicated by the PRBS9\_pattern\_ability status variable. If a Clause 45 MDIO is implemented, these variables are accessible through bits 1.1500.6 and 1.1500.5, respectively.

Support for transmit direction generation is indicated by the PRBS\_Tx\_gen\_ability status variable and transmit direction checking by the PRBS\_Tx\_check\_ability status variable. Support for receive direction generation is indicated by the PRBS\_Rx\_gen\_ability status variable and support for receive direction checking by the PRBS\_Rx\_check\_ability status variable. If a Clause 45 MDIO is implemented, these variable are accessible through bits 1.1500.3, 1.1500.2, 1.1500.1, and 1.1500.0, respectively."

with:

"The ability to generate each of the respective test patterns in each direction of transmission are indicated by the PRBS9\_Tx\_generator\_ability, PRBS9\_Rx\_generator\_ability, PRBS31\_Tx\_generator\_ability, and PRBS31\_Rx\_generator status variables, which if a Clause 45 MDIO is implemented are accessible through bits 1.1500.5, 1.1500.4, 1.1500.3, and 1.1500.1, respectively (see 45.2.1.95).

The ability to check PRBS31 test patterns in each direction of transmission are indicated by the PRBS31\_Tx\_checker\_ability and PRBS31\_Rx\_checker\_ability status variables, which if a Clause 45 MDIO is implemented are accessible through bits 1.1500.2 and 1.1500.0, respectively (see 45.2.1.95)."

See also comment #4 for corresponding updates to Table 83-3.

CI 83 SC 83.6 P226 L10 # 4  
Marris, Arthur Cadence Design System

Comment Type T Comment Status A

Update Table 83-3 to match Table 45-65a

*SuggestedRemedy*

as above

Response Response Status C

ACCEPT IN PRINCIPLE.

Replace body rows 3-9 of Table 83-3 with:

"PRBS9 Tx generator ability; Test pattern ability register; 1.1500.5;  
PRBS9\_Tx\_generator\_ability

PRBS9 Rx generator ability; Test pattern ability register; 1.1500.4;  
PRBS9\_Rx\_generator\_ability

PRBS31 Tx generator ability; Test pattern ability register; 1.1500.3;  
PRBS31\_Tx\_generator\_ability

PRBS31 Tx checker ability; Test pattern ability register; 1.1500.2;  
PRBS31\_Tx\_checker\_ability

PRBS31 Rx generator ability; Test pattern ability register; 1.1500.1;  
PRBS31\_Rx\_generator\_ability

PRBS31 Rx checker ability; Test pattern ability register; 1.1500.0;  
PRBS31\_Rx\_checker\_ability"

See also comment #3 for the corresponding changes to the text.

CI 83A SC 83A.0 P395 L5 # 161  
Ghiasi, Ali Broadcom

Comment Type TR Comment Status R

Meets equation constrain is not best wording

*SuggestedRemedy*

Compliant Channel, Output, Host, or Inpu

Response Response Status C

REJECT.

The wording "Compliant channel, etc." was considered during the discussion of comment 611 against D 3.0. "Meets equation constraints" was chosen.

Cl **83A** SC **83A.1** P**395** L**13** # **105**  
 Dawe, Piers J G Independant

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

Following through with D3.0 comment 314, I didn't notice any "functional requirements" in Annex 83B: coding, skew and such are in 83. 83B is electrical. Delete "functional and". (accepted)

*SuggestedRemedy*

Delete "functional and" here and at 83B.1 line 13.

Response Response Status **C**

REJECT.

83A and 83B are functionally different (chip-chip vs chip-module) and therefore the annex overview includes defining the functional and electrical characteristics.

Cl **83A** SC **83A.2** P**396** L**42** # **156**  
 Ghiasi, Ali Broadcom

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

Please add following text to clarify definition of XLAUI/CAUI channel

*SuggestedRemedy*

XLAUI/CAUI channel is defiend from the transmit chip ball to the receive chip ball

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Add the following sentence to 83A.2:

"XLAUI/CAUI channel is defined from the transmit pad to the receive pad including any AC coupling in the path."

straw poll:

Should loss of the AC coupling cap and the PCB trace between AC coupling cap to the receiver pad be included in the channel loss

Yes: 11

No: 0

Cl **83A** SC **83A.2.1** P**397** L**21** # **157**  
 Ghiasi, Ali Broadcom

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

Compliance point definition is not clear and the insertion loss for transmit compliance channel should be target and not less than

*SuggestedRemedy*

Updted para"The target differential insertion loss, expressed in decibels, from the transmitter chip ball to the Transmit Compliance Point loss is defiend in Equation (83A-1) and illustrated in Figure 83A-3. Also remove Meets Equation constrains

Response Response Status **C**

ACCEPT IN PRINCIPLE.

See comment 143

Cl **83A** SC **83A.2.2** P**397** L**7** # **159**  
 Ghiasi, Ali Broadcom

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

Compliance point definition is not clear and the insertion loss for receive compliance channel should be target and not less than

*SuggestedRemedy*

Updted para"The target differential insertion loss, expressed in decibels, from the receive chip ball to the Receive Compliance Point loss is defiend in Equation (83A-1) and illustrated in Figure 83A-3. Also remove Meets Equation constrains from the Figure

Response Response Status **C**

ACCEPT IN PRINCIPLE.

See comment 144

Cl **83A** SC **83A.2.2** P**399** L**3** # **178**  
 Dawe, Piers J G Independant

Comment Type **ER** Comment Status **A**

Figure 83A-4 is the same as Figure 83A-3. Repeating identical charts makes the document unnecessarily long, means that very little information can be seen on any page, and wastes the reader's time. Also fixing some capitals.

*SuggestedRemedy*

Delete Figure 83A-4, on p398 line 51 refer to Figure 83A-3 instead. Change title of Figure 83A-3 to "Insertion loss between transmitter or receiver and compliance point".

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Change capitalization per suggested remedy

Except for capitalization, no change to figures / equations. Figures / equations are the same, but there is value in having separate sections for transmitter / receiver.

Cl **83A** SC **83A.2.2** P**399** L**3** # **177**  
 Dawe, Piers J G Independant

Comment Type **ER** Comment Status **R**

Equation 83A-2 is the same as Equation 83A-1. Repeating identical equations wastes the reader's time.

*SuggestedRemedy*

Delete Equation 83A-2, on p398 line 51 refer to Equation 83A-1 instead.

Response Response Status **C**

REJECT.  
 See comment 178

Cl **83A** SC **83A.3** P**400** L**5** # **179**  
 Dawe, Piers J G Independant

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

"defined in this section": we have clauses, annexes, subclauses (is a subdivision of an annex is a subclause?) Not clear what a "section" is, need to be clear this time because of the "shall".

*SuggestedRemedy*

Here, change "this section" to "83A.3.1, 83A.3.2, 83A.3.3, and 83A.3.4".

Response Response Status **C**

ACCEPT.

See suggested remedy

Cl **83A** SC **83A.3.3** P**399** L**11** # **143**  
 Dudek, Michael QLogic Corporation

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

It is ambiguous as to whether the Table 83A-1 specifications are to be met at the Transmitter or at the Transmitter Compliance point. If they are not at the transmitter compliance point then why do we have a transmitter compliance point? Note however that the loss from the transmitter to the transmitter compliance point is a maximum not a reference value so if we use that point then we have created some uncertainty in the measurement.

*SuggestedRemedy*

Change "The XLAUI/CAUI transmitter characteristics are specified in Table 83A--1." to "The XLAUI/CAUI transmitter characteristics measured at the transmitter compliance point are specified in Table 83A--1.

Change the specifications maximum losses to reference losses

On line Change "The differential insertion loss, expressed in decibels, between the Transmitter and the Transmit Compliance Point shall be less than the insertion loss defined in Equation (83A-1) and illustrated in Figure 83A--3." to "The reference differential insertion loss, expressed in decibels, between the Transmitter and the Transmit Compliance Point shall be the insertion loss defined in Equation (83A-1) and illustrated in Figure 83A--3. " In equation 83A-1 change the inequality sign to equals. In figure 83A-3 remove "meets equation constraints.

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Change "The XLAUI/CAUI transmitter characteristics are specified in Table 83A--1." to "The XLAUI/CAUI transmitter characteristics measured at the transmitter compliance point are specified in Table 83A--1.

Change 83A.2.1:

"The differential insertion loss, expressed in decibels, between the Transmitter and the Transmit Compliance Point shall be less than the insertion loss defined in Equation (83A-1) and illustrated in Figure 83A--3." to "The reference differential insertion loss, expressed in decibels, between the Transmitter and the Transmit Compliance Point is defined in Equation (83A-1) and illustrated in Figure 83A-3. The effects of differences between the actual insertion loss and the reference insertion loss are to be accounted in the measurements. "

In equation 83A-1 change the inequality sign to equals. In figure 83A-3 remove "meets equation constraints.

Remove PICS TC1



Cl **83A** SC **83A.3.3** P**399** L**40** # **35**  
 Petrilla, John Avago Technologies

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

There does not seem to be a hit ratio defined for the Tx or Rx eye masks in 83A or 83B. Note that a requirement for operation with a BER better than 1E-12 is not sufficient. For example clause 86 has the same BER requirement but uses 5E-5 hit ratios for eye mask tests. The hit ratio requirement for a eye mask should be explicit to reduce confusion.

*SuggestedRemedy*

Add the appropriate hit ratio requirement, e.g. 1E-5 or 1E-12, to Tables 83A-1 and 83A-2 or to 83A.3.3.5 and 83A.3.4.2 or 83A.5. Repeat in 83B.

Response Response Status **W**

ACCEPT IN PRINCIPLE.

Modify 83A.5

"Jitter values and eye masks are specified for BER 10-12."

The required hit ratio to verify is left to the implementer.

Cl **83A** SC **83A.3.3** P**400** L**26** # **181**  
 Dawe, Piers J G Independant

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

signaling rate shall be the signaling rate defined in

*SuggestedRemedy*

Change to: signaling rate shall be as defined in (or delete the sentence completely; the previous sentence covers it, why call out just this one parameter?)

Response Response Status **C**

REJECT.

A shall statement is needed for the signaling rate specified in table 1

Cl **83A** SC **83A.3.3** P**400** L**29** # **106**  
 Dawe, Piers J G Independant

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

Double space between "Table" and table number?

*SuggestedRemedy*

Fix the style. Also 83B and 85A.

Response Response Status **C**

ACCEPT.

Cl **83A** SC **83A.3.3** P**400** L**31** # **180**  
 Dawe, Piers J G Independant

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

Subclause Reference

*SuggestedRemedy*

Change to: Subclause reference, or more simply, just "Subclause" or just "Reference". I think the last is preferable.

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Change to Subclause reference [lower case r], also make change for table 83B-5

Cl **83A** SC **83A.3.3.1** P**400** L**7** # **160**  
 Ghiasi, Ali Broadcom

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

It is defined what test pattern to use for De-emphasis measurement.VMA reference CL86A.5.3.5 which allow either using square pattern of any length or PSBS9, we can't have it open ended in CL83A

*SuggestedRemedy*

Differential peak-peak amplitude is measured with square wave of 1010 pattern or with 10/01 transition in the PRBS9 VMA is measured with square wave of 8 1's and 8 0's or with PRBS9 pattern by measureing and summing peak amplitude of 8's plus with peak amplitude of 8'0 portion of the pattern

Response Response Status **C**

ACCEPT IN PRINCIPLE.

VMA Definition:

change: VMA is defined in 86A.5.3.5.

to

VMA is defined in 86A.5.3.5 using the square wave or PRBS9 (Pattern 4) defined in table 86-11.

in addition, min VMA equation has a sign issue

Polarity issue resolution in min VMA equation:

1) Change min VMA equation to insert (-) in front of y

Straw poll:

In favor of Option 1: 10 yes, 0 no

Option 2 (Not implemented)

2)

83A: put the (-) back in front of the equation 83A-3, table 83A-1 add a negative sign in front of the minimum and maximum de-emphasis, and swap the values of the two (since -7 is less than -4.4). Change TC4 and TC5 to be consistent

83B: table 83B-3 - put the negative sign in front of the minimum and maxim de-emphasis, swap the values of the two (since -6 is less than -3.5)

Cl **83A** SC **83A.3.3.1** P**403** L**18** # **107**  
 Dawe, Piers J G Independant

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

White space

*SuggestedRemedy*

Crop the inner graphics frame.

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Crop white space between figure and figure title.

CI **83A** SC **83A.3.4** P**403** L**23** # **144**  
 Dudek, Michael QLogic Corporation

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

It is ambiguous as to whether the Table 83A-2 specifications are to be met at the Receiver or at the Receiver Compliance point. If they are not at the receiver compliance point then why do we have a receiver compliance point? Note however that the loss from the receiver to the receiver compliance point is a maximum not a reference value so if we use that point then we have created some uncertainty in the measurement.

*SuggestedRemedy*

Change "Receiver characteristics are specified in Table 83A--2" to "Receiver characteristics at the receiver compliance point are specified in Table 83A--2. Change the specifications maximum losses to reference losses  
 On line Change "The differential insertion loss, expressed in decibels, between the Receiver and the Receive Compliance Point and the Receiver shall be less than the insertion loss defined in Equation (83A-2) and illustrated in Figure 83A--4" to "The reference differential insertion loss, expressed in decibels, between the Receiver and the Receive Compliance Point and the Receiver shall be as defined in Equation (83A-2) and illustrated in Figure 83A--4 "  
 In equation 83A-2 change the inequality sign to equals. In figure 83A-4 remove "meets equation constraints."

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Change "Receiver characteristics are specified in Table 83A--2" to "Receiver characteristics at the receiver compliance point are specified in Table 83A--2.

In section 83A.2.2

Change "The differential insertion loss, expressed in decibels, between the Receiver and the Receive Compliance Point shall be less than the insertion loss defined in Equation (83A-2) and illustrated in Figure 83A--4" to "The reference differential insertion loss, expressed in decibels, between the Receiver and the Receive Compliance Point is defined in Equation (83A-2) and illustrated in Figure 83A-4. The effects of differences between the actual insertion loss and the reference insertion loss are to be accounted in the measurements. "  
 In equation 83A-2 change the inequality sign to equals. In figure 83A-4 remove "meets equation constraints."

Remove PICS RC1

CI **83A** SC **83A.3.4.3** P**408** L**33** # **182**  
 Dawe, Piers J G Independant

Comment Type **ER** Comment Status **R**

Equation 83A-7 is the same as Equation 83A-5. Repeating identical equations wastes the reader's time.

*SuggestedRemedy*

Delete Equation 83A-7, in Table 83A-2 and p408 line 27 refer to Equation 83A-5 instead.

Response Response Status **C**

REJECT.

See comment 178

CI **83A** SC **83A.3.4.3** P**409** L**28** # **183**  
 Dawe, Piers J G Independant

Comment Type **ER** Comment Status **R**

Figure 83A-10 is the same as Figure 83A-6. Repeating identical charts makes the document unnecessarily long, means that very little information can be seen on any page, and wastes the reader's time. Also fixing some capitals.

*SuggestedRemedy*

Delete Figure 83A-10, on p408 line 28 refer to Figure 83A-6 instead. Change title of Figure 83A-6 to "Differential output or input return loss", and the y axis to "Differential return loss".

Response Response Status **C**

REJECT.

See comment 178

CI **83A** SC **83A.3.4.4** P**405** L**34** # **36**  
 Petrilla, John Avago Technologies

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

There seems to be an unintended feature in the term "Return\_loss(f)" above the underscore.

*SuggestedRemedy*

Remove the unintended feature in the term "Return\_loss(f)"

Response Response Status **C**

ACCEPT.

See suggested remedy

Cl 83A SC 83A.4 P407 L31 # 164  
 Ghiasi, Ali Broadcom  
 Comment Type TR Comment Status R  
 Equation 83A-10 broken { }  
 SuggestedRemedy  
 Please correct  
 Response Response Status C  
 REJECT.  
 Equation 83A-10 brackets are not broken.

Cl 83A SC 83A.4 P407 L42 # 163  
 Ghiasi, Ali Broadcom  
 Comment Type TR Comment Status R  
 Equation 83A-10 broken { }  
 SuggestedRemedy  
 Please correct  
 Response Response Status C  
 REJECT.  
 See comment 164

Cl 83A SC 83A.4 P412 L24 # 184  
 Dawe, Piers J G Independant  
 Comment Type TR Comment Status A  
 What do you mean by return loss of a channel? Is this with the XLAUI/CAUI component on the far end, or an ideal 100 ohm load, or what?  
 SuggestedRemedy  
 Please add clarification.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Change  
 The value for minimum return loss is summarized in Equation (83A-10) and illustrated in Figure 83A-14  
 to  
 The value for minimum return loss is summarized in Equation (83A-10) and illustrated in Figure 83A-14. The channel is terminated with 100 Ohm differential impedance.

Cl 83A SC 83A.4 P414 L45 # 185  
 Dawe, Piers J G Independant  
 Comment Type E Comment Status A  
 Here we have "XLAUI / CAUI" with spaces, just before and after we have "XLAUI/CAUI" without.  
 SuggestedRemedy  
 Pick one form and use it throughout the draft.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Remove spaces

Cl 83A SC 83A.5.2 P409 L42 # 165  
 Ghiasi, Ali Broadcom  
 Comment Type ER Comment Status A  
 Please remove - after frequency  
 SuggestedRemedy  
 Remove  
 Response Response Status C  
 ACCEPT.  
 See suggested remedy

Cl 83A SC 83A.5.2 P415 L23 # 186  
 Dawe, Piers J G Independant  
 Comment Type E Comment Status A  
 Repetition in "The XLAUI/CAUI jitter tolerance test setup in figure 83A-15 or its functional equivalent shall meet the minimum receiver eye mask defined in Table 83A-2.", "Figure 83A-15 depicts the XLAUI/CAUI Jitter Tolerance test setup. The amplitude and output jitter of the filter stress + plus limiter and random jitter injection shall meet the minimum receiver eye mask defined in Table 83A-2."  
 SuggestedRemedy  
 Wordsmithing needed  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Second reference to the figure is redundant. Delete: Figure 83A-15 depicts the XLAUI/CAUI Jitter Tolerance test setup.

Cl **83A** SC **83A.5.2** P**415** L**23** # **110**  
 Dawe, Piers J G Independant

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

"The XLAUI/CAUI jitter tolerance test setup in figure 83A-15 or its functional equivalent". Functional specs are in e.g. 83.5 Functions within the PMA, 85.7 PMD functional specifications, and they are mostly about bits and bytes and topology. Here, we need the right analog, electrical behaviour.

*SuggestedRemedy*

Change "functional" to "electrical".

Response Response Status **U**

REJECT.  
 Functional is used in the context of testing (see 85.8.3.4 test fixtures for example). Functional is an appropriate discription for this figure illustration which embodies more than just electrical specifications.

Cl **83A** SC **83A.5.2** P**415** L**23** # **187**  
 Dawe, Piers J G Independant

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

When the draft says "meet the minimum receiver eye mask", does it mean comply (could be be better) or touch (can't be better)?

*SuggestedRemedy*

Change "meet" to "comply with" or "touch ... at the four corners", depending which is meant. Also in 83B.2.4.

Response Response Status **C**

REJECT.  
 Meet the receiver eye mask is appropriate wording. The text that follows clairfies what is meant by "meet"

Cl **83A** SC **83A.5.2** P**415** L**24** # **189**  
 Dawe, Piers J G Independant

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

This says "The PRBS31 test pattern in 83.5.10 or scrambled idle in 82.2.10 shall be used for evaluating XLAUI/CAUI jitter tolerance" while the equivalent in 83B.2.4 is "The recommended pattern for evaluating XLAUI/CAUI jitter tolerance is scrambled idle in 82.2.10 or PRBS31 in 83.5.10". "shall" vs. "recommended".

*SuggestedRemedy*

Change both to "The PRBS31 pattern defined in 83.5.10 or scrambled idle defined in 82.2.10 is used for evaluating XLAUI/CAUI jitter tolerance", and delete PICS EM1. Check 83A.5.2 and 83B.2.4 generally for consistency.

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Change both 83A.5.2 and 83B.2.3 to "The PRBS31 pattern defined in 83.5.10 or scrambled idle defined in 82.2.10 is used for evaluating XLAUI/CAUI jitter tolerance"

Remove PICS EM1

Cl **83A** SC **83A.5.2** P**415** L**24** # **188**  
 Dawe, Piers J G Independant

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

"minimum receiver eye mask defined in Table 83A-2". Yet there is only one mask in Table 83A-2, and it is fixed in size. There is no "minimum".

*SuggestedRemedy*

Delete "minimum" before "receiver eye mask", twice here and once in 83B.2.4.

Response Response Status **C**

ACCEPT IN PRINCIPLE.

See suggested remedy & 83B.2.3 (83B.2.4 does not exist).

Editor given licence to implement change taking into account other accepted responses.

Cl **83A** SC **83A.5.2** P**415** L**24** # **109**  
Dawe, Piers J G Independant

Comment Type **ER** Comment Status **A**

Draft now says "Applied jitter is measured using the methodology described in Annex 48B.3". 48B.3.2.2.1 says "Effective DJ and Effective RJ is calculated from the bathtub curve..." Effective DJ is not peak-to-peak of anything, it's derived to intercept points that have nothing to do with peaks and it is known that it is often smaller than the peak-peak pattern dependent jitter. Response to D3.0 comment 326 said "Peak-to-peak deterministic jitter is used in ap (CL72), 47, 85.". 85 has deleted its single use. 47 is for XAUI which is 8B/10B, where the errors are smaller. 72.7.1.8, Transmit jitter, says "The transmitter shall have a maximum total jitter of 0.28 UI peak-to-peak, composed of a maximum deterministic component of 0.15 UI peak-to-peak and a maximum random component of 0.15 UI peak-to-peak.". According to that text, they aren't talking about effective (dual-Dirac) DJ and RJ, but the jitter that's random and the jitter that's deterministic. Which is different.

*SuggestedRemedy*

Change "peak-to-peak deterministic jitter" to "effective Deterministic Jitter" (with capitals) twice here and three times in 83B.5.5 (or, better, use a more meaningful jitter metric).

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Change "peak-to-peak deterministic jitter" to "Deterministic Jitter" twice in 83A.5.2 and three times in 83B.5.5

The word effective is not required as jitter methodology is referred to 48B.3 as Deterministic Jitter is defined there

Cl **83A** SC **83A.6.1** P**416** L**39** # **190**  
Dawe, Piers J G Independant

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

In 83A and 83B, the items concerned are all on the same PCB. It is unlikely that the isolation requirements of IEC 60950-1 are relevant to a 83A XLAUI/CAUI.

*SuggestedRemedy*

Unless we know that the isolation requirements of IEC 60950-1 are relevant, delete "(including isolation requirements)". Consider doing the same in 83B.

Response Response Status **C**

REJECT.

1 connector is allowed (all components may not on the same PCB). As a general safety standard IEC 60950-1 is appropriate to include.

Cl **83A** SC **83A.6.1** P**416** L**42** # **191**  
Dawe, Piers J G Independant

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

Although "consult the relevant ... regulations to ensure compliance" might be good advice, network safety doesn't come into XLAUI/CAUI because XLAUI/CAUI isn't part of a network. There has to be a PMD (with its own environmental specifications) between the XLAUI/CAUI and any network.

*SuggestedRemedy*

Delete the heading "83A.6.2 Network safety". Also in 83B.

Response Response Status **U**

REJECT.

As commentor suggests, this is good advice. 1 connector can be used in XLAUI/CAUI making. It is an appropriate to point the user to safety standards for any physical instantiations

Cl **83A** SC **83A.7.3** P**419** L**23** # **111**  
Dawe, Piers J G Independant

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

Why are there "No" options for mandatory features?

*SuggestedRemedy*

Remove. also in 83B.

Response Response Status **C**

ACCEPT.

Delete No from mandatory features

Cl **83b** SC **83b.0** P**415** L**5** # **162**  
Ghiasi, Ali Broadcom

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

Meets equation constrain is not best wording

*SuggestedRemedy*

Replace with "Compliant Channel, Output, Host, or Input

Response Response Status **C**

REJECT.

See comment 161

**Cl 83B** **SC 83B.1** **P415** **L11** # 113

Dawe, Piers J G Independent

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

There are PICs for number of lanes and lane signalling rate yet I did not see anything in 83B to justify them.

**SuggestedRemedy**  
Add text about number of lanes to 83B.1, add signalling ("signaling") rate to Table 83B-2.

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

Change  
The purpose of this section is to provide electrical characteristics and associated compliance points for pluggable module applications which use the XLAUI / CAUI interface

to  
The purpose of this section is to provide electrical characteristics and associated compliance points for pluggable module applications which use the XLAUI / CAUI interface and shall use the number of lanes and signaling rate defined in Annex 83A.

Adding rate to table 83B-2 does not fit with "Specifications at module compliance points"

Also, in Table 85-5 change the Subclause references for "Signaling rate, per lane" and "Unit interval nominal" from 85.8.3.8 to 85.8.3.9

**Cl 83B** **SC 83B.1** **P415** **L15** # 192

Dawe, Piers J G Independent

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

this section

**SuggestedRemedy**  
this annex

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

Change "this section" to "this annex"

**Cl 83B** **SC 83B.1** **P415** **L16** # 193

Dawe, Piers J G Independent

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

Most of 83B.1 isn't overview.

**SuggestedRemedy**  
After "use the XLAUI / CAUI interface.", insert new heading "83B.2 Chip-module loss budget".

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

The overview section offers a satisfactory overview and provides direct linkages back to 83A.

**Cl 83B** **SC 83B.1** **P415** **L16** # 147

Dudek, Michael QLogic Corporation

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

Having a maximum connector loss for XLAUI/CAUI of only 0.5dB is too restrictive. As the major loss part of the connector is part of the host it makes sense that the combined loss of the host PCB + connector is controlled but that the host vendor can make a trade off between a better connector and a better PCB. (within the return loss constraints for the host.)

**SuggestedRemedy**  
Change "Figure 83B--3 and Table 83B--1 summarize the differential insertion loss budget associated with the chip-module application" to "Figure 83B--3 and Table 83B--1 summarize an example differential insertion loss budget associated with the chip-module application"  
At the end of the paragraph add "A maximum connector loss of 0.5dB has been assumed in this example, however provided the host PCB loss plus connector loss is not exceeded and the other host specifications are met a higher loss connector is allowed coupled with a lower loss PCB."

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

Change "Figure 83B--3 and Table 83B--1 summarize the differential insertion loss budget associated with the chip-module application" to "Figure 83B--3 and Table 83B--1 summarize an example differential insertion loss budget associated with the chip-module application"

In 83B.1 paragraph, add after "...for the module" on line 20:  
"Tradeoffs can be made between the host PCB insertion loss and the connector loss"

CI **83B** SC **83B.1** P**415** L**18** # **112**  
 Dawe, Piers J G Independant

Comment Type **E** Comment Status **A**  
 Gratuitous capital (see D3.0 comment 316).

*SuggestedRemedy*

Change "Host" to "host". Correct any others found.

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

Change Host to host on page 415 line 18. Editorial licence to look for other instances and make appropriate change

CI **83B** SC **83B.1** P**415** L**42** # **166**  
 Ghiasi, Ali Broadcom

Comment Type **TR** Comment Status **A**  
 Equation still has disconnect at 7 GHz

*SuggestedRemedy*

To remove the disconnect Eq 83B-1 2nd half need to be updated to  $-11.82 + 3.15f$

Response Response Status **C**  
 ACCEPT.

See suggested remedy and update figure

CI **83B** SC **83B.1** P**416** L**45** # **168**  
 Ghiasi, Ali Broadcom

Comment Type **TR** Comment Status **R**  
 HCB and MCB up to 7.9 dB or 2.1 dB, what frequency

*SuggestedRemedy*

Either add frequency for the insertion loss or remove the dB loss from the figure

Response Response Status **C**  
 REJECT.

Frequency is in the figure title

CI **83B** SC **83B.1** P**416** L**5** # **167**  
 Ghiasi, Ali Broadcom

Comment Type **TR** Comment Status **A**  
 Equation still has disconnect at 7 GHz

*SuggestedRemedy*

To remove the disconnect Eq 83B-2 2nd half need to be updated to  $-3.155 + 0.84f$

Response Response Status **C**  
 ACCEPT.

See suggested remedy and update figure

CI **83B** SC **83B.1** P**418** L**42** # **114**  
 Dawe, Piers J G Independant

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

D3.0 comment 329 "If 85A.4 and 86A now support 0.87 dB connector loss, 83B should at least match it (83B should not need a better connector than 86A or 85 does). But no need to deal in 1/100ths of dB (0.2%).", "Change 0.5 to 0.9 here and in Figure 83B-3. Consider reducing the host insertion loss by 0.4 dB to keep the loss budget the same" Response "See comment 851".

*SuggestedRemedy*

Change 0.5 to 0.9 here and in Figure 83B-3. In follow-up to 851, consider reducing the host insertion loss by 0.4 dB to keep the loss budget the same. But it may be feasible to just change the max. connector loss and increase the loss budget by 0.4 dB.

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

See comment 147

CI **83B** SC **83B.1** P**418** L**46** # **115**  
 Dawe, Piers J G Independant

Comment Type **E** Comment Status **A**  
 Gratuitous capitals (see D3.0 comment 316).

*SuggestedRemedy*

Change "XLAUI/CAUI Component" to "XLAUI/CAUI component" twice here, once each in in Figured 83B-5 and 7.

Response Response Status **C**  
 ACCEPT.



CI **83B** SC **83B.1** P**423** L**18** # **145**  
 Dudek, Michael QLogic Corporation

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

There is still confusion in the loss budgets for XLAUI/CAUI. The following numbers are all at Nyquist Equation 83A-9 has 10dB loss for the channel between the Tx and Rx chips. This is divided up in 83B as 7.9dB for the host, 2.1dB for the module and an extra 0.5dB appears from nowhere for the connector. If the chip to chip loss budget is really 10.5dB then Equation 83A-9 needs to be modified or revised to say PCB loss and an additional allocation of 0.5dB for the connector needs to be discussed in the channel section 83A-4.

*SuggestedRemedy*

Scale equation 83A-9 to have 10.5dB loss at Nyquist and redraw the illustrative figure.

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Equation 83A-9 is at 10.5dB loss at Nyquist.

Change:

"The loss budget of Equation 83A-9 is linearly scaled to 7.9 dB loss at 5.15625 GHz for the Host XLAUI / CAUI component, and 2.1 dB loss at 5.15625 GHz for the module as per"

to

"The insertion loss of Equation 83A-9, excluding a 0.5 dB connector loss at 5.15625 GHz, is linearly scaled to 7.9 dB loss at 5.15625 GHz for the Host XLAUI / CAUI component, and 2.1 dB loss at 5.15625 GHz for the module as per."

CI **83B** SC **83B.2** P**417** L**21** # **146**  
 Dudek, Michael QLogic Corporation

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

The extra sentence inserted in this draft "Chip-module devices shall meet the electrical characteristics defined in this section" is not helpful where it has been added.

*SuggestedRemedy*

Either delete the sentence or move it to the end of 83B.1

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Change the title of 83B.2:  
 Compliance points for chip-module XLAUI / CAUI

to

Compliance point specifications for chip-module XLAUI / CAUI

CI **83B** SC **83B.2** P**418** L**35** # **169**  
 Ghiasi, Ali Broadcom

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

HCB and MCB up to 7.9 dB or 2.1 dB, what frequency

*SuggestedRemedy*

Either add frequency for the insertion loss or remove the dB loss from the figure

Response Response Status **C**

REJECT.

See frequency in figure 83B-5 title.

**CI 83B**    **SC 83B.2**                      **P419**            **L22**            # **194**  
 Dawe, Piers J G                              Independant  
  
**Comment Type**    **T**            **Comment Status**    **A**  
     "defined in this section"  
  
**SuggestedRemedy**  
     Here, change "this section" to "83B.2, 83B.2.1, 83B.2.2, 83B.2.3, and 83B.2.4".  
  
**Response**                      **Response Status**    **C**  
     ACCEPT IN PRINCIPLE.  
  
     change "this section" to "83B.2, 83B.2.1, 83B.2.2, and 83B.2.3".  
  
     [83B.2.4 does not exist]

**CI 83B**    **SC 83B.2**                      **P419**            **L38**            # **170**  
 Ghiasi, Ali                                      Broadcom  
  
**Comment Type**    **TR**            **Comment Status**    **R**  
     HCB and MCB up to 7.9 dB or 2.1 dB, what frequency  
  
**SuggestedRemedy**  
     Either add frequency for the insertion loss or remove the dB loss from the figure  
  
**Response**                      **Response Status**    **C**  
     REJECT.  
  
     See frequency in figure 83B-7 title

**CI 83B**    **SC 83B.2**                      **P419**            **L40**            # **152**  
 Dudek, Michael                              QLogic Corporation  
  
**Comment Type**    **ER**            **Comment Status**    **R**  
     The diagram 83B-7 should be clarified.  
  
**SuggestedRemedy**  
     Put a dotted line round the module part of the diagram encompassing the module PCB and XLAUI/CAUI component. Increase the size of the label "module". Also for 83B-5 for the host.  
  
**Response**                      **Response Status**    **C**  
     REJECT.  
     Straw poll was taken to indicate clarity of the figure.  
  
     Straw poll result:  
     Include dashed box around module / up to connector:  
  
     Yes: 5  
     No: 4  
  
     No consensus for change

**CI 83B**    **SC 83B.2**                      **P420**            **L3**            # **195**  
 Dawe, Piers J G                              Independant  
  
**Comment Type**    **ER**            **Comment Status**    **R**  
     It would help the reader to be able to see both HCB loss and MCB loss on the same chart.  
  
**SuggestedRemedy**  
     Put MCB loss line on Figure 83B-4, change title to "Reference differential insertion losses of HCB, MCB excluding connector", label the lines MCB and HCB. At line 49, refer to Figure 83B-4.  
  
**Response**                      **Response Status**    **C**  
     REJECT.  
  
     MCB & HCB graphs clearly illustrate loss and including on a single graph provides no additional clarity.

CI **83B** SC **83B.2** P**421** L**22** # **117**  
 Dawe, Piers J G Independant

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

Progressing D3.0 comment 333: the MCB loss for nAUI B is 0.92 dB while the MCB for PPI is 0.67 dB at Nyquist. An implementation e.g. QSFP socket may be capable of either nAUI B or nPPI (and possibly CRn). It would be an advantage if the same MCB could be used with all QSFP modules. Note that the nPPI MCB and CRn cable assembly test fixture losses are already the same. Even reducing the loss to be the same as the loss to the compliance points in 83A would be a step in the right direction.

*SuggestedRemedy*

Reduce the nAUI B MCB reference loss towards the nPPI reference loss.  
 Reduce the module differential input and output return losses by twice the (positive) difference between old and new MCB losses.  
 Increase the module max and min "de-emphasis" by the difference at 5.15625 GHz.  
 Consider reduce the module min rise time slightly from 24 ps (note that 83A and 83B both have 24 ps, for same IC with different losses).  
 Increase the output eye Y2 by the difference at 5.15625 GHz.  
 The input signal tolerance eye Y2 would be affected by HCB loss not MCB but as it is the same as 83A, it isn't adjusted for the compliance board anyway.  
 Consider if a change to Minimum VMA eqn 83B-7 to be more like eqn 83A-4 is justified (see ghiasi\_03\_0509).  
 No changes to jitter specs or mask X parameters.

Response Response Status **C**

REJECT.

MCB loss can be different, but one should take into account any differences (see below)

"The reference differential insertion loss of the MCB PCB is given in Equation (83B-4) and illustrated in Figure 83B-6. The effects of differences between the insertion loss of an actual MCB and the reference insertion loss are to be accounted in the measurements."

CI **83B** SC **83B.2** P**421** L**7** # **196**  
 Dawe, Piers J G Independant

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

Mixed fonts

*SuggestedRemedy*

Use Arial throughout this and similar figures.

Response Response Status **C**

ACCEPT.

Use arial in figures 83B-5, 83B-3, and 83B-7.

CI **83B** SC **83B.2** P**422** L**20** # **116**  
 Dawe, Piers J G Independant

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

There should be almost no blank lines in a Frame document.

*SuggestedRemedy*

Remove blank lines, particularly in 83B.

Response Response Status **C**

ACCEPT IN PRINCIPLE.  
 Remove any identified blank lines that do not negatively impact the document layout.

CI **83B** SC **83B.2** P**424** L**13** # **171**  
 Ghiasi, Ali Broadcom

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

Host input compliance point, HCB missing

*SuggestedRemedy*

Add HCB to the figure and align the arrow after the summer

Response Response Status **C**

ACCEPT IN PRINCIPLE.

See comment 153

CI **83B** SC **83B.2.1** P**422** L**48** # **197**  
 Dawe, Piers J G Independant

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

Text suddenly says "Modules may support additional de-emphasis states" but this is the first mention of ""de-emphasis" and the only mention of "de-emphasis states" in 83B. What is a "de-emphasis state" and where is the first one?

*SuggestedRemedy*

Wordsmithing needed.

Response Response Status **C**

REJECT.  
 Table 83B-3 shows the minimum & maximum de-emphasis range and is referenced before this statement.

CI **83B** SC **83B.2.1** P**422** L**49** # **118**  
 Dawe, Piers J G Independent

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

Text says "De-emphasis shall be off during jitter testing." but does not say whether it's on or off for eye mask.

*SuggestedRemedy*

Specify if emphasis is normal or off for eye mask.

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Change:  
 "De-emphasis shall be off during jitter testing"

to

"De-emphasis shall be off during eye mask and jitter testing"

CI **83B** SC **83B.2.1** P**423** L**16** # **119**  
 Dawe, Piers J G Independent

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

I could not see a spec for module common mode output loss.

*SuggestedRemedy*

Add spec.

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Insert a row into table 83B-2 for: Module output common mode return loss

Compliance point: MCB output TP4  
 Value: See equation 86A-2

CI **83B** SC **83B.2.1** P**423** L**32** # **198**  
 Dawe, Piers J G Independent

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

Equations 83B-6, 83B-8 and 83B-9 are the same as Equation 83B-5. Repeating identical equations wastes the reader's time.

*SuggestedRemedy*

Delete Equations 83B-6, 83B-8 and 83B-9 and refer to Equation 83B-5 instead.

Response Response Status **C**

ACCEPT IN PRINCIPLE.

There is value in keeping module and host specifications separate.

Table 83B-2 Change value for

Minimum module differential output  
 return loss to "see equation 83B-5"

Modify figure reference to:  
 "Minimum module differential input / output return loss is illustrated in Figure 83B-8."

Delete equation 83B-6 and associated parameter descriptions / figure reference

Modify table 83B-4:  
 Change Minimum host differential input  
 return loss value to "see equation 83B-8"

Modify figure reference text to:  
 "Minimum host differential input / output return loss is illustrated in Figure 83B-9."

Delete equation 83B-9 and associated parameter descriptions / figure reference

CI **83B** SC **83B.2.2** P**428** L**10** # **108**  
 Dawe, Piers J G Independent

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

Following up on D3.0 comment 323: The low frequency jitter tolerance is the same for a receive side host input as for a transmit side input, and at the optical MDI. If the Tx side spec is 4 MHz, a real module might use e.g. up to 8 MHz. Host is allowed to generate 0.42 UI high probability jitter above 4 MHz, and is allowed to generate all of this below 8 MHz. The optical transmitter module is specified against 0.05 UI SJ above 4 MHz. The extra 0.37 UI will break it. There may be a similar issue on the receive side.

*SuggestedRemedy*

Need to e.g. control the jitter between 4 MHz and 8 MHz to a suitably small amount (which a well-designed host will readily achieve).

Response Response Status **U**

REJECT.

83B nAUI is a chip-to-module interface  
 PMD jitter requirements are verified at the PMD level. Jitter tolerance for PMDs are also defined in PMD sections. nAUI interface defines associated tolerance requirements.

A vote of the Task Force was taken:  
 Should the draft be modified to change the jitter requirements as suggested?  
 Yes 1  
 No 11

CI **83B** SC **83B.2.3** P**424** L**15** # **153**  
 Dudek, Michael QLogic Corporation

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

It is not clear from figure 83B-10 exactly where the calibration point is. It could be interpreted that calibration is at SMA's on the fig 83B-10 test equipment and then the HCB is added to get the signal into the host. In fact the specifications have been written such that the HCB is part of the test equipment, and the signal should be calibrated at the output of an MCB plugged into this.

*SuggestedRemedy*

In Fig 83B-10 show the HCB on the output of the test equipment and the MCB being used on the calibration test equipment as is shown in 86A-8.

Response Response Status **C**

ACCEPT IN PRINCIPLE.

See latchman\_01\_0310 for implementation of suggested remedy.

CI **83B** SC **83B.2.4** P**427** L**27** # **199**  
 Dawe, Piers J G Independent

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

Figure 83B-9 is the same as Figure 83A-8. Repeating identical charts makes the document unnecessarily long, means that very little information can be seen on any page, and wastes the reader's time.

*SuggestedRemedy*

Delete Figure 83B-9 and refer to 83B-8 instead. Change title of Figure 83B-8 to "Host or module input or output return loss".

Response Response Status **C**

REJECT.

See comment 198 as resolution to discussion regarding merger of equations / figures and in that resolution the group agreed that there was value in keeping host and module specifications separate.

[Editor's note: Clause number corrected to 83B from 82B]

CI **83B** SC **83B.2.4** P**428** L**25** # **200**  
 Dawe, Piers J G Independent

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

We define parameters and this is not a test and measurement standard. 100% testing is not required. We can't say "Host XLAUI / CAUI jitter tolerance evaluation shall be conducted".

*SuggestedRemedy*

Could change to "Host XLAUI / CAUI jitter tolerance evaluation shall be defined by a stressed input signal that comprises 0.25 UI effective Deterministic Jitter...".

Response Response Status **C**

ACCEPT IN PRINCIPLE.

change to "Host XLAUI / CAUI jitter tolerance evaluation shall be defined by a stressed input signal that comprises 0.25 UI effective Deterministic Jitter...".

**Cl 83B**    **SC 83B.2.4**                      **P428**                      **L25**                      # **120**  
 Dawe, Piers J G                                      Independant

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

Draft says "Host XLAUI / CAUI jitter tolerance evaluation shall be conducted" yet we don't require 100% testing. Also, name doesn't match subclause title.

**SuggestedRemedy**  
 Change "Host XLAUI / CAUI jitter tolerance evaluation shall be conducted" to "Host input signal tolerance compliance shall be defined by".

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

Comment 200 appears to be a duplicate of comment 120. See comment 200 resolution.

**Cl 83B**    **SC 83B.2.4**                      **P428**                      **L28**                      # **121**  
 Dawe, Piers J G                                      Independant

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

Jitter calibration should be done with maximum slew rate crosstalk for Tx side running. Similarly, need crosstalk for module's signal compliance.

**SuggestedRemedy**  
 Add extra information explaining the use of crosstalk in calibration.

**Response**                                      **Response Status**    **C**  
 ACCEPT IN PRINCIPLE. In 83A.5.1

Change:  
 All XLAUI/CAUI lanes shall be active during transmit jitter testing to ensure any lanelane crosstalk is included in the jitter evaluation

to

All XLAUI/CAUI transmitter lanes shall be active and all XLAUI/CAUI receive lanes shall be receiving maximum amplitude and fastest rise time (as defined in table 83A-1) during transmit jitter testing to ensure maximum lane-lane crosstalk is included in the jitter evaluation.

In 83A.5.2 no change is required

In 83B.2.3 no change is required

No change is required in jitter tolerance since the stress imposed on the receiver includes all stresses including xtalk

**Cl 83B**    **SC 83B.2.4**                      **P428**                      **L37**                      # **122**  
 Dawe, Piers J G                                      Independant

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

The receiver eye mask for host input signal tolerance is the diamond mask in Fig 83A-9, Receiver template (used for Table 83A-2, Receiver characteristics), not the hexagonal mask in Fig 83A-8, Transmitter Eye Mask (used for nAUI output/driver/transmitter).

**SuggestedRemedy**  
 Change "Figure 83A-8" to "Figure 83A-9".

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

See suggested remedy

**Cl 83C**    **SC 83C.2.2**                      **P431**                      **L18**                      # **148**  
 Dudek, Michael                                      QLogic Corporation

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

Text is on top of other text

**SuggestedRemedy**  
 fix it.

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

**Cl 84**        **SC 84.2**                                      **P224**                      **L42**                      # **86**  
 Dawe, Piers J G                                      Independant

**Comment Type**    **ER**                      **Comment Status**    **A**

Gratuitous capitals, not consistent with other clauses. See D3.0 comment 316.

**SuggestedRemedy**  
 Change "Physical Medium Dependent Sublayer and Baseband Medium, Type 40GBASE-KR4" to "Physical Medium Dependent sublayer and baseband medium, type 40GBASE-KR4"

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

**Cl 84**    **SC 84.7.2**    **P238**    **L47**    # **88**  
 Dawe, Piers J G    Independent

**Comment Type E**    **Comment Status A**  
 Split table not filling page properly

**SuggestedRemedy**  
 Adjust table orphan rows and float properties

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

The editors will review the format of Table 84-3 and reformat if they deem appropriate.

**Cl 84**    **SC 84.7.8**    **P240**    **L39**    # **89**  
 Dawe, Piers J G    Independent

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

84.7.8 and 85.7.8 say "Local loopback shall be provided by the adjacent PMA (see 83.5.8)" (with PICS) while 83.5.8 says "PMA local loopback shall be provided by the PMA adjacent to the PMD for 40GBASE-KR4, 40GBASECR4, and 100BASE-CR10 PMDs." (also with PICS). It is not acceptable for one clause to try to require something of the sublayer of another clause. The other clause (83 in this case) does that. 802.3ap cut a corner and didn't open Clause 51: in this project the PMA clause 83 is open for edit and already has the shall and PICS desired.

**SuggestedRemedy**  
 Change "shall be provided" to "is provided" in 84.7.8 and 85.7.8.

**Response**    **Response Status U**  
 REJECT.

Loopback is mandatory for the PMDs in clauses 84 and 85 and therefore we need the shall statements and associated PICS in these clauses.

In addition, the text was modified by comment 505 against draft 3.0. Comment 505 was extensively discussed by the task force and there was agreement to adopt the current text.

**Cl 85**    **SC 85.1**    **P249**    **L10**    # **24**  
 Anslow, Peter    Nortel Networks

**Comment Type E**    **Comment Status A**  
 At the end of the first paragraph of 85.1 there are two full stops ".."

**SuggestedRemedy**  
 Remove one "."

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

**Cl 85**    **SC 85.1**    **P249**    **L21**    # **91**  
 Dawe, Piers J G    Independent

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

Apart from PICS and tables 13-2, 13-3 and B-1 (where it is explained in footnotes), tables in 15, Table B-2, table 52-2, 23, 24, 25; 53-1, 6, 9, 13 (n/a); 53-12, 14, 58-12, 13, 59-1, 12, 16, 60-3 and 60-5, neither sections 1, 4 and 5 of the base document nor this draft uses N/A, except Table 45-14 defines n/a as undefined. "N/A" is not in the main abbreviations list but is given in 15.8.2.2 Abbreviations, 16.6.2.2 Abbreviations and 21.6.6 Conditional items. So it appears it was a mistake to change "Not applicable" to "N/A".

**SuggestedRemedy**  
 Where there is space to do so, outside of PICS, change "N/A" (back) to "Not applicable". Add to 1.5 Abbreviations, "N/A not applicable".

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

For consistency between clauses in the draft and removing the need to add an abbreviation to the list, in Table 85-1 change all occurrences of "N/A" to "Not applicable"

CI 85 SC 85.1 P249 L21 # 90  
Dawe, Piers J G Independant

Comment Type ER Comment Status R

Table format doesn't work properly for a PMD clause with two speeds (85 and 86, not a problem for 88). This table takes 12 rows to do a bad job of saying what could be told more clearly in 8 rows (for the future a clause with three speeds would be even worse). There are 8 unnecessary "N/A" cells. The first column contains two items per cell which in this project do not have a 1:1 correspondence (they did for 10G and do for single-speed clauses) and should be split up. An explicit "status" column as in any PICS table or the crossed-out Table 86-2 helps.

*SuggestedRemedy*

For Table 85-1, follow the format of the crossed-out Table 86-2 (without the PMD row).

Response Response Status C

REJECT.

The format of Table 85-1 is consistent with that of Table 86-1. The table adequately defines the Physical Layer clauses associated with the 40GBASE-CR4 and 100GBASE-CR10 PMDs

CI 85 SC 85.10.6 P275 L52 # 139  
Dudek, Michael QLogic Corporation

Comment Type E Comment Status A

duplicated "the"

*SuggestedRemedy*

remove one

Response Response Status C

ACCEPT.

CI 85 SC 85.10.9.4 P281 L26 # 41  
Diminico, Christopher LEONI

Comment Type T Comment Status A

change "return loss" to "common mode conversion loss"

*SuggestedRemedy*

per comment

Response Response Status C

ACCEPT.

CI 85 SC 85.11 P238 L29 # 175  
Ghiasi, Ali Broadcom

Comment Type TR Comment Status R

It is not clear what is the minimum set of requirement for connecting host SerDes to the MDI contact in Clause 85. Clause 85 allow any connection. Also see comment 267 on D3.0

*SuggestedRemedy*

Add paragraph under 85.11 describing what is the required minimum connection between host PMD SerDes and the MDI contact. Here is the text: The PMD subclassue for 40GBase-CR4 and 100GBase-CR10 must meet requirerment of CL73 Autonegotiation which require connecting host lane 0 to PMD lane 0 and meet the transmitter training of 85.8.3.3 where each host lane (TX and RX) be connected to an MDI lane (TX and RX)

Response Response Status W

REJECT.

Text is unnecessay as 40GBASE-CR4 and 100GBASE-CR10 are required to support AN clause 73 (see Table-85-1). In addition, Figure 85-2 and Figure 85-19 illustrate source lane to destination lane labeling which are than associated with the MDI contacts/pins in Table-85-13, Table-85-14 and Table 85-15.

CI 85 SC 85.13.2.2 P290 L35 # 27  
Anslow, Peter Nortel Networks

Comment Type E Comment Status A

There is a spurious "." after Clause 85 in "IEEE Std 802.3ba-20xx, Clause 85., Physical Medium ..."

*SuggestedRemedy*

Remove the "."

Response Response Status C

ACCEPT.

CI 85 SC 85.2 P251 L9 # 1  
Marris, Arthur Cadence Design Syste

Comment Type E Comment Status A

Insert the word 'the'.

*SuggestedRemedy*

Change to 'the PMD:IS\_UNITDATA\_i.indication parameters are undefined'

Response Response Status C

ACCEPT.



CI 85 SC 85.2 P251 L9 # 87  
Dawe, Piers J G Independant

Comment Type E Comment Status A  
Missing space in =FAIL (same issue as D3.0 comment 291, accepted)

SuggestedRemedy  
Insert space

Response Response Status C  
ACCEPT.

CI 85 SC 85.7.10 P257 L26 # 131  
Dudek, Michael QLogic Corporation

Comment Type ER Comment Status A  
"mapped to" is duplicated

SuggestedRemedy  
delete one instance

Response Response Status C  
ACCEPT.

CI 85 SC 85.8.3 P254 L34 # 10  
Moore, Charles Avago Technologies

Comment Type E Comment Status A  
The label: "Transmitter DC amplitude \*b" should align with specification:  
"0.34 min, 0.6 max" but instead, it aligns with "greater than or equal  
to 0.63\*Transmitter DC amplitude". Shift it upward one line.  
You may want to shift "Linear fit pulse (min) \*c" upward one line also and/or right justify it.

SuggestedRemedy  
as in comment

Response Response Status C  
ACCEPT IN PRINCIPLE.

In Table 85-5;  
(1)Change "greater than or equal to 0.63\*Transmitter DC amplitude" to "0.63 x Transmitter  
DC amplitude"  
(2)Align Transmitter DC amplitude with  
85.8.3.3 and "0.34 min, 0.6 max"  
(3)Align Linear fit pulse (min) with 85.8.3.3  
and "0.63 x Transmitter DC amplitude"

CI 85 SC 85.8.3 P258 L35 # 132  
Dudek, Michael QLogic Corporation

Comment Type TR Comment Status A  
In table 85-5 it makes no sense to say the Transmitter DC amplitude shall be greater than  
or equal to 0.63\*transmitter DC amplitude, and I believe the text on line 17 indicates that  
the table was incorrectly adjusted.

SuggestedRemedy  
move the "greater than or equal to 0.63\*transmitter DC amplitude" in table 85-5 from the  
row it is on to a new row labelled Peak value of linear fit pulse.

Response Response Status C  
ACCEPT IN PRINCIPLE. See response comment#10.

CI 85 SC 85.8.3 P258 L35 # 25  
Anslow, Peter Nortel Networks

Comment Type T Comment Status A  
In Table 85-5, the "Linear fit pulse (min)" is given as "greater than or equal to  
0.63\*Transmitter DC amplitude". Since this is already "min" saying that the value is "greater  
than or equal to" means that the minimum may be greater than "0.63\*Transmitter DC  
amplitude" which is not correct.  
Also, "\*" should not be used as a sign for multiply.

SuggestedRemedy  
Change "greater than or equal to 0.63\*Transmitter DC amplitude" to "0.63 x Transmitter DC  
amplitude"

Response Response Status C  
ACCEPT IN PRINCIPLE. See response comment#10

CI 85 SC 85.8.3 P262 L39 # 92  
Dawe, Piers J G Independant

Comment Type TR Comment Status R

Now that there is a formal definition for it, DDJ is a proper noun. Particularly because the DDJ per definition is not all the jitter that's "data" (pattern) dependent.

*SuggestedRemedy*

Change "data dependent jitter" to "Data Dependent Jitter" throughout 85.

Response Response Status U

REJECT.

Data dependent jitter usage consistent in clause 85.

85.8.3.8 test method and definition (85-16) sufficiently characterizes meaning of DDJ.

Frequent usage and 52.9.9.2 and 58.7.11.2 has it "data-dependent jitter" (DDJ).  
Clause 48 has it "data dependent jitter" (DDJ).

CI 85 SC 85.8.3.3 P261 L43 # 11  
Moore, Charles Avago Technologies

Comment Type E Comment Status A

My comment 819 to draft 3.0 was voted "accept" but step 9) in sub clause 85.8.3.3 was not change per comment.

*SuggestedRemedy*

change step 9) to read:  
"Compute the linear fit to the captured waveform and the linear fit pulse response p(k) per 85.8.3.3.5."

Response Response Status C

ACCEPT.

CI 85 SC 85.8.3.3 P261 L44 # 42  
Diminico, Christopher LEONI

Comment Type E Comment Status A

step 9 Change: "Compute the linear fit to the captured waveform per 85.8.3.3.5"  
to: "Compute the linear fit to the captured waveform and the linear fit pulse response p(k)  
per  
85.8.3.3.5."

*SuggestedRemedy*

per comment

Response Response Status C

ACCEPT IN PRINCIPLE. See response comment#11.

CI 85 SC 85.8.3.3.2 P262 L20 # 138  
Dudek, Michael QLogic Corporation

Comment Type T Comment Status A

Comment 830 on draft 3.0 not fully implemented

*SuggestedRemedy*

Delete the "to" between "measured" and "prior"

Response Response Status C

ACCEPT.

Change:"to be the difference in the value measured  
to prior to"  
To:"to be the difference in the  
value measured prior to"

CI 85 SC 85.8.3.5 P265 L45 # 133  
Dudek, Michael QLogic Corporation

Comment Type TR Comment Status A

Figure 85-5 is not implemented as was suggested in draft 3.0 comment 831. The DUT is still not drawn in the figure and the dotted DUT box is in the wrong place.

*SuggestedRemedy*

Remove the box labelled DUT around the test fixture. Add a DUT to the left of the figure.  
Figure 85-14 with the Cable Assembly test fixture relabelled DUT (and the test interface on the left removed shows how the DUT should look.

Response Response Status C

ACCEPT IN PRINCIPLE.

Editor to provide figure for review of suggested remedy

See diminico\_04\_0310

Cl 85 SC 85.8.3.7 P266 L19 # 134  
 Dudek, Michael QLogic Corporation

Comment Type TR Comment Status A

It is somewhat ambiguous as to whether this loss is the loss of the test fixture or just the PCB in the test fixture.

SuggestedRemedy

Change to "is the reference test fixture PCB insertion loss at frequency f."

Response Response Status C

ACCEPT.

Cl 85 SC 85.8.3.8 P266 L33 # 26  
 Anslow, Peter Nortel Networks

Comment Type T Comment Status A

This says: "The mean time of each crossing is then compared to the expected time of the crossing, and a set of 256 timing variations is determined. DDJ is the range (maxmin) of the timing variations. Keep track of the signs (early/late) of the variations."

- a) "(maxmin)" is not clear
- b) "Keep track of the signs" is not explicit enough.

Keep track of the signs (early/late) of the variations.

SuggestedRemedy

Change "DDJ is the range (maxmin) of the timing variations. Keep track of the signs (early/late) of the variations." to "Crossings earlier than expected give a negative variation. DDJ is the range (maximum minus minimum) of the timing variations."

Response Response Status C

ACCEPT IN PRINCIPLE.

Per comment;

>"(maxmin)" is not clear

>"Keep track of the signs" is not explicit enough.

Change:"DDJ is the range (maxmin) of the timing variations."

To:"DDJ is the range (maximum minus minimum) of the timing variations."

For b) Replace "Keep track of the signs (early/late) of the variations" with "Crossings earlier than expected give a negative variation. Crossings later than expected give a positive variation."

Change text to read:"Crossings earlier than expected give a negative variation. Crossings later than expected give a positive variation. DDJ is the range (maximum minus minimum) of the timing variations."

Cl 85 SC 85.8.3.8 P272 L32 # 93  
 Dawe, Piers J G Independant

Comment Type E Comment Status A

"DDJ jitter": tautology

SuggestedRemedy

Delete "jitter".

Response Response Status C

ACCEPT.

Cl 85 SC 85.8.3.8 P272 L33 # 94  
 Dawe, Piers J G Independant

Comment Type TR Comment Status A

The point of specifying a signal is to ensure that it is acceptable to an input or receiver, not to learn irrelevant things about what the signal "really" is like. Draft says "For DDJ jitter measurements, the measurement bandwidth should be at least 20 GHz." This is much more bandwidth than the product receiver, causing a misleading measurement. Also the measurement will be noisier with unnecessary bandwidth, and the scope head possibly more expensive. Post-processing to a lower bandwidth is viable, does not significantly affect cost, and improves accuracy: trying to post-process to a higher bandwidth is unreliable. The highest frequencies in a signal won't get far down the cable! The reference receiver for ICN has 7.5 GHz bandwidth. Even the test fixture might have a bandwidth of 16.2 GHz but is not specified above 10 GHz so measurement much above 10 GHz is arbitrary and pointless.

SuggestedRemedy

Change 20 GHz to 12 GHz.

Response Response Status C

ACCEPT.

Change 20 GHz to 12 GHz.

Also see response to comment 37

CI 85 SC 85.8.4.2 P268 L18 # 12  
Moore, Charles Avago Technologies

Comment Type ER Comment Status A

The statement:

The receiver interference tolerance of each lane shall comply with the parameters of Table 85-8 when implemented using both the receiver interference tolerance test 1 and test 2.." firstly because the receiver interference tolerance cannot be implemented secondly, trivially, because a sentence should end in a single period.

SuggestedRemedy

Replace offending sentence with:

"The receiver interference tolerance of each lane shall comply with the both test1 and test2 using the parameters of Table 85-7 if measured according to the methods of 85.8.4.3 to 85.8.4.3.4"

Response Response Status W

ACCEPT IN PRINCIPLE.

Change:"The receiver interference tolerance of each lane shall comply with the parameters of Table 85-8 when implemented using both the receiver interference tolerance test 1 and test 2."

To:"The receiver interference tolerance of each lane shall comply with both test 1 and test 2 using the parameters of Table 85-8 when measured according to the requirements of 85.8.4.2.1 to 85.8.4.2.5."

CI 85 SC 85.8.4.2.1 P276 L9 # 95  
Dawe, Piers J G Independant

Comment Type E Comment Status A

In line with other changes

SuggestedRemedy

TX/RX should be Tx/Rx

Response Response Status C

ACCEPT IN PRINCIPLE.

Figure 85-7, Page 269  
change "TX/RX" to "Tx/Rx"

CI 85 SC 85.8.4.2.3 P269 L34 # 135  
Dudek, Michael QLogic Corporation

Comment Type TR Comment Status A

In figure 85-8 the calibration test reference should be at the output of the cable assembly test fixture

SuggestedRemedy

Move the test reference on the right to be at the output of the cable assembly test fixture.

Response Response Status C

ACCEPT IN PRINCIPLE.

In Figure 85-8 move the arrow hatched line labeled test reference at LUT\_Rx arrow end to the HTx arrow end adjacent to cable assembly test fixture to more accurately reflect the test reference and to avoid having the solid arrowed lines being confused with attachment cables.

CI 85 SC 85.8.4.2.3 P269 L50 # 136  
Dudek, Michael QLogic Corporation

Comment Type TR Comment Status A

No guidance is given as to what changes should be made to the test system if the MDNEXT does not meet the value in table 85-8, or what the rise time/amplitude of the HTx signals are.

SuggestedRemedy

Add to the end of the second sentence in this paragraph "defined in table 85-11. Change the last sentence to say. "The cable assembly is chosen such that the RMS value of the integrated etc.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change:"HTx is the set of 4 or 10 transmit lanes of the device under test corresponding to the 4 or 10 near-end crosstalk disturbers."

To:"HTx is the set of 4 or 10 transmit lanes of the device under test corresponding to the 4 or 10 near-end crosstalk disturbers with parameters given in Table 85-11.

CI 85 SC 85.8.4.2.4 P270 L18 # 137  
Dudek, Michael QLogic Corporation

Comment Type TR Comment Status A

There is something drastically wrong with equation 85-18. If the risetime were only 1 ps too small the value of a4 would change from 0.04 to about  $2 \times 10^8$

*SuggestedRemedy*

I will work with others to determine what the correct equation should be.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change: "If the rise and fall times are less than 47 ps the value of a4 in Table 85-8 is increased by Equation (85-18)"

To: "If the rise and fall times of the pattern generator, Tr, are less than 47 ps the value of a4 in Table 85-8 is increased by the value da4 from Equation (85-18)

Change equation (85-18) to " $da4 = 60.51 \times 10^{-6} (47^2 - Tr^2)$ "

CI 85A SC 85A.2 P433 L28 # 123  
Dawe, Piers J G Independant

Comment Type E Comment Status A

Consistency with other changes

*SuggestedRemedy*

Change TX to Tx

Response Response Status C

ACCEPT.

CI 85A SC 85A.5 P436 L10 # 149  
Dudek, Michael QLogic Corporation

Comment Type ER Comment Status A

This paragraph is a general introduction and would be better placed at the beginning of the section

*SuggestedRemedy*

move it to page 435 line 25

Response Response Status C

ACCEPT.

CI 85A SC 85A.5 P436 L30 # 29  
Anslow, Peter Nortel Networks

Comment Type E Comment Status A

In Figure 85A-1, the text " $17.04 \text{ dB} + (2 \times 6.5) - (2 \times 2.8) = 24.44 \text{ dB}$ " uses two different types of "x"

*SuggestedRemedy*

Use correct multiply sign (Ctrl-q 4) for both.

Response Response Status C

ACCEPT.

CI 86 SC 86.1 P299 L13 # 96  
Dawe, Piers J G Independant

Comment Type E Comment Status D

Title too long

*SuggestedRemedy*

Change "Physical Layer clauses associated with the 40GBASE-SR4 and 100GBASESR10 PMDs" to "Physical Layer clauses for 40GBASE-SR4 and 100GBASESR10" or "Physical Layer clauses for 40GBASE-SR4 and 100GBASESR10 PMDs". Similarly for equivalent tables in other clauses.

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 86 SC 86.1 P299 L16 # 97  
Dawe, Piers J G Independant

Comment Type GR Comment Status R

Table format doesn't work properly for a PMD clause with two speeds (85 and 86, not a problem for 88). This table takes 14 rows to do a bad job of explaining what the crossed-out Table 86-2 does more clearly in 8 rows. For the future, a clause with three speeds would be even worse. The crossed-out Table 86-2 was adopted for D2.1 in May 09, and has never been commented against (not at D2.1, D2.2, D2.3 or D3.0). D3.0 comment 498 had nothing to do with this table and this change was added very late without proper consideration.

*SuggestedRemedy*

Change Table 86-1 back to the format in D2.1, D2.2, D2.3 or D3.0, but without the PMD row. If wished, make a similar improvement to Table 85-1.

Response Response Status U

REJECT.  
Response to D3.0 comment 498 made the tables consistent by adopting the Table 85-1 format. See [http://ieee802.org/3/ba/public/jan10/P8023ba-D30-Final\\_Responses\\_byID.pdf](http://ieee802.org/3/ba/public/jan10/P8023ba-D30-Final_Responses_byID.pdf)

See also comment 90 against Table 85-1.

A vote of the Task Force was taken:  
Should the draft be modified as per the suggested Remedy?  
Yes 1  
No 7

CI 86 SC 86.1 P299 L51 # 98  
Dawe, Piers J G Independant

Comment Type E Comment Status A

Trailing space?

*SuggestedRemedy*

Remove any trailing spaces found throughout the draft.

Response Response Status C

ACCEPT IN PRINCIPLE.  
Remove trailing spaces found throughout the draft as appropriate if the change does not affect the layout.

CI 86 SC 86.10.1 P324 L29 # 101  
Dawe, Piers J G Independant

Comment Type T Comment Status A

As OM4 is compliant to OM3,

*SuggestedRemedy*

Add new sentence 'As OM4 optical fiber meets the requirements for OM3, a channel compliant to the "OM3" column may use OM4 optical fiber, or a combination of OM3 or OM4.'

Response Response Status C

ACCEPT IN PRINCIPLE.  
Add new sentence at the end of 86.10.1: 'As OM4 optical fiber meets the requirements for OM3, a channel compliant to the "OM3" column may use OM4 optical fiber, or a combination of OM3 and OM4.'

CI 86 SC 86.7.1 P307 L24 # 32  
Petrilla, John Avago Technologies

Comment Type TR Comment Status A

In Table 86-6, SR Tx attribute Min OMA should be updated due to reduction in max TDP values in recent drafts. In D2.0, max TDP was 4.0 dB, min OMA for max TDP was assumed to be -3.0 dBm yielding a link budget for max TDP of 8.3 dB, and min OMA was -6 dBm leaving 1.0 dB of TDP in reserve. Since D2.0, TDP has been reduced largely due to changing allocations in jitter at TP1 and a better understanding of jitter metrics J2 and J9. Along with the reduction in TDP, the difference between 'OMA minus TDP' and min OMA has been reduced as has the power budget (Table 86-9) for max TDP. This is a proposal to bring the link budget from 8.2 dB back to 8.3 dB.

*SuggestedRemedy*

In Table 86-6, change Min OMA from -6 to -5.8. In Table 86-7, for OM3 change min Average power from -9.9 dBm to -9.7 dBm and min OMA from -7.9 dBm to -7.7 dBm and for OM4 change min Average power from -9.5 dBm to -9.3 dBm and min OMA from -7.5 dBm to -7.3 dBm. In Table 86.9, change the Power budget from 8.2 dB to 8.3 dB and 'Allocation for penalties' for OM3 from 6.3 dB to 6.4 dB and for OM4 from 6.4 dB to 6.5 dB. Coordinate with above comment on TDP.

Response Response Status C

ACCEPT IN PRINCIPLE.

See response to comment 31.

CI 86 SC 86.7.1 P307 L24 # 31  
 Petrilla, John Avago Technologies

Comment Type TR Comment Status A

In Table 86-6SR Tx attributes, Max TDP and 'Launch power in OMA minus TDP' should be updated due to the shift in TP1 jitter specs J2 (from 0.18 UI to 0.17 UI) and J9 (from 0.26 UI to 0.29 UI) in D3.1. This proposal will shift the benefit due to the reduced J2 jitter tolerance from the optical Tx to the optical Rx where the output J2 was reduced from 0.46 UI to 0.42 UI. No changes in Rx specs are required. Other attributes affected include Min OMA in Table 86-6, Min OMA in Table 86-7, and Power Budget and Allocation for penalties in Table 86-9.

*SuggestedRemedy*

In Table 86-6 change Max TDP from 3.6 dB to 3.5 dB and 'Launch power in OMA minus TDP' from -6.7 dB to -6.5 dB. Change Min OMA in Table 86-6, Min OMA and min average power in Table 86-7, Power Budget and Allocation for penalties in Table 86-9 as appropriate and in coordination with a following comment to update these items.

Response Response Status C

ACCEPT IN PRINCIPLE.

In Table 86-6 change:

Average launch power, each lane [Min] to -7.6 dBm

Optical Modulation Amplitude (OMA), each lane [Min] to -5.6 dBm

Launch power in OMA minus TDP, each lane [Min] to -6.5 dBm

Transmitter and dispersion penalty (TDP), each lane [Max] to 3.5 dB

In note b change "Even if the TDP < 0.7 dB," to "Even if the TDP < 0.9 dB,"

In Table 86-7 change:

Total average power for 40GBASE-SR4 [OM3] [Min] to -3.5 dBm

Total average power for 40GBASE-SR4 [OM4] [Min] to -3.1 dBm

Total average power for 40GBASE-SR10 [OM3] [Min] to 0.5 dBm

Total average power for 40GBASE-SR10 [OM4] [Min] to 0.9 dBm

Average power, each lane [OM3] [Min] to -9.5 dBm

Average power, each lane [OM4] [Min] to -9.1 dBm

Optical Modulation Amplitude (OMA), each lane [OM3] [Min] to -7.5 dBm

Optical Modulation Amplitude (OMA), each lane [OM4] [Min] to -7.1 dBm

In Table 86-8 change:

Average power at receiver input, each lane [Min] to -9.5 dBm

In Table 86-9 change:

Power budget (for maximum TDP) to 8.3 dB

Allocation for penalties (for maximum TDP) [OM3] to 6.4 dB

Allocation for penalties (for maximum TDP) [OM4] to 6.5 dB

CI 86 SC 86.7.4 P299 L42 # 99  
 Dawe, Piers J G Independant

Comment Type E Comment Status A

Uneven font size

*SuggestedRemedy*

Fix this and any other font size issues (typically in tables but also in Figure 83B-10) throughout the draft.

Response Response Status C

ACCEPT IN PRINCIPLE.

Fix this and any other font size issues discovered throughout the draft (typically in tables) as appropriate.

CI 86 SC 86.8.1 P315 L28 # 100  
 Dawe, Piers J G Independant

Comment Type T Comment Status A

Some instruments don't include stimulus

*SuggestedRemedy*

Change "Instrument "looks" this way (direction of stimulus)" to "Instrument "looks" this way (e.g. direction of stimulus)"

Response Response Status C

ACCEPT.

CI 86 SC 86.8.2 P310 L51 # 33  
 Petrilla, John Avago Technologies

Comment Type E Comment Status A

The lead sentence, "Compliance is to be achieved in normal operation" begs the question, 'Compliance of what?'. Since this subclause deals with test patterns, relevance of normal operation isn't obvious and, perhaps, the sentence is not required and can be deleted. or, if not, may best be restated.

*SuggestedRemedy*

Delete the lead sentence, "Compliance is to be achieved in normal operation." (Preferred solution) Or, change the sentence to "While signal compliance is to be achieved in normal operation, the observed signal in normal operation is not conducive to measurement."

Response Response Status C

ACCEPT IN PRINCIPLE.

Change to "While compliance is to be achieved in normal operation, specific test patterns are defined for measurement consistency and to enable measurement of some parameters.". Do the same in 86.8.2, 87.8.1, 88.8.1 and 86A.5.2.

CI 86 SC 86.8.2.1 P313 L15 # 140  
 Dudek, Michael QLogic Corporation

Comment Type TR Comment Status A xtalk

Electrical Crosstalk in the optical receiver photo-detector area is a potential dominant degradation. Allowing all the lanes to be at the same input OMA during the stressed receiver sensitivity test is very benign. The specification should be changed to include this crosstalk stress with the other lanes set to the maximum OMA expected when the channel under test is at the stressed sensitivity level. The channels would then be tested one at a time. At the moment the Tx is allowed to have a maximum OMA of +3dBm on any channel, but for any of the channels to be at the stressed receiver condition a maximum loss cable must be present, and it is expected that all the lanes will have close to the same cable loss at a max value of 0.4dB. (connector loss will however be very variable from lane to lane). This results in a max receiver OMA on other lanes of 2.6dBm. Restricting the variation in OMA between lanes in the Tx would reduce the OMA required to be considered in the stressed test. The suggested value in the suggested remedy is 4.5dB variation in Tx OMA that with 1.5dB variation in connector loss gives 6dB variation in receiver OMA.

#### SuggestedRemedy

Change sentence from  
 "Either each receive lane is stressed in turn while all are operated, or all can be stressed together" to  
 "To ensure that maximum crosstalk stress is applied each receive lane is stressed in turn while all others are operated with the received OMA defined in the stressed test."  
 Insert a row in the conditions of stressed receiver sensitivity section of table 86-8. "OMA of other channels" value to be either  
 Option A 2.6dBm  
 Option B 0.6dBm and add a row to Table 86-6 "Maximum difference in OMA between any lanes" Value to be 4.5dB.  
 Change the sentence on page 317 line 5 from "The interface BER of the PMD receiver is the average of the BER of all receive lanes while stressed and at the same receive OMA" to "The interface BER of the PMD receiver is the average of the BER of all receive lanes while stressed."  
 Change the sentence on page 317 line form  
 "All receive lanes may be stressed at the same time, or each receive lane may be stressed in turn" to  
 "All receive lanes are stressed in turn"

Response Response Status C

ACCEPT IN PRINCIPLE.  
 Insert row in Table 86-6 "Difference in launch power between any two lanes (OMA)" max 4 dB.  
 Insert a row in the "Conditions of stressed receiver sensitivity test:" section of Table 86-8: "OMA of each aggressor lane", value -0.4 dBm.  
 Insert a row in the "Conditions of receiver jitter tolerance test:" section of Table 86-8: "OMA of each aggressor lane", value -0.4 dBm.  
 In 86.8.2.1 change "Either each receive lane is stressed in turn while all are operated, or all can be stressed together." to "Each receive lane is stressed in turn while all are operated. All aggressor lanes are operated as specified."

In 86.8.4.7 f), change "while stressed and at the same receive OMA" to "while stressed and at the specified receive OMA"

In 86.8.4.7, change "All receive lanes may be stressed at the same time, or each receive lane may be stressed in turn." to "Each receive lane is tested in turn while all aggressor receive lanes are operated as specified in Table 86-8."

In 86.8.4.8 d), change "All receive lanes may be stressed at the same time, or each receive lane may be stressed in turn" to "Each receive lane is tested in turn while all are operated. All aggressor lanes are operated as specified in Table 86-8."

In Table 86A-4 add a row to the "Conditions of host electrical receiver signal tolerance test:" section, "VMA of aggressor lanes", "TP4", value 850 mV. Also change the value of "Crosstalk calibration signal transition times, 20% to 80%" from 28 to 37 ps.

In 86A.5.3.8.1 change "Either each Rx lane is stressed in turn or they are all stressed at the same time." to "Each Rx lane is tested in turn while all lanes are operated. Aggressor lanes are operated with the VMA specified in Table 86A-4."

In 86A.5.3.8.6 change "Either each lane is stressed in turn while all are operated, or all can be stressed together." to "Each lane is tested in turn while all are operated. Aggressor lanes are operated with the VMA specified in Table 86A-4."

Give editor licence to adjust the implementation to address errors and oversights.  
 See also the response to comment 126.

CI 86 SC 86.8.2.1 P313 L15 # 34  
 Petrilla, John Avago Technologies

Comment Type TR Comment Status A xtalk

The sentence, "Either each receive lane is stressed in turn while all are operated, or all can be stressed together." should be modified to permit other combinations that may be useful. Similar sentences are found on pages 317 (twice), 452 and 455

#### SuggestedRemedy

Page 313 Change from, "Either each receive lane is stressed in turn while all are operated, or all can be stressed together." to "Either one or more receive lanes are stressed in turn while all are operated, or all can be stressed together."  
 Page 317 (twice), from "All receive lanes may be stressed at the same time, or each receive lane may be stressed in turn." to "All receive lanes may be stressed at the same time, or one or more receive lanes may be stressed in turn."  
 Page 452 from "Either each Rx lane is stressed in turn or they are all stressed at the same time." to "Either one or more Rx lanes are stressed in turn or they are all stressed at the same time."  
 Page 455 from "Either each lane is stressed in turn while all are operated, or all can be stressed together." to "Either one or more lanes are stressed in turn while all are operated, or all can be stressed together."

Response Response Status C

ACCEPT IN PRINCIPLE.  
 See response to comment 140



Cl 86 SC 86.8.4.7 P316 L52 # 155  
Ghiasi, Ali Broadcom

Comment Type TR Comment Status A

Sinusoidal jitter is defined at fix 80 MHz but the amplitude is missing

*SuggestedRemedy*

Sinusoidal jitter is defined at fix 80 MHz but the amplitude is missing

Response Response Status C

ACCEPT IN PRINCIPLE.

Duplicate, see response to comment 130.

Cl 86 SC 86.8.4.7 P316 L52 # 154  
Ghiasi, Ali Broadcom

Comment Type T Comment Status A

Sinusoidal jitter is defined at fix 80 MHz but the amplitude is missing. If you look at 52.9.9 it allow SJ range from 0.05 to 0.15 UI which is not consistent with CL86 Fig 86-A10. Please add 0.05 UI amplitud

*SuggestedRemedy*

Response Response Status C

ACCEPT IN PRINCIPLE.

Duplicate, see response to comment 130.

Cl 86 SC 86.8.4.7 P316 L52 # 130  
Ghiasi, Ali Broadcom

Comment Type TR Comment Status A

Sinusoidal jitter is defined at fix 80 MHz but the amplitude is missing

*SuggestedRemedy*

If you look at 52.9.9 it allow SJ range from 0.05 to 0.15 UI which is not consistant with CL86 Fig 86-A10. Please add 0.05 UI amplitude

Response Response Status C

ACCEPT IN PRINCIPLE.

In 86.8.4.7, change item c from "The sinusoidal jitter is at a fixed 80 MHz frequency." to: "The sinusoidal jitter is at a fixed 80 MHz frequency and between 0 and 0.05 UI peak-to-peak amplitude."

Insert a new item before the existing item c to say:

"The fourth-order Bessel-Thomson filter is replaced by a low pass filter followed by a limiter and a fourth-order Bessel-Thomson filter."

Cl 86A SC 86A P421 L6 # 124  
Dawe, Piers J G Independant

Comment Type ER Comment Status R

We call the MDI, MDI, whatever data rate it supports and however many lanes it has. We don't call it nMDI. Similarly with RS, PMA, and more. After two attempts at false dichotomies, we heard the only believable reason for nPPI so far, "personal preference". Response to D3.0 comment 338 restates some history and then says 'There is precedent in the base standard. Figure 1-1 uses a similar term to nPPI with "xMII" which collectively refers to different speed MII interfaces'. However, this is not precedent because MII is defined as '1.4.218 Media Independent Interface (MII): A transparent signal interface at the bottom of the Reconciliation sublayer. (See IEEE 802.3, Clause 22.)' and 22.1 says 'It is capable of supporting 10 Mb/s and 100 Mb/s rates for data transfer'. So a 1G or faster PCS service interface can't be called MII, and we have GMII, xGMII and so on. While the obvious abbreviation here, PPI, is unused.

*SuggestedRemedy*

Change "nPPI" to "PPI" throughout.

Response Response Status C

REJECT.

Originally the same name (PPI) was used for both 40G (4-lane) and 100G (10-lane). In response to comment 537 against draft 2.0, XLPPI and CPPI were introduced, and in addition, PPI was renamed to nPPI when referring to either or both. Comment 63 against D 2.2 proposed to change nPPI back to PPI throughout, but this was not agreed. Response said "This term was inserted in response to comment 537 against draft 2.0. The n represents "C" or "XL" which describes the rate of operation supported by the interface and not the number of lanes." Comment 338 against D 3.0 again proposed to change nPPI back to PPI throughout, but this was not agreed. The response added "There is precedent in the base standard. Figure 1-1 uses a similar term to nPPI with "xMII" which collectively refers to different speed MII interfaces".

CI 86A SC 86A.1 P439 L21 # 125  
Dawe, Piers J G Independant

Comment Type T Comment Status A

As it doesn't have a length (as nAUI A does), nPPI can't do anything about Delay, Skew and Skew Variation requirements; it is the associated PMD or PMA that has to comply. Text and PICS don't reference 83 for PMA. 83B doesn't mention Delay, Skew or Skew Variation.

*SuggestedRemedy*

Delete the sentence "The Delay nPPI shall comply with the Delay, Skew and Skew Variation requirements for nPPI are as in 86.3.", reverse the order of the next two sentences for readability. Delete PICS D and SF2.

Response Response Status C

ACCEPT IN PRINCIPLE.

In 86A.1, change "The nPPI shall comply with the Delay, Skew and Skew Variation requirements in 86.3." to:

"The PMD and PMA attached to the nPPI are required to comply with the Delay, Skew and Skew Variation requirements in 86.3, 83.5.3 and 83.5.4 as appropriate."

Delete PICS D and SF2.

CI 86A SC 86A.4.1 P440 L46 # 126  
Dawe, Piers J G Independant

Comment Type T Comment Status A xtalk

Completing the crosstalk specs added last time

*SuggestedRemedy*

Add two rows for crosstalk generator, here and Table 86-2. Any more text needed?

Compare SFP+. Also need to state that crosstalk in 83A, 83B is at max slew rate, e.g. by adding similar rows.

Response Response Status C

ACCEPT IN PRINCIPLE.

In 86.8.2.1 after "so that crosstalk effects are included.", insert "Where not otherwise specified, the maximum amplitude (OMA or VMA) for a particular situation is used, and for counter-propagating lanes, the minimum transition time is used. Alternative test methods that generate equivalent results may be used."

In the first sentence of 86A.4.1 change: "if measured at TP1a (see 86A.5.1), shall" to "if measured at TP1a (see 86A.5.1) with the specified crosstalk signals applied on all input lanes, shall"

In the second sentence change: "if measured at TP1 and TP1a, shall" to "if measured at TP1 and TP1a with all Rx lanes (module output) operating, shall"

In Table 86A-1 "Specification values" section, add two rows:

"Crosstalk source VMA, each input lane", value 700 mV, Conditions "At TP4";

"Crosstalk source transition times, 20% to 80%", value 34 ps, Conditions "At TP4"

In Table 86A-2 "Specification values" section, add two rows:

"Crosstalk calibration signal VMA", "TP4", value 850 mV

"Crosstalk calibration signal transition times, 20% to 80%", "TP4", value 34 ps

Conditions across both rows "While calibrating compliance signal" with a footnote b,

"The crosstalk calibration signals are applied to the mated HCB-MCB at TP4a and measured at TP4 following the same principles as the host electrical input calibration (see 86A.5.3.8.5). They are removed before testing."

In the first sentence of 86A.4.2: "per the definitions in 86A.5." to "per the definitions in 86A.5 while the specified crosstalk sources are applied to the module's electrical input."

In Table 86A-3 "Specification values" section, add two rows:

"Crosstalk source VMA, each lane" value 700 mV, Conditions "At TP1a"

"Crosstalk source transition times, 20% to 80%", value 37 ps, Conditions "At TP1a"

See comment 121 for changes in 83A.5.1

CI 86A SC 86A.4.2 P443 L19 # 150  
 Dudek, Michael QLogic Corporation

Comment Type T Comment Status R

The parameter name "Host input signal tolerance, interface BER limit" still doesn't seem right. It isn't the BER of the host input signal that it has to tolerate.

*SuggestedRemedy*

Change to "interface BER limit"

Response Response Status C

REJECT.

This row was introduced into the table by comment 194 against D 2.2 because "there is no explicit entry for a signal or jitter tolerance attribute, only the conditions are listed."

The parameter name was changed to "Host input signal tolerance, interface BER limit" by comment 382 against D 3.0.

The name "Interface BER limit" does not make it clear that the row refers to the Host input signal tolerance test.

CI 86A SC 86A.4.2 P443 L3 # 151  
 Dudek, Michael QLogic Corporation

Comment Type TR Comment Status A xtalk

When we added the crosstalk calibration amplitude and rise/fall times to Table 86A-4 we should have also added them to the test for the module output.

*SuggestedRemedy*

Either add extra rows to Table 86A-3 (and an extra column to label which port the measurement is at or add an extra sentence on page 443 line 3. The specifications shall be met with electrical crosstalk signals input to the Tx with the amplitude and rise/fall times given in table 86A-4.

Response Response Status C

ACCEPT IN PRINCIPLE.

See response to comments 126 and 140.

CI 86A SC 86A.4.2 P443 L31 # 127  
 Dawe, Piers J G Independant

Comment Type T Comment Status A xtalk

Completing the crosstalk specs added last time

*SuggestedRemedy*

Add two rows for crosstalk generator, same parameters as Table 86A-4.

Response Response Status C

ACCEPT IN PRINCIPLE.

See response to comments 126 and 140.

CI 86A SC 86A.5.1 P444 L28 # 38  
 Petrilla, John Avago Technologies

Comment Type ER Comment Status A

This seems to be the only instance of the phrase, "the nPPI connector". The phrase may lead to confusion as some may infer that there's an nPPI connector defined with the document and there is not.

*SuggestedRemedy*

Change, "These compliance boards are defined to connect generic test equipment to the module and host using the nPPI connector, for test purposes" to "These compliance boards are defined to connect generic test equipment to the module and host for test purposes"

Response Response Status W

ACCEPT.

This comment is out of scope as it does not relate to changes or an unsatisfied negative.

CI 86A SC 86A.5.2 P448 L27 # 39  
 Petrilla, John Avago Technologies

Comment Type E Comment Status A

The lead sentence, "Compliance is to be achieved in normal operation" begs the question, 'Compliance of what?'. Since this subclause deals with test patterns, relevance of normal operation isn't obvious and, perhaps, the sentence is not required and can be deleted. or, if not, may best be restated.

*SuggestedRemedy*

Delete the lead sentence, "Compliance is to be achieved in normal operation." (Preferred solution) Or, change the sentence to "While signal compliance at TP1, TP1a, TP4 and TP4a is to be achieved in normal operation, the observed signal in normal operation is not conducive to measurement."

Response Response Status C

ACCEPT IN PRINCIPLE.

See response to comment 33.

CI 86A SC 86A.5.2 P448 L39 # 40  
Petrilla, John Avago Technologies

Comment Type TR Comment Status R

Shouldn't the Pattern entry for J9 jitter be the same as for the J2 entry?

SuggestedRemedy

Repeat the Pattern entry for J2 in J9.

Response Response Status W

REJECT.

Two parameters here (J9 and signal tolerance) and more in the optical PMD clauses, are simply "3 or 5" in case the low-probability tails of a valid 40GBASE-SR4 or 100GBASE-SR10 signal are not reproducible.

CI 86A SC 86A.5.2 P448 L46 # 172  
Ghiasi, Ali Broadcom

Comment Type TR Comment Status R

Transition time measured with square wave could result is not accurate if square wave of 1010 is used for the measurement as the pulse may not reach full rise time

SuggestedRemedy

Replace square wave with square wave of 8 1's and 8 0's

Response Response Status C

REJECT.

In 86A.5.2, there is a sentence "Table 86-11 lists the defined test patterns" and this table says 8 ones, 8 zeros.

CI 86A SC 86A.5.3.5 P451 L20 # 173  
Ghiasi, Ali Broadcom

Comment Type TR Comment Status A

VMA can not be measured with undefined square wave

SuggestedRemedy

replace with square wave of 8 1's and 8 0's

Response Response Status C

ACCEPT IN PRINCIPLE.

It's already defined: 86A.5.2 includes "Table 86-11 lists the defined test patterns"  
Table 86-11 includes "Square wave (8 ones, 8 zeros)", "Pattern defined in 83.5.10"  
83.5.10 includes "8 ones followed by 8 zeros".  
But as it's called out in e.g. 87.8.5 and 86A.5.3.3:  
After "square wave" insert (8 ones, 8 zeros)".

CI 86A SC 86A.5.3.8.2 P452 L23 # 174  
Ghiasi, Ali Broadcom

Comment Type TR Comment Status A

Figure label out of place

SuggestedRemedy

Move TP1 up by 0.25

Response Response Status C

ACCEPT IN PRINCIPLE.  
In Figure 86A-8:  
Move TP1a label above HCB icon.  
Also label all of the compliance points.

CI 86A SC 86A.5.3.8.3 P455 L6 # 128  
Dawe, Piers J G Independant

Comment Type T Comment Status A

Arrow at crosstalk generator points wrong way

SuggestedRemedy

Reverse direction of arrow, show arrows into "Test signal characterization" and within "System under test".

Response Response Status C

ACCEPT IN PRINCIPLE.  
Reverse direction of arrow, show signal arrows into "Test signal characterization" and within "System under test".

CI 86A SC 86A.5.3.8.3 P455 L6 # 129  
Dawe, Piers J G Independant

Comment Type E Comment Status A

Inconsistent open arrow sizes (showing mechanical insertion)

SuggestedRemedy

Fix.

Response Response Status C

ACCEPT.

**Cl 87**    **SC 87.5.7**    **P334**    **L42**    # **28**  
 Anslow, Peter    Nortel Networks

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

This says "so that the each transmitter" which should be "so that each transmitter"

**SuggestedRemedy**

Change "so that the each transmitter" to "so that each transmitter". Also applies to 88.5.7 on Page 363 line 37

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

**Cl 87**    **SC 87.8.11**    **P342**    **L48**    # **142**  
 Dudek, Michael    QLogic Corporation

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

This stressed receiver sensitivity test is basically the same as that used in Clause 52 which created significant problems for 10GBASE-SR testing as the test signal was not sufficiently well constrained. The 100GBASE-ER4 which uses this procedure has the same vertical eye closure penalty and J2 requirements as 10GBASE-SR had. It is therefore likely that the same problems may be encountered.

**SuggestedRemedy**

On Page 342 line 48 change 0.25 to 0.15  
 On Page 345 line 4 Change two thirds to 80%

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

Make the changes to clause 87 shown in king\_01\_0310.pdf with editorial licence

Also in Table 88-8, add a row at the bottom for:  
 "Stressed eye J9 Jitter, each lane" value 0.47 UI and in note f change "Vertical eye closure penalty and stressed eye J2 Jitter" to "Vertical eye closure penalty, stressed eye J2 Jitter and stressed eye J9 Jitter"

In 88.8.10 b) change "The stressed eye J2 Jitter and vertical eye closure penalty" to "The stressed eye J2 Jitter, stressed eye J9 Jitter and vertical eye closure penalty"

**Cl 87**    **SC 87.8.11.1**    **P345**    **L26**    # **103**  
 Dawe, Piers J G    Independant

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

Modified stress conditioning block has an undefined "low pass filter" where previously a fourth-order Bessel-Thomson filter was specified. This allows a variety of stressed eye shapes, destroying the hope of consistency among stressed eye generators.

**SuggestedRemedy**

Specify a fourth-order Bessel-Thomson response.

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

The "low pass filter" has a single function here, to provide eye closure. The amount of jitter the filter adds can be accounted for by independent control of sinusoidal interferer 1, which just affects jitter. So the "low pass filter" type, and the degree of consequent jitter added to the eye, is not critical.

As shown in dawe\_01\_0310.pdf reasonable filter choices lead to similar eye shapes. Although the PWS is much larger than the 0.05 UI minimum in the draft, it is compliant with it.

This is an improvement upon clause 52, which describes a fourth-order Bessel-Thomson filter providing a mix of vertical eye closure and jitter stress.

**Cl 87**    **SC 87.8.11.2**    **P343**    **L54**    # **141**  
 Dudek, Michael    QLogic Corporation

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

Now that we are calling this J2 there is no need to introduce another acronym SEJ

**SuggestedRemedy**

Delete SEJ here, on page 344 line 1 and 345 line 18 replace SEJ with J2

**Response**    **Response Status**    **C**  
 ACCEPT IN PRINCIPLE.  
 See response to comment 142.

**Cl 87**    **SC 87.8.11.2**    **P348**    **L6**    # **104**  
 Dawe, Piers J G    Independant

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

Only 0.05 UI of pulse width shrinkage is (now) too small, as it is intended that LR4 can be used with XLPPI, which has up to 0.07 UI of DDPWS. But with a 4BT filter creating DDPWS, there is a risk that DDPWS will be too large.

**SuggestedRemedy**  
 Add a DDPWS target or range

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

REJECT.  
 Although the expected pulse width shrinkage is much greater than 0.05 UI, the limit in the draft is not incorrect. The DDPWS generated by a fourth order Bessel-Thomson filter would be acceptable.

**Cl 87**    **SC 87.8.2**    **P339**    **L11**    # **158**  
 Ghiasi, Ali    Broadcom

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

Not defined what kind of square wave 1010, 8 1's 8 0's

**SuggestedRemedy**  
 Please clarify it as 8 1's 8 0's for OMA on line 11 and 22

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

REJECT.  
 The Square wave is defined in table 87-10; Square wave is the pattern name, it's description says 8 ones, 8 zeroes

**Cl 87**    **SC 87.8.8**    **P343**    **L5**    # **102**  
 Dawe, Piers J G    Independant

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

We define parameters and this is not a test and measurement standard.. Measurement methodology is only a means to an end. It may be a normative reference model, but it's not compulsory. A well-known instrument sold for measuring RIN doesn't use a power meter as defined in 52.9.6, but uses a spectrum analyser.

**SuggestedRemedy**  
 Change "The RIN measurement methodology shall be as defined in 52.9.6" to "RIN shall be as defined by the measurement methodology of 52.9.6". Same in 88.8.7.

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

ACCEPT.

**Cl 99**    **SC 99**    **P1**    **L55**    # **43**  
 Dawe, Piers J G    Independant

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

2009

**SuggestedRemedy**  
 2010

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

ACCEPT.

See response to comment #13