Cl **00** *SC* **0** *P* *L* # 823

Goergen, Joel Force 10 Networks Inc

Comment Type **GR** *Comment Status* **R**

Module channel model is not production manufacturable.

SuggestedRemedy

Still simulating the models and cannot provide input at thus time.

Response *Response Status* **W**

REJECT.

Commenter has not provided information on the exact nature of the issue or a suggested remedy

Cl **00** *SC* **0** *P* **1** *L* **22** # 791

Ghiasi, Ali Broadcom

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

Single mode objective was added late to the 802.3ba project per motion from barbieri_02_0308. Single mode 40GbE objective was added with broad market support from users, OEMs, and component suppliers. As a group however we failed to see early on that we need to extend nPPI so it can support 40Gbase-LR4.
The sheer size of the retimed interface forces the 40Gbase-LR4 into modules 4-10x the size of the QSFP module which is the choice for 40Gbase-SR4 PMD. The choices are to build a line card with high density and forgo single mode support or build a line card with <1/5 the aggregate BW possible with 40Gbase-SR4!

SuggestedRemedy

Extend the nPPI X4 to support 40Gbase-LR4, for detail implementation see comments on CL86 and 87 and king_01_0110

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

See response to comments #792 & #793

Cl **01** *SC* **1** *P* **1** *L* # 391

Booth, Brad AMCC

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

P802.3ba has chosen to use a nomenclature that doesn't follow previous uses. While the draft standard has chosen to us C and K to indicate media types - similar to previous uses in 802.3 - they have chosen to use S, L and E to indicate reach instead of wavelengths as was done in 802.3z and 802.3ae. This creates confusion with the nomenclature and may present limitations for future enhancements to the 40G and 100G family.

SuggestedRemedy

Change all references for S to mean short wavelength (850nm).
Change all references for L to mean long wavelength (1310nm).
Change all references for E to be Z and to mean optimized long wavelength (1310nm).

Response *Response Status* **W**

REJECT.

The nomenclature was adopted by the Task Force in May 2008 (see motion #2). The adopted nomenclature was presented to the WG by the TF Chair during Jul'08 opening plenary.

The Task Force has discussed the nomenclature extensively during the WG ballot phase including the evolution of PHY naming conventions (see law_01_0709). The task force did discuss the consistency issue; during the discussions it was pointed out the nomenclature evolved as needed from 10M to 10G and that the base document already uses same letter(s) to identify different characteristics.

The nomenclature employed by P802.3ba is clearly documented in Table 80-2 and the port type definition (for e.g. "100GBASE-CR10") includes the characteristics/attributes of the port type. Individual letters are not used to distinguish different characteristics/attributes.

Cl **45** *SC* **45.2.1.12a** *P* **48** *L* **3** # 389

Law, David 3Com

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

The editing instruction states 'Insert 45.2.1.12a (before 45.2.1.12 as numbered in 802.3-2008, renumbered to 45.2.1.13 by P802.3av/D3.4) for 40G/100G extended abilities'. Subclause 45.2.1.12 in IEEE Std 802.3-2008, renumbered to be 45.2.1.13 in IEEE Std 802.3av-2009, is titled '10P/2B PMA/PMD control register (Register 1.30)'. Hence following this instruction would result in the subclause order as follows:
45.2.1.11 10G-EPON PMA/PMD ability register (Register 1.12)
45.2.1.12 PMA/PMD package identifier (Registers 1.14 and 1.15)
45.2.1.12a 40G/100G PMA/PMD extended ability register (Register 1.13)
45.2.1.13 10P/2B PMA/PMD control register (Register 1.30)
I don't believe that this is correct as it would be normal to have the subclause for Register 1.13 after register 1.11 but before 1.14 and 1.15. Based on this suggest that this new subclause, and its subclauses should be placed after 45.2.1.11 and number under 45.2.1.11a. Also I believe the editing instruction should be extended to cover the subclauses of this new subclause and references to existing standards should use the full designation.

SuggestedRemedy

Suggest that the new subclauses be numbered as follows:
45.2.1.11a 40G/100G PMA/PMD extended ability register (Register 1.13)
45.2.1.11a.1 PMA remote loopback ability (1.13.15)
45.2.1.11a.2 100GBASE-ER4 ability (1.13.11)
45.2.1.11a.3 100GBASE-LR4 ability (1.13.10)
45.2.1.11a.4 100GBASE-SR10 ability (1.13.9)
45.2.1.11a.5 100GBASE-CR10 ability (1.13.8)
45.2.1.11a.6 40GBASE-LR4 ability (1.13.3)
45.2.1.11a.7 40GBASE-SR4 ability (1.13.2)
45.2.1.11a.8 40GBASE-CR4 ability (1.13.1)
45.2.1.11a.9 40GBASE-KR4 ability (1.13.0)
Suggest that the editing instruction should read 'Insert new subclauses 45.2.1.11a and 45.2.1.11a.1 through 45.2.1.11a.9 after existing subclause 45.2.1.11.11 (this subclause was renumbered by IEEE Std 802.3av).'

Response *Response Status* **W**

ACCEPT.

Cl **45** *SC* **45.2.1.4.1a** *P* **42** *L* **24** # 754

Law, David 3Com

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

It has been agreed with staff that where a subclause is inserted prior to the existing first subclause it is labelled [existing subclause - one level].[a through z]. Where a subclause is inserted after an existing subclause - assuming it is not the last - the new subclause it is labelled [subclause number][a through z].
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.
At the moment I note that IEEE P802.3ba isn't self consistent with itself in respect to inserts before first existing subclause - and I see IEEE P802.3az using a different approach. Here are three examples of inserts before the existing first paragraph where each time a different numbering approach has been used.
[1] IEEE P802.3ba/D3.0 using .1a then .1b
45.2.1.4 PMA/PMD speed ability (Register 1.4)
45.2.1.4.1a 100G capable (1.4.9)
45.2.1.4.1b 40G capable (1.4.8)
45.2.1.4.1 10/1G capable (1.4.7)
[2] IEEE P802.3ba/D3.0 using .1a then .2a
45.2.1.9 PMD receive signal detect register (Register 1.10)
45.2.1.9.1a PMD receive signal detect 9 (1.10.10)
45.2.1.9.2a PMD receive signal detect 4, 5, 6, 7, 8 (1.10.5, 1.10.6, 1.10.7, 1.10.8, 1.10.9)
[3] IEEE P802.3az/D2.2 using .a and .b
79.3 IEEE 802.3 Organizationally Specific TLVs
79.3.a EEE TLV

SuggestedRemedy

Please use the approach agreed with staff in respect to inserts before existing first paragraph.
Change '45.2.1.4.1a 100G capable (1.4.9)' to read '45.2.1.4.a 100G capable (1.4.9)'.
Change '45.2.1.4.1b 40G capable (1.4.8)' to read '45.2.1.4.b 40G capable (1.4.8)'.
Change '45.2.1.8.1a PMD transmit disable 9 (1.9.10)' to read '45.2.1.8.a PMD transmit disable 9 (1.9.10)'.
Change '45.2.1.8.2a PMD transmit disable 4, 5, 6, 7, 8 (1.9.5, 1.9.6, 1.9.7, 1.9.8, 1.9.9)' to read '45.2.1.8.b PMD transmit disable 4, 5, 6, 7, 8 (1.9.5, 1.9.6, 1.9.7, 1.9.8, 1.9.9)'.
Change '45.2.1.9.1a PMD receive signal detect 9 (1.10.10)' to read '45.2.1.9.a PMD receive signal detect 9 (1.10.10)'.
Chnage '45.2.1.9.2a PMD receive signal detect 4, 5, 6, 7, 8 (1.10.5, 1.10.6, 1.10.7, 1.10.8, 1.10.9)' to read '45.2.1.9.b PMD receive signal detect 4, 5, 6, 7, 8 (1.10.5, 1.10.6, 1.10.7, 1.10.8, 1.10.9)'.
Change '45.2.3.15.1a Scrambled idle test-pattern enable (3.42.7)' to read '45.2.3.15.a Scrambled idle test-pattern enable (3.42.7)'.

Response *Response Status* **W**

ACCEPT.

Cl **45** SC **45.2.1.82a** P **54** L **12** # 767

Law, David 3Com

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

The editing instruction for subclause 45.2.1.82a reads 'Insert 45.2.1.82a and 45.2.1.82b for status register 2 & 3:' which doesn't make it totally clear where to place the new subclauses. According to the IEEE Standards Style Guide a letter subclause such as this is placed after the numbered so 45.2.1.82a would appear after 45.2.1.82. However looking at the register numbers it appears that these new subclauses should appear before 45.2.1.82.
45.2.1.81 10GBASE-KR LD status report register (Register 1.155)
45.2.1.82a BASE-R PMD status 2 register (Register 1.156)
45.2.1.82b BASE-R PMD status 3 register (Register 1.157)
45.2.1.82 1000BASE-KX control register (Register 1.160)
45.2.1.83 1000BASE-KX status register (Register 1.161)
I also note that the subclauses of 45.2.1.82b start at .5 as follows which I don't think is correct.
45.2.1.82b BASE-R PMD status 3 register (Register 1.157)
45.2.1.82b.5 Receiver status 8, 9 (1.157.0, 1.157.4)
45.2.1.82b.6 Frame lock 8, 9 (1.157.1, 1.157.5)
45.2.1.82b.7 Start-up protocol status 8, 9 (1.157.2, 1.157.6)
45.2.1.82b.8 Training failure 8, 9 (1.157.3, 1.157.7)

SuggestedRemedy

Suggest the editorial instructions be changed to read 'Insert subclause 45.2.1.81a and 45.2.1.81b after subclause 45.2.1.81:'
Suggest that the subclauses be labelled as follows:
45.2.1.81a BASE-R PMD status 2 register (Register 1.156)
45.2.1.81a.1 Receiver status 4, 5, 6, 7 (1.156.0, 1.156.4, 1.156.8, 1.156.12)
45.2.1.81a.2 Frame lock 4, 5, 6, 7 (1.156.1, 1.156.5, 1.156.9, 1.156.13)
45.2.1.81a.3 Start-up protocol status 4, 5, 6, 7 (1.156.2, 1.156.6, 1.156.10, 1.156.14)
45.2.1.81a.4 Training failure 4, 5, 6, 7 (1.156.3, 1.156.7, 1.156.11, 1.156.15)
45.2.1.81b BASE-R PMD status 3 register (Register 1.157)
45.2.1.81b.1 Receiver status 8, 9 (1.157.0, 1.157.4)
45.2.1.81b.2 Frame lock 8, 9 (1.157.1, 1.157.5)
45.2.1.81b.3 Start-up protocol status 8, 9 (1.157.2, 1.157.6)
45.2.1.81b.4 Training failure 8, 9 (1.157.3, 1.157.7)

Response *Response Status* **W**

ACCEPT.

Cl **45** SC **45.2.3.16a** P **72** L **42** # 824

Law, David 3Com

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

I believe that the IEEE Standards style guide states that a subclause that is inserted between existing subclauses should be labelled as [lower numbered subclause][a-z] for example to insert two subclauses between 43.2.1 and 43.2.2 the new subclauses would be numbered 43.2.1a and 43.2.1b and not 43.2.2a and 43.2.2b.
New subclauses 45.2.3.16a and 45.2.3.16b are proceeded with the editing instructions 'Insert after 45.2.3.16 for high order counters' which meets the IEEE Standards style guide.
New subclauses 45.2.3.17a however are preceded with the editing instructions 'Insert before 45.2.3.17 for PCS alignment status:' which seems contrary to the IEEE Standards style guide.
This results in:
45.2.3.16 BASE-R PCS test-pattern error counter register (Register 3.43)
45.2.3.16a BER high order counter (Register 3.44)
45.2.3.16b Errored blocks high order counter (Register 3.45)
45.2.3.17a Multi-lane BASE-R PCS alignment status 1 register (Register 3.50)
45.2.3.17b Multi-lane BASE-R PCS alignment status 2 register (Register 3.51)
45.2.3.17c Multi-lane BASE-R PCS alignment status 3 register (Register 3.52)
45.2.3.17d Multi-lane BASE-R PCS alignment status 4 register (Register 3.53)
45.2.3.17 10P/2B capability register (3.60)
45.2.3.18 10P/2B PCS control register (Register 3.61)
I believe to meet the IEEE Standards style guide this should actually be:
45.2.3.16 BASE-R PCS test-pattern error counter register (Register 3.43)
45.2.3.16a BER high order counter (Register 3.44)
45.2.3.16b Errored blocks high order counter (Register 3.45)
45.2.3.16c Multi-lane BASE-R PCS alignment status 1 register (Register 3.50)
45.2.3.16d Multi-lane BASE-R PCS alignment status 2 register (Register 3.51)
45.2.3.16e Multi-lane BASE-R PCS alignment status 3 register (Register 3.52)
45.2.3.16f Multi-lane BASE-R PCS alignment status 4 register (Register 3.53)
45.2.3.17 10P/2B capability register (3.60)
45.2.3.18 10P/2B PCS control register (Register 3.61)

SuggestedRemedy

Change '45.2.3.17a Multi-lane BASE-R PCS alignment status 1 register (Register 3.50)' to read '45.2.3.16c Multi-lane BASE-R PCS alignment status 1 register (Register 3.50)'.
Change subclauses '45.2.3.17a.1' through '45.2.3.17a.9' to read '45.2.3.16c.1' through '45.2.3.16c.9'
Change '45.2.3.17b Multi-lane BASE-R PCS alignment status 2 register (Register 3.51)' to read '45.2.3.16d Multi-lane BASE-R PCS alignment status 2 register (Register 3.51)'.
Change subclauses '45.2.3.17b.1' through '45.2.3.17b.12' to read '45.2.3.16d.1' through '45.2.3.16d.12'.
Change '45.2.3.17c Multi-lane BASE-R PCS alignment status 3 register (Register 3.52)' to read '45.2.3.16e Multi-lane BASE-R PCS alignment status 3 register (Register 3.52)'.
Change subclauses '45.2.3.17c.1' through '45.2.3.17c.8' to read '45.2.3.16e.1' through '45.2.3.16e.8'
Change '45.2.3.17d Multi-lane BASE-R PCS alignment status 4 register (Register 3.53)' to read '45.2.3.16f Multi-lane BASE-R PCS alignment status 4 register (Register 3.53)'.

Change subclause '45.2.3.17d.1' through '45.2.3.17d.12' to read '45.2.3.16f.1' through '45.2.3.16f.12'
Change the editing instructions that precede subclause 45.2.3.16a that reads 'Insert after 45.2.3.16 for high order counters' to read 'Insert subclauses 45.2.3.16a, 45.2.3.16b, 45.2.3.16c and 45.2.3.16d, with their subclauses, after subclause 45.2.3.16:'.
after 45.2.3.16 for high order counters'.
Delete the editing instruction that currently precedes subclause 45.2.3.17a reads 'Insert before 45.2.3.17 for PCS alignment status:'.

Response *Response Status* **W**

ACCEPT.

Cl **45** *SC* **45.2.3.4.4** *P* **67** *L* **10** # 15

Hajduczenia, Marek ZTE Corp.

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

Incorrect register number. Is "1.4.3", should be "3.4.3" in line 10 and 11.

SuggestedRemedy

Please correct accordingly.

Response *Response Status* **W**

ACCEPT.

Cl **74** *SC* **74.5** *P* **111** *L* **1** # 28

Hajduczenia, Marek ZTE Corp.

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

It is not clear what changes to section 74.5 are made in P802.3ba and how the original text is affected. Why there is no differential version available? Why do you need to replace the whole existign section instead of adding only 74.5.2, which is new and specific to 40G and 100G?The current description impedes readability a lot.

SuggestedRemedy

Per comment

Response *Response Status* **W**

REJECT.

It needs to be done this way because the service interface for 10G is different from the service interface for 40 and 100G.

The 10G service interface definition is unchanged from 802.3-2008 with the exception of the introduction and the paragraph numbers. The structure was changed to improve the flow and readability. The substance remains the same.

Cl **74** *SC* **74.5.2** *P* **113** *L* **14** # 30

Hajduczenia, Marek ZTE Corp.

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

The text from line 14 onwards should be divided into customary blocks describing the service primitives i.e. -Name-Semantics of the service primitive-When generated-Effect of receiptThe existing description is confusing and unnecessarily obfuscated.

SuggestedRemedy

Follow the existing standard descriptions and not invent a new style.

Response *Response Status* **W**

REJECT.

The service interface is described in detail in 80.3 and this is mentioned in 74.5.2. The way the service interface is described in 74.5.2 is consistent with other service interface descriptions in the 802.3ba draft.

Cl **74** *SC* **74.5.2** *P* **113** *L* **20** # 31

Hajduczenia, Marek ZTE Corp.

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

Based on Figure 74-2a and 74-2b, I fail to see how the signal FEC:IS_SIGNAL.indication can be sent to PMA. It is sent to PCS only (arrow points up, not down). PMA can send PMA:IS_SIGNAL.indication towards the FEC sublayer. Clarify whether Figures are OK or the textual description in section 74.5.2 is OK. Based on the description, it makes little sense to have such signal sent to PMA, since PMA is under FEC and not over it.

SuggestedRemedy

Per comment

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

The FEC service interface can connect to either the PCS or PMA. This is described in Clause 83 and illustrated in Figures 83-1 and 83-2.

Add the following to the end of the first paragraph in 74.4:
"In 40GBASE-R and 100GBASE-R the FEC service interface can either connect to the PCS as illustrated in Figure 74-1 or the PMA as illustrated Figure 83-2 where the FEC and PCS are in separate devices connected by XLAUI/CAUI."

Cl **80** *SC* **80** *P* **125** *L* **1** # 358

Kolesar, Paul CommScope Solutions

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

The PMDs defined in P802.3ba do not fulfill the PAR or the Five Criteria of 802.3. Specifically, as stated in section 5.4 of the PAR, the Purpose of Proposed Standard: "The project is to provide for the interconnection of equipment satisfying the distance requirements of the intended applications." Further, as stated in section 5.5, the Need for the Project: "The project is necessary to provide a solution for applications that have been demonstrated to need bandwidth beyond the existing capabilities. These include data center..." Data center backbone reach requirements have been repeatedly shown to extend to at least 200 meters per independent contributions kolesar_01_0906, swanson_01_1106, and flatman_01_0108. However, the maximum reach of the PMDs aimed at the data center, specifically -CR4/-CR10 and -SR4/-SR10, is presently stated as 125 meters, 75 meters shy of the need. While the commenter acknowledges the need for optimized solutions, the present optimization for lowest cost, which sacrifices sufficient coverage, is far from optimal. This is due to the huge increase in relative cost for the defined single-mode fiber based PMDs compared to the cost of extended reach -SR4/-SR10 PMDs that can address this reach, as shown in contributions jewell_01_0508 and kolesar_01_0908. Furthermore, without a cost effective solution that covers the vast majority of the reach requirements of the application space, this project does not satisfy the Broad Market Potential requirement for balanced cost, as the single-mode fiber based PMDs erect a market barrier when positioned as data center solutions rather than as the metro solutions for which they are optimal. Therefore PMDs that cost effectively support 200 meters must be defined to fulfill the PAR and satisfy the Broad Market Potential balanced cost criteria.

SuggestedRemedy

Adopt the proposal of contribution kolesar_05_0509 for an informative annex that defines a test for selecting 200-meter-capable PMDs from the production runs of -SR4/-SR10 PMDs, as detailed in contribution kolesar_04_0509 with appropriate editorial adjustments induced by clause 86 evolution since draft 2.0, the draft upon which these contributions were submitted.

Response *Response Status* **U**

REJECT.

The adopted objectives for the project include "at least 100m over OM3 MMF" for operation at 40Gb/s and 100Gb/s. The MMF objectives have remained unchanged since their approval, approval of the project's 5 Criteria responses, and the PAR. Based on materials detailed below, it has been the consensus of the Task Force that the selected solutions (40GBASE-SR4 and 100GBASE-SR10) meet the stated PAR (http://www.ieee802.org/3/ba/PAR/par_0308.pdf) and 5 Criteria responses (http://www.ieee802.org/3/ba/PAR/P802.3ba_5C_0908.pdf).
Presentations relevant to this topic reviewed by the Task Force and the "40G/100G Extended Reach (>100m) over Parallel Multimode Fiber Ad Hoc" were:
http://www.ieee802.org/3/hssg/public/sep06/kolesar_01_0906.pdf
http://www.ieee802.org/3/hssg/public/nov06/pepeljugoski_01_1106.pdf
http://www.ieee802.org/3/hssg/public/nov06/steinberger_01_1106.pdf
http://www.ieee802.org/3/hssg/public/nov06/swanson_01_1106.pdf
http://www.ieee802.org/3/ba/public/jan08/flatman_01_0108.pdf
http://www.ieee802.org/3/ba/public/mar08/kolesar_01_0308.pdf
http://www.ieee802.org/3/ba/public/sep08/flatman_01_0908.pdf
http://www.ieee802.org/3/ba/public/sep08/kolesar_01_0908.pdf
http://www.ieee802.org/3/ba/public/AdHoc/MMF-Reach/swanson_xr_01_0608.pdf
Note that the response to comment 349 against D 3.0 has changed the reach of 40GBASE-SR4 and 100GBASE-SR10 over OM4 fiber to 150m
A straw poll of the task force was taken:
Do you support the creation of an informative annex similar to that proposed in kolesar_04_0509.pdf?
Result:
Yes 12
No 21
Abstain 17

Cl **80** *SC* **80.1.3** *P* **125** *L* **26** # 36

Hajduczenia, Marek ZTE Corp.

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

Do you really use CSMA/CD MAC or full duplex MAC? Compare 44. Introduction to 10 Gb/s baseband network, which mentions 802.3 MAC and not CSMA/CD MAC.

SuggestedRemedy

Clarify whether CSMA/CD MAC is used in 40G/100G Ethernet and if not, remove such references altogether.

Response *Response Status* **W**

REJECT.

The same MAC defined in Clause 4 is used by 40G and 100Gb/s physical layer devices. The MAC is used in Full duplex mode of operation when coupled with 40G/100G PHYs. Implementers can also refer to Annex 4A which is simplified version based on Clause 4 for full duplex operation.

The MAC is referred to as "IEEE 802.3 (CSMA/CD) MAC" throughout the base standard even when the MAC is used in full duplex operation (for example see 44.1.3).

Cl **80** *SC* **80.2.3** *P* **128** *L* **9** # 346

Nikolich, Paul YAS Broadband Ventu

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

The Forward Error Correction sublayer is an optional for 40GBASE-R and 100GBASE-R copper and backplane PHYs. This may cause interoperability problems.

SuggestedRemedy

The above FEC sublayer for 40GBASE-R and 100GBASE-R copper and backplane PHYs should either be made mandatory or removed to eliminate potential interoperability problems.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

The 40GBASE-CR4 and 100GBASE-CR10 PMDs will meet the BER requirements of 1E-12 without the use of the optional FEC sublayer. The optional FEC sublayer can be used to achieve better BER performance over 1E-12, if desired, or to increase the performance on a broader set of backplane channels. Auto-negotiation of FEC will prevent inter-operability problems since the FEC function is enabled on the link only if both the link partners advertise FEC ability and at least one of the link partners requests to enable the FEC function.

Provide a explanation for copper PHYs in 74.1 as follows:
Change line 13 in 74.1 as follows:
"The 10GBASE-KR and 40GBASE-KR4 PHYs described in Clause 72 and Clause 84 optionally use the FEC sublayer to increase the performance on a broader set of backplane channels than are defined in Clause 69."
Insert the following after line 13 in 74.1:
"The 40GBASE-CR4 and 100GBASE-CR10 PHYs described in Clause 85 optionally use the FEC sublayer to improve the BER performance beyond 10^-12."

Cl **80** *SC* **80.4** *P* **135** *L* **5** # 276

Muller, Shimon Sun Microsystems

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

The delay constraint, expressed in bit times, for the 40G MAC, RS and MAC Control, is incorrect and does not correspond to the values in pause_quanta and absolute time in ns. It is also different from the value used elsewhere in the draft.

SuggestedRemedy

Relace "10240" with "16384".

Response *Response Status* **W**

ACCEPT.

See response to comment #446

Cl **80** *SC* **80.5** *P* **136** *L* **12** # 48

Hajduczenia, Marek ZTE Corp.

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

to ensure that a given PCS lane always traverses the same physical lane while the link remains in operation. - what does that mean in reality? PCS lanes are very much physical so the text is confusing at least, if not unclear.

SuggestedRemedy

Per explain what is meant in here and remodel the text for clarity.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Change:
"From the time the link is brought up, Skew Variation must be limited
to ensure that a given PCS lane always traverses the same physical lane while the link remains in operation."
To:
"From the time the link is brought up, Skew Variation must be limited
to ensure that each PCS lane always traverses the same lane between any pair of adjacent sublayers while the link remains in operation."

Cl **81** *SC* **81** *P* **141** *L* **1** # 62

Hajduczenia, Marek ZTE Corp.

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

Nowehere in this clause is the number of transfers per second mentioned. In clause 46, there is" 46.1.3 Rate of operation", which at least defines what data rate the MII operates at. Here, in Clause 81, such section does not exist. Why?

SuggestedRemedy

Please add a corresponding section defining data rate of MII operation in clause 81.

Response *Response Status* **W**

REJECT.
Clause 81 follows the model of clause 46, there does exist a section 81.1.3 Rate of operation which is similar in content to 46.1.3 , and then the number of transfers is defined in 82.1.4., which is similar to 49.1.5.

The purpose of 46.1.3 seems to be to contrast the rates of operation of 10GBASE-R and 10GBASE-W, P802.3ba has no such distinction.

Cl **81** SC **81.3.4.2** P **158** L **11** # 278

Muller, Shimon Sun Microsystems

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

It seems that the entire Link Faul Signaling section has been copied from clause 46 (with the relevant modifications), except for the state diagram itself.
Saving trees is a good thing. However, state diagrams are too important to be scattered around and be referenced to in different portions of the standard, 35 clauses apart. It would greatly help "making it easy for the reader to select relevant specification" (from our 5-criteria) if all the relevant state diagrams were in one place.

SuggestedRemedy

Copy the Link Faul Signaling state diagram from Figure 46-9 to the end of this subclause.
Also, change all references from Figure 46-9 to this new figure, Figure 48-9.

Response *Response Status* **W**

ACCEPT.
Duplicate of #75.

Cl **81** SC **81.4.2.3** P **160** L **1** # 77

Hajduczenia, Marek ZTE Corp.

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

Items PHY* and RS* should be separated for XLGMII and CGMII to clearly identify whether the given PICS refers to 40G or 100G system. After all, they are different. Once it is done, the rest of the PICS will also need proper reference / separation whenever two options (40G or 100G) are possible.

SuggestedRemedy

Per comment.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Break out the PHY, RS and G1 entries, 1 per rate.
Call them PHY40, PHY100, RS40, RS100, G1, G2.

Cl **82** SC **82..2.18.3** P **194** L **26** # 786

Ghiasi, Ali Broadcom

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

A good packet may get corrupted if followed by a runt packet across these 2 blocks if aligned as such. Note a runt packet (including S and T) that is 9 octets or greater is not a problem. Also having a minimum of 15 C's between packets is not a problem either.
The first 8 octets comprise RTYPE = T, the next 8 octets comprise RTYPE_NEXT = E
This causes Figure 82-15 to transition from RX_D to RX_E instead of RX_T. In effect, a good packet would be corrupted.

SuggestedRemedy

A possible solution is to define a block format to Figure 82-5, "R" to cover the runt packet. This would prevent this block from being labeled as an invalid or error block.
Figure 82-15 could be updated in the transition from RX_D to RX_T to include "R", R_TYPE_NEXT = (S + C + R)
see ghiasi_02_0110

Response *Response Status* **W**

REJECT.
The state machine is optimized to prevent corrupted packets from entering the MAC, this is at the cost of a few corner cases which might drop what is possibly a good packet immediately after an error.

Cl **82** SC **82.1.1** P **165** L **16** # 79

Hajduczenia, Marek ZTE Corp.

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

What is 'data striping' ? This concept is new and has not been defined anywhere. Examplain, or define

SuggestedRemedy

Per comment

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Change "striping" to "distribution" to be consistent with later sections (two instances in 82.1.1).

Cl **82** *SC* **82.1.4** *P* **167** *L* **16** # 83

Hajduczenia, Marek ZTE Corp.

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

It is not clear how you change from 10.3125 Gtransfers/s for per PCS lane to 40G transmission capacity. Likewise, it is not clear how you change from 5.15625 Gtransfers/s per PCS lane to 100G transmission capacity. Some text needs to be added, which clarifies how many PCS lanes are aggregated to provide the overal transmission capacity.

SuggestedRemedy

Per comment

Response *Response Status* **W**

REJECT.
This is per PCS lane as it states, the number of PCS lanes are detailed elsewhere for each speed, so it is a simple multiplication to get the aggregate rate.

Cl **82** *SC* **82.2.14** *P* **180** *L* **13** # 748

Barrass, Hugh Cisco Systems, Inc.

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

Change register addresses according to HB_17. Note that the register address range is currently wrong.

SuggestedRemedy

Change register addresses (currently 3.90-3.99) to 3.200-219. Also in Table 82-7, p.187

Response *Response Status* **W**

ACCEPT.
See also #720 (AKA HB_17) and related is #459.

Cl **82** *SC* **82.2.18.2** *P* **182** *L* **6** # 203

Hajduczenia, Marek ZTE Corp.

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

This comment is against the whole subclause 82.2.18.2(1) Each variabel seems to have a different style of definition, which impairs reading and complicates analysis - please make them consistent.(2) To simplify analysis of state diagrams, it would be nice to include variable type information and its size as well. (3) What is "Boolean indication" ? Do you mean "Boolean flag" ?(4) definitio of am_status is less than readable - please consider using an equation if needed(5) in am_valid - who is this "we" ??(6) general comment: when number of bits is used as an adjective, it shoul dbe hyphenated e.g. 66-bit variable. Please scrube the draft for such occurences(7) "66b" should be replaced with "66-bit"

SuggestedRemedy

Per comment

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

1- Make all Boolean variables consistent, not "Boolean indication", "Boolean", only "Boolean variable".
2 - Necessary information is included.
3 - See #1
4 - Change to:
"A Boolean variable that is true when all PCS lanes are in am_lock and false when at least one PCS lane is not in am_lock."
5 - this sentence is being deleted by comment #359
6- Make this change throughout clause 82
7 - Make this change throughout clause 82, similar to comment #203.

Cl **82** *SC* **82.2.18.2.2** *P* **182** *L* **45** # 359

Frazier, Howard M Broadcom

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

Colloquial language "Note that we do not know which marker to expect on which PCS lane."

SuggestedRemedy

Delete the sentence. The information is already conveyed by the text of 82.2.1, page 169 line 10.

Response *Response Status* **W**

ACCEPT.

Cl **82** *SC* **82.2.18.2.2** *P* **183** *L* **12** # 286

Dawe, Piers J G Independant

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

To future-proof the PCS, repeat the error propagation analysis for worst CRn, 25G lanes and 40G lanes, not just example (not worst) KR error propagation statistics. Remember that unlike KR, CRn is for multi-vendor use, not just for closed systems, and "adequate" MTTFPA must be VERY good indeed. A packet falsely accepted is a much more serious issue than a dropped packet.

SuggestedRemedy

Find the MTTFPA at the hi_ber limit using conservative estimates for error propagation, for CRn, 25G lanes, and 40G lanes. If necessary, change the hi_ber limit by changing the ber_cnt limit.

Response *Response Status* **U**

REJECT.

Appropriate MTTFPA analysis has been done for the PHYs and interfaces that are part of this project.

See the following presentations reviewed by the study group and task force:
http://www.ieee802.org/3/hssg/public/nov07/gustlin_01_1107.pdf
http://www.ieee802.org/3/ba/public/jan08/gustlin_02_0108.pdf
http://www.ieee802.org/3/ba/public/may09/gustlin_04_0509.pdf

Cl **82** *SC* **82.2.18.3** *P* **190** *L* **13** # 279

Muller, Shimon Sun Microsystems

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

The am_invld_cnt variable assignment is state AM_RESET_CNT seems to be garbled.

SuggestedRemedy

Replace "am" and "nvld_cnt <= 0" with "am_invld_cnt <= 0".

Response *Response Status* **W**

ACCEPT.

Cl **82** *SC* **82.2.4** *P* **175** *L* **39** # 201

Hajduczenia, Marek ZTE Corp.

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

There are sufficient idles to delete in order to make room for alignment markers, in addition to handling clock compensation. Idles or sequence ordered sets are removed, if necessary, to accommodate the insertion of the 66b alignment markers.This means that MAC must make sure that there is enough idle between subsequent frames to send once in a while an alignment marker. How is that achieved? There is no word about it.

SuggestedRemedy

Per comment

Response *Response Status* **W**

REJECT.
There is sufficient desctiption of the minimum IPG in table 4-2. In addition subclause 81.3.1.4 goes through minimum IPG for P802.3ba.

Cl **82** *SC* **82.6** *P* **189** *L* **1** # 167

Hajduczenia, Marek ZTE Corp.

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

In Figure 82-10, variable test_sh seem to be never set to true, even though it is used consistently in the state diagram

SuggestedRemedy

Either mark consiliton under which this variable is set to true or mark that on the state diagram somewhere.

Response *Response Status* **W**

REJECT.
When it is true is defined in the variable definition. This behavior is consistent with other variables and state machines within the standard.

Note: Corrected the page to 189 line 1.

Cl **83** *SC* **83.5.4** *P* **211** *L* **21** # 280

Muller, Shimon Sun Microsystems

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

For the 40GBASE-R PMA I am wondering what rounding scheme was used to get from 102.4ns to ~104ns?
Furthermore:
The use of an approximate value in a table that is covered by a shall statement seems to be inappropriate. It is also inconsistent with most of the other clauses that chose to use the exact absolute time values for the delay constraints expressed in ns. Since this value is well defined, is there any reason why the precise value should not be used?

SuggestedRemedy

Replace "~104" with "102.4" and "~92" with "92.16".

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Dup 477

Cl **83** *SC* **83.6** *P* **26** *L* **214** # 154

Hajduczenia, Marek ZTE Corp.

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

Table 83-4 is cut on page 216

SuggestedRemedy

Per comment

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Dup #230

Cl **83** *SC* **83.7.3** *P* **219** *L* **36** # 623

Dambrosia, John Force 10 Networks Inc

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

For subclauses 83.5.2, items SKEW, USP1SP, DSP1SP6, SPS2P5 do not have corresponding SHALL statements in referenced subclause.

SuggestedRemedy

These PIC all seem related to SKEW, and therefore the subclause reference should be changed to appropriate subclauses in 83.5.3.x.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Remove the PICS line SKEW, as this would just be the aggregate of PICS S1 through S9 in 83.7.4.

The entries USP1SP6, DSP1SP6, SP2SP5 are all included in the PICS table for the purpose of recording adjacent physically instantiated interfaces are present rather than to confirm compliance with a particular requirement. Consequently it is not appropriate to have a "shall" statement in the text for these items. However, the subclause reference for these items is incorrect. Change the subclause reference for USP1SP6, DSP1SP6, SP2SP5 to 83.5.3.

Cl **83** *SC* **83.7.5** *P* **221** *L* **28** # 626

Dambrosia, John Force 10 Networks Inc

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

PIC statements for JTP1 and JTP2 have no corresponding SHALL statements

SuggestedRemedy

add appropriate SHALL statements to 83.5.10

Response *Response Status* **W**

REJECT.

The entries JTP1 and JTP2 are all included in the PICS table for the purpose of recording which options have been implemented rather than to confirm compliance with a particular requirement. Consequently it is not appropriate to have a "shall" statement in the text for these items.

Cl **83A** *SC* **83A.1** *P* **14** *L* **376** # 142

Hajduczenia, Marek ZTE Corp.

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

item e)"Shared functionality with other 40 Gb/s or 100 Gb/s Ethernet blocks" - what are "Ethernet blocks" ???

SuggestedRemedy

Either clarify what that is or replace with something that has been defined already.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Remove e) "Shared functionality with other 40 Gb/s or 100 Gb/s Ethernet blocks"

Statement is not clear and intent is covered in d) "shared technology with other 40 Gb/s or 100Gb/s interfaces"

Cl **83A** *SC* **83A.1** *P* **375** *L* **52** # 313

Dawe, Piers J G Independant

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

We should not call part of the receiver a "transmitter" or part of the transmitter a "receiver", if we can avoid it.
According to 83.3, a PMA has TX and RX directions, each of which has an input and an output. nAUI is intended to connect PMAs, e.g. one in the host and one in a module. Therefore nAUI must connect a (host) TX (transmitter) output to a (module) transmitter input, and a (module) RX (receiver) output to a (host) receiver input. 83B used to use, and 86A uses, the terms host output, module input, module output, host input, according to resolution of D2.0 comment 470:
'ACCEPT IN PRINCIPLE. Need to avoid using "receive" or "receiver" on the transmit path (down the stack, PMA to MDI) or "transmit" or "transmitter" on the receive path (up the stack, MDI to PMA).
Change names using the terms host, module, input and output. For example, in the caption of Table 86-6 change "PPI electrical transmit signal output specifications at TP1a" to "nPPI host electrical output specifications at TP1a" '
This is compatible with 83 and the rest of 802.3ba except 83A and now 83B. But Figure 83A-2 shows two "Transmitter"s and two "Receiver"s, one for each direction. This isn't compatible terminology.
Note this problem does not arise in clauses 84 or 85.
Also compare Clause 47 (XAUI) which uses "driver" and "receiver" for the ports of the ICs.
The proposed remedies follow 86A for connector-related items and 47 for IC-related items.

SuggestedRemedy

Change "Transmitter" to "driver", "Transmit Compliance Point" to "driver compliance point", "transmit eye mask" and "Transmitter Eye Mask" to "driver eye mask" or just "eye mask", "transmit signal" to ""signal" or "output signal", "transmit jitter" to "driver jitter" throughout 83A. In Table 83A-2, delete "Receiver" before "eye mask", five times including table note. Consider changing "XLAUI/CAUI receiver" to "XLAUI/CAUI component receiver" where appropriate. Change "Figure 83A-2--Definition of transmit and receive test points" to "Figure 83A-2--Definition of test points".

Response *Response Status* **W**

REJECT.

XLAUI / CAUI Component Transmitter and Receiver is different from 83.3 "TX and Rx Directions" and is clearly shown in 83A-2.

See comment 328.

Cl **83A** *SC* **83A.2.1** *P* **377** *L* **48** # 315

Dawe, Piers J G Independant

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

Font too small in Figures (6.5 or 7 pt, should not be smaller than 8 pt). This may be because the charts in 83A have been shrunk.

SuggestedRemedy

Don't shrink the figures. Check all clauses for font too small.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Resize/change font for figures 83A-3, 83A-4, 83A-14

Cl **83A** *SC* **83A.3.3** *P* **379** *L* **23** # 316

Dawe, Piers J G Independant

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

Too many gratuitous capitals. This is an ER comment because we are unlikely to catch them all in one cycle.

SuggestedRemedy

Scrub the draft, all clauses and annexes.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
Change the following:
Editorial licence given to change similar capitalization in 83A & 83B and other clauses.
Table 83A-1:
"Maximum Differential Output Voltage, peak-to-peak" to "Maximum differential output voltage, peak-to-peak"
"Minimum De-emphasis" to "Minimum de-emphasis"
"Maximum De-emphasis" to "Maximum de-emphasis"
"Maximum Termination Mismatch at 1MHz" to "Maximum termination mismatch at 1MHz"
"Maximum Output AC Common Mode Voltage, RMS" to "Maximum output AC common mode voltage, RMS"
"Minimum Output Rise and Fall time (20% to 80%)" to "Minimum output rise and fall time (20% to 80%)"
"Maximum Total Jitter" to "Maximum total jitter"
"Maximum Deterministic Jitter" to "Maximum deterministic jitter"
"bTotal jitter measurement methodology defined in 83A.5"
"cDeterministic jitter measurement methodology defined in 83A.5"
"d Transmitter eye mask illustrated in Figure 83A-8"

Table 83A-2
"Maximum Input AC Common Mode Voltage, RMS" to "Maximum input AC common mode voltage, RMS"
"Minimum Input Rise and Fall Time (20% to 80%)" to "Minimum input rise and fall time (20% to 80%)"
"Minimum deterministic input jitter tolerance"

Table 83B-2
"Minimum Module differential input
return loss" to "Minimum module differential input return loss"

Table 83B-3
"Minimum De-emphasis" to "Minimum de-emphasis"
"Maximum De-emphasis" to "Maximum de-emphasis"
"Maximum Termination Mismatch at 1 MHz" to "Maximum termination mismatch at 1 MHz"
"Maximum Total Jitter" to "Maximum total jitter"
"Maximum Deterministic Jitter" to "Maximum deterministic jitter"

Table 83B-5

"Maximum Total Jitter" to "Maximum total jitter"
"Maximum Deterministic Jitter" to "Maximum deterministic jitter"

Cl **83A** *SC* **83A.3.3.1** *P* **380** *L* **15** # 318

Dawe, Piers J G Independant

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

De-emphasis means a relative attenuation of the higher frequencies, as in "Dolby noise reduction is a form of dynamic preemphasis employed during recording, plus a form of dynamic deemphasis used during playback". Or according to the ANSI standard "ATIS Telecom Glossary 2007", deemphasis is "In FM transmission, the process of restoring (after detection) the amplitude-vs.-frequency characteristics of the signal." So de-emphasis is the opposite of what's happening here, which is
"preemphasis
A system process designed to increase, within a band of frequencies, the magnitude of some (usually higher) frequencies with respect to the magnitude of other (usually lower) frequencies, in order to improve the overall signal-to-noise ratio by minimizing the adverse effects of such phenomena as attenuation differences, or saturation of recording media, in subsequent parts of the system. Note: Preemphasis has applications, for example, in audio recording and FM transmission.".
An implementation might achieve emphasis by a subtractive method, and the implementer might call his method what he wants. However, that's implementation. Viewed from the outside, pre-emphasis is a relative boosting of the higher frequencies and de-emphasis is its opposite.

SuggestedRemedy

We don't need to argue about de- versus pre-: just change "de-emphasis" to "emphasis" throughout.

Response *Response Status* **W**

REJECT.
De-emphasis is an industry standard term where implementations are de-emphasizing low freqnecy content
Straw poll:
Use De-emphasis: 6
Use Emphasis: 3
No concensus for change

Cl **83A** *SC* **83A.3.3.1** *P* **380** *L* **21** # 319

Dawe, Piers J G Independant

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

"Vtx-demph" should be replaced with "VMA" in 83A and 83B.
"Vtx-demph" is a bad metric for four reasons:
If using a sampling scope, a measurement at a point in time is slower than a measurement over a time window.
A measurement at a point in time is degraded by signal and instrument noise (hence needs averaging, which makes the measurement even slower).
A measurement at a point in time is degraded by waveform roughness caused by e.g. reflections (averaging over repeated measurements doesn't fix this).
This metric does the same job as the already well-established VMA, so it adds clutter for no benefit.
Also, draft says "Amplitude measurements are... taken at the center of the respective UI" yet Figure 83A-5 implies that "Maximum absolute output", "Minimum absolute output" and "Differential peak-to-peak amplitude" are taken from the extremes of the waveform irrespective of the UI.
And, the number of waveforms to average is not a proper item of specification: measurement accuracy is something for the implementer to trade off against guard-bands and other cost considerations.

SuggestedRemedy

At line 10, replace "Amplitude measurements are taken using an average of at least 16 waveforms and taken at the center of the respective UI using a square wave test pattern as defined in 83.5.10."
with either:
"Differential peak-to-peak amplitude is defined by an average over the central 20% of the first UI of each half of the square wave test pattern defined in 83.5.10. VMA is defined in 86A.5.3.5." if the UI matters,
or:
"VMA is defined in 86A.5.3.5." if the UI doesn't matter for differential peak-to-peak amplitude, as in Figure 83A-5.
Replace "Vtx-demph" with "VMA" throughout (6 occurrences in all).
If we want to give guidance on averaging, add "NOTE--It is recommended that at least 16 waveforms be averaged for an emphasis measurement."

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

At line 10, replace "Amplitude measurements are taken using an average of at least 16 waveforms and taken at the center of the respective UI using a square wave test pattern as defined in 83.5.10."
with :
"VMA is defined in 86A.5.3.5."

Replace Vtx-demph with VMA in table 83A-1, equation 83A-3, equation 83A-4, figure 85A-5, table 83B-3, equation 83B-7 (no need to have a different lable for Vtx-demph)

Cl **83A** *SC* **83A.3.4.6** *P* **386** *L* **38** # 323

Dawe, Piers J G Independant

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

The low frequency jitter tolerance is the same for a receive side input as for a transmit side input, so there is no margin for the small amount of extra LF jitter added by CDRs in the link (e.g. in a module). We also have to check that the nAUI LF jitter specs are compatible with the PMDs, both 10G-lane and 25G-lane. Here is one proposed remedy; there may be alternatives.

SuggestedRemedy

Change the corner frequency for a nAUI interface on the transmit side (towards the line) from 4 MHz to 2 MHz. Also in 83B.

Response *Response Status* **W**

REJECT.

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.

Cl **83A** *SC* **83A.5.1** *P* **389** *L* **16** # 881

Petrilla, John Avago Technologies

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

The last sentence of the paragraph, "All XLAUI/CAUI channels shall be active during transmit jitter testing to ensure any channel-channel crosstalk is included in the jitter evaluation." uses the word 'channel' where the word 'lane' would seem a better choice.

SuggestedRemedy

Change "All XLAUI/CAUI channels shall be active during transmit jitter testing to ensure any channel-channel crosstalk is included in the jitter evaluation." to "All XLAUI/CAUI lanes shall be active during transmit jitter testing to ensure any lane-lane crosstalk is included in the jitter evaluation."

Response *Response Status* **W**

ACCEPT.

See suggested remedy

Cl **83A** *SC* **83A.5.2** *P* **389** *L* **24** # 326

Dawe, Piers J G Independant

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

If by "peak-to-peak deterministic jitter" you mean dual-Dirac Deterministic Jitter, it definitely isn't peak-to-peak, it's related to intercept points that have nothing to do with peaks. And if not, what do you mean?

SuggestedRemedy

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

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Add statement after the first sentence:
"Applied jitter is measured using the methodology described in Annex 48B.3"

Peak-to-peak deterministic jitter is used in ap (CL72), 47, 85.

Cl **83A** *SC* **83A.5.2** *P* **389** *L* **29** # 882

Petrilla, John Avago Technologies

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

There should not be any inferences that test setups and block diagrams are compulsory.

SuggestedRemedy

Change "Figure 83A--15 depicts the XLAUI/CAUI Jitter Tolerance test setup." to "Figure 83A--15 depicts a XLAUI/CAUI Jitter Tolerance test setup."

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
change (line 21 pg 389): The XLAUI/CAUI jitter tolerance test setup shall meet the minimum receiver eye mask defined in Table
83A-2.
to:
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.

Cl **83B** *SC* **83B.1** *P* **396** *L* **43** # 328

Dawe, Piers J G Independant

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

We should not call part of the receiver a "transmitter" or part of the transmitter a "receiver", if we can avoid it. Reason per another comment.
This proposed remedy, for 83B, follows 86A for connector-related items and 47 for IC-related items.
In addition, the specs in 83B don't relate to the XLAUI/CAUI component but to the host or module input or output.

SuggestedRemedy

In Figure 83B-3, change "Transmitter" to "Driver", twice, and once each in Figure 83B-5 and 83B-7.
In 83B.2.1, change "Transmit de-emphasis" to "Module output emphasis" and "transmitter jitter" to "module output jitter".
In Table 83B-3, delete "Transmitter" before "eye mask", five times including table note, and four more times in the PICS 83B.4.3.
In Table 83B-5, delete "Receiver" before "eye mask", five times including table note, and four more times in the PICS 83B.4.4.
Change "83B.2.3 Receiver Tolerance" to "83B.2.3 Host input signal tolerance".
In Figure 83B-10, change "XLAUI / CAUI
receiver" to "XLAUI / CAUI host input".
If it isn't deleted by another comment, change 83B.4.4 PICS HC12 from "Receiver AC coupling" to "Host input AC coupling".

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Editoral license to add corresponding text to describe figure lables where appropriate (consider 86A-8 as input for 83B-10)

Label Figures 83B-5 and 83B-7 with input and output points associated with specification parameters in Tables.

Align naming of "Transmit de-emphasis" and "transmitter jitter" in 83B.2.1 with these names

Align naming of eye mask parameters in Table 83B-3 with these names

Align naming of eye mask parameters in Table 83B-5 with these names

Change the title of "83B.2.3 Receiver Tolerance" in line with these names

Change the labelling of the rightmost box in figure 83B-10 in line with these names

If it isn't deleted by another comment, change the naming of 83B.4.4 PICS HC12 in line with these names.

Cl **83B** *SC* **83B.1** *P* **396** *L* **49** # 268

Trowbridge, Stephen ALCATEL-LUCENT

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

The title "Figure 83B-3 Chip-Module loss budget " does not indicate the reference frequency

SuggestedRemedy

Change title to: "Figure 83B-3 Chip-Module loss budget at 5.15625 GHz"

Response *Response Status* **W**

ACCEPT.
See suggested remedy

Cl **83B** *SC* **83B.1** *P* **397** *L* **10** # 851

Dudek, Michael QLogic Corporation

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

This is actually 83B. The connector loss is unnecessarily restrictive and tighter than CR4/10 and nppi. The loss budget for 83A is 12.38 dB and there isn't a good reason why the 83B loss budget should be this much smaller. This budget alone would allow a connector loss of 2.38 dB however that would be a horrible connector and probably worse than we should consider using.

SuggestedRemedy

Change the max connector loss to 1.74 dB (same as assumed worst case in 85A.4). If this is accepted also change the connector loss from "up to 0.5dB" to "up to 1.74dB" in Figure 83B-5. I am not suggesting a change to figure 83B-7 because the connector there is on the MCB and a better quality connector should be used for this piece of test equipment.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Additional detail required on 83A loss budget.

Modify the following sentence in 83A.4:
"This section describes recommended characteristics which are used to describe an XLAUI/CAUI channel."
to
:This section describes recommended characteristics which are used to characterize an XLAUI/CAUI channel as shown in Figure 83A-2."

modify figure 83A-2 which shows channel from transmitter to receiver (full length bi-directional arrow, move compliance points towards middle).

Commenter is encouraged to suggest additional information on loss budgeting in 83B in the next cycle

[Editor's note: This comment is against 83B.1, hence corrected clause/subclause number fields to 83B]

Cl **83B** *SC* **83B.1** *P* **397** *L* **7** # 329

Dawe, Piers J G Independant

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

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%).

SuggestedRemedy

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 *Response Status* **W**

ACCEPT IN PRINCIPLE.

See comment 851

Cl **83B** *SC* **83B.2** *P* **18** *L* **397** # 115

Hajduczenia, Marek ZTE Corp.

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

It is said in the text that Figure83B-5 and Figure 83B-7 include definition of compliance points. I do not see any on these figures.

SuggestedRemedy

Clarify where the said compliance points are located on these figures, adding them clearly on the figures.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

See comment 328

Cl **83B** *SC* **83B.2** *P* **397** *L* **26** # 330

Dawe, Piers J G Independant

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

"HCB test fixture PCB insertion loss": what's a "HCB test fixture"? Something to test the HCB? Other changes to improve clarity and consistency.

SuggestedRemedy

Change "The reference HCB test fixture PCB insertion loss" to "The reference differential insertion loss of the HCB, excluding the module connector". Next line, change "test fixture" to "HCB". Similarly for MCB.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Change "The reference HCB test fixture PCB insertion loss" to "The reference differential insertion loss of the HCB PCB". Next line, change "test fixture" to "HCB".

Change "The reference MCB test fixture PCB insertion loss" to "The reference differential insertion loss of the MCB PCB". Next line, change "test fixture" to "MCB".

Cl **83B** *SC* **83B.2** *P* **397** *L* **27** # 273

Trowbridge, Stephen ALCATEL-LUCENT

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

The sentence "The effects of differences between the insertion loss of an actual test fixture and the reference insertion should be accounted for in the measurements." is not normative.

SuggestedRemedy

Change to: "The effect of the difference between the insertion loss of an actual HCB and the reference insertion loss are to be accounted in the measurements."

Response *Response Status* **W**

ACCEPT.

See suggested remedy

See comment 274

Cl **83B** *SC* **83B.2** *P* **397** *L* **32** # 332

Dawe, Piers J G Independant

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

The reference HCB test fixture PCB insertion loss should be a smooth curve like equation 86A-4, with between 1.26 dB (like the 86A HCB) and 2.1 dB (max loss for 83B module PCB) at 5.15625 GHz. This is a TR in case there is delay in finding what HCB loss is achievable.

SuggestedRemedy

Use a scaled version of equation 86A-4. E.g. with 1.8 dB loss at 5.15625 GHz, this would be: 0.0143 + 0.4291 * sqrt(f) + 0.1573 * f

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

See comment 591

(discussion)
The loss of 2.1dB is maintained to match 83B module loss budget

Cl **83B** *SC* **83B.2** *P* **398** *L* **29** # 271

Trowbridge, Stephen ALCATEL-LUCENT

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

The sentence "HCB PCB up to 2.1dB" reflects the HCB loss value extracted from the equality equation 83B-3. Therefore, the HCB loss value should be identified as a target value.

SuggestedRemedy

Change title to: "HCB PCB targeted to 2.1dB"

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

See comment 852

Cl **83B** *SC* **83B.2** *P* **398** *L* **41** # 269

Trowbridge, Stephen ALCATEL-LUCENT

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

The title "Figure 83B-5 Chip-module compliance points with HCB" does not indicate the reference frequency.

SuggestedRemedy

Change title to: "Figure 83B-5 Chip-module compliance points with HCB at 5.15625 GHz"

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Change title to: "Figure 83B-5 Chip-module HCB insertion loss budget at 5.15625 GHz"

Cl **83B** *SC* **83B.2** *P* **398** *L* **49** # 274

Trowbridge, Stephen ALCATEL-LUCENT

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

The sentence "The effects of differences between the insertion loss of an actual test fixture and the reference insertion should be accounted for in the measurements." is not normative.

SuggestedRemedy

Change to: "The effect of the difference between the insertion loss of an actual MCB and the reference insertion loss are to be accounted in the measurements."

Response *Response Status* **W**

ACCEPT.

See suggested remedy

See comment 273.

Cl **83B** *SC* **83B.2** *P* **398** *L* **52** # 333

Dawe, Piers J G Independant

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

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

SuggestedRemedy

If feasible, reduce the nAUI B MCB reference loss towards the nPPI reference loss.

Response *Response Status* **U**

REJECT.

The document is technically complete.

Suggested proposal may be advantageous, however, a more complete technical proposal including all other impacted parameters (e.g., return loss, eye mask, jitter, etc.,) is required for the task force to evaluate this proposal.

Cl **83B** *SC* **83B.2** *P* **399** *L* **36** # 272

Trowbridge, Stephen ALCATEL-LUCENT

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

The sentence "MCB PCB up to 2.1dB" reflects the MCB loss value extracted from the equality equation 83B-4. Therefore, the MCB loss value should be identified as a target value.

SuggestedRemedy

Change title to: "MCB PCB targeted to 2.1dB"

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

See comment 853

Cl **83B** *SC* **83B.2** *P* **399** *L* **47** # 270

Trowbridge, Stephen ALCATEL-LUCENT

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

The title "Figure 83B-7 Chip-module compliance points with MCB " does not indicate the reference frequency.

SuggestedRemedy

change title to: "Figure 83B-7 Chip-module compliance points with MCB at 5.15625 GHz"

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

change title to: "Figure 83B-7 Chip-module with MCB insertion loss budget at 5.15625 GHz"

Cl **83B** *SC* **83B.2.3** *P* **404** *L* **11** # 885

Petrilla, John Avago Technologies

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

There should not be any inferences that test setups and block diagrams are compulsory.

SuggestedRemedy

Change from "Figure 83B--10 depicts the XLAUI / CAUI jitter tolerance test setup." to "Figure 83B--10 depicts a XLAUI / CAUI jitter tolerance test setup."

Response *Response Status* **W**

ACCEPT.

See suggested remedy

Cl **83B** *SC* **83B.2.3** *P* **404** *L* **3** # 884

Petrilla, John Avago Technologies

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

The requirement, "shall be conducted with a stressed input signal which is comprised of at least 0.25 UI peak-to-peak deterministic jitter" is open-ended for stress and, as found with a similar statements in clause 52, very problematic. Experience with clause 52 stressed source definition has led to more careful definitions, e.g. SFF-8431 where target values are specified, Table 86-8 where values are used, or Table 86A-4 where Specification values are used.

SuggestedRemedy

Change from "shall be conducted with a stressed input signal which is comprised of at least 0.25 UI peak-to-peak deterministic jitter ..." to "shall be conducted with a stressed input signal which is comprised of 0.25 UI peak-to-peak deterministic jitter ..."

Response *Response Status* **W**

ACCEPT.

See suggested remedy

Cl **85** *SC* **85** *P* **244** *L* **26** # 812

Moore, Charles Avago Technologies

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

min amplitude(linear fit) spec of 0.24V conflicts with Linear fit pulse spec on line 23-24

SuggestedRemedy

delete min amplitude (linear fit) spec

Response *Response Status* **W**

ACCEPT.

Cl **85** *SC* **85** *P* **245** *L* **35** # 815

Moore, Charles Avago Technologies

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

The "square wave test pattern" is not specified. The spec could be calling for alternating 1s and 0s, which will not work

SuggestedRemedy

Change 6) to:
"The reference lane of the transmitter under test sends a square wave test pattern, consisting of 5 consecutive ones followed by five consecutive zeros, while all other lanes send either scrambled idle or PRBS-31"

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Change 6) to:
"The reference lane of the transmitter under test sends a square wave test pattern as specified in 83.5.10 while all other lanes send either scrambled idle or PRBS31"

Cl **85** *SC* **85** *P* **247** *L* **13** # 818

Moore, Charles Avago Technologies

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

The peak value of the linear fit pulse is out of alignment with table 85-1

SuggestedRemedy

Change :
"The peak value of the linear fit pulse from step 3, p, shall be greater than 240 mV."
to:
"DC amplitude, the sum of linear fit pulse response, p(k), from step 3 divided by M from step 3, shall be greater than 0.34V and no greater than 0.6V. The peak of the linear fit pulse response from step 3 shall be greater than 0.63*DC amplitude."

Response *Response Status* **W**

ACCEPT IN PRINCIPLE. Change :
"The peak value of the linear fit pulse from step 3, p, shall be greater than 240 mV."
to:
"The DC amplitude, the sum of linear fit pulse response, p(k), from step 3 divided by M from step 3, shall be greater than 0.34V and less than or equal to 0.6V. The peak of the linear fit pulse response from step 3 shall be greater than 0.63*DC amplitude."

Cl **85** *SC* **85** *P* **247** *L* **5** # 819

Moore, Charles Avago Technologies

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

Step 3 is referenced elsewhere and should be as clear as possible. I think that its clarity can be improved.

SuggestedRemedy

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."
Make the same change to step 9 (line 35).
Also in steps 10 and 11 (lines 37-39) change:
"linear fit pulse, p,"
to:
"linear fit pulse response, p(k),"
and in notes b and c to Table 85-4, change:
"linear fit pulse"
to:
"linear fit pulse response p(k)"

Response *Response Status* **W**

ACCEPT.

Cl **85** *SC* **85** *P* **251** *L* **9** # 820

Moore, Charles Avago Technologies

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

The text of 85.8.3.5 Test Fixture and Figure 85-5 Transmitter test fixture, are very unclear.

SuggestedRemedy

Have 85.8.3.5 State:
"The test fixture shown in Figure 85-5 or its functional equivalent is required for all Transmitter tests and for receiver return loss measurement. It shall consist of a plug connecting either to a 40-GBASE-CR4 or 100GBASE-CR10 MDI connector as appropriate and all necessary signals connected to RF connectors and all other signals terminated with 100 Ohms differential. When mated with a cable assembly test fixture it shall meet the specifications of 85.10.9."
I Will provide a suggested drawing.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
See response comment#831 for updated figure.
See response comment#832 for updated text.

Cl **85** *SC* **85** *P* **25385** *L* **4** # 822

Moore, Charles Avago Technologies

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

85.8.4.2 does not make it clear that both tests must pass

SuggestedRemedy

Change The paragraph in 85.8.4.2 To:
"The receiver shall path both Test 1 (short channel) and Test 2 (long channel) using the interference tolerance parameters listed in Table 85-7."

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
See response comment#534

Cl **85** *SC* **85.10.7** *P* **260** *L* **53** # 299

Dawe, Piers J G Independant

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

Is the factor of 2 correct here?

SuggestedRemedy

Check, correct if necessary

Response *Response Status* **W**

REJECT.
Factor of two is correct.

Cl **85** *SC* **85.10.8** *P* **262** *L* **25** # 769

Ghiasi, Ali Broadcom

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

Document organization, it would a better fit to move 85.10.8 in to test fixture section

SuggestedRemedy

Move the section after 85.8.3.5

Response *Response Status* **W**

REJECT.
85.8 is MDI electricals; 85.8.3.5 test fixture is for TP2 or TP3 testing.
85.10 is cable assembly characteristics; 85.10.8 test fixture is for the cable assembly.

Cl **85** *SC* **85.10.9** *P* **262** *L* **21** # 770

Ghiasi, Ali Broadcom

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

Document organization, it would a better fit to move 85.10.9 in to test fixture section

SuggestedRemedy

Move the section after 85.8.3.5

Response *Response Status* **W**

REJECT.

See comment#769. In addition, 85.10.9 should follow after 85.10.8.

Cl **85** *SC* **85.10.9.1** *P* **263** *L* **41** # 768

Ghiasi, Ali Broadcom

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

mated test fixture is missing SCC and SCD specifications

SuggestedRemedy

CL 85 has now incorporated HCB and MCB from CL 86 but did not include SCC and SCD requirements. Please copy form 86A.5.1.1.2

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Add equation 86A-10 (SCD12/21) and Equation 86A-9 (SCC11/22)

Cl **85** *SC* **85.11.1.1** *P* **267** *L* **32** # 772

Ghiasi, Ali Broadcom

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

MLD can reorder lanes but figure 85-12 shows specific SL# connected to the each pin of the MDI connector. Connecting lane 1 to lane one of the the MDI could compromise the signal integrity based on QSFP and CXP connector pin out.
Unlike CL85, CL86 allows connecting any host lane to module lane for ease of flexiblity and SI

SuggestedRemedy

Current statement "The Style-1 40GBASE-CR4 MDI connector contact assignment shall be as defined in Table 85-12." to "Example Style-1 40GBASE-CR4 MDI connector contact assignment is shown in Table 85-12. Other wiring assignment is acceptable as long as Tx lane and Rx lane pairs are not broken and the polarity is maintained."

Response *Response Status* **U**

REJECT. MLD is independent of MDI source lane (SL) naming conventions; MDI contact assignments consistent with SFF-8436.

Cl **85** *SC* **85.11.1.2.1** *P* **269** *L* **32** # 773

Ghiasi, Ali Broadcom

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

MLD can reorder lanes but figure 85-12 shows specific SL# connected to the each pin of the MDI connector. Connecting lane 1 to lane one of the the MDI could compromise the signal integrity based on QSFP and CXP connector pin out.
Unlike CL85, CL86 allows connecting any host lane to module lane for ease of flexiblity and SI

SuggestedRemedy

Current statement "The Style-1 40GBASE-CR4 MDI connector contact assignment shall be as defined in Table 85-12." to "Example Style-1 40GBASE-CR4 MDI connector contact assignment is shown in Table 85-12. Other wiring assignment is acceptable as long as Tx lane and Rx lane pairs are not broken and the polarity is maintained."

Response *Response Status* **U**

REJECT. See response comment#772.

Cl **85** *SC* **85.11.1.3** *P* **271** *L* **32** # 774

Ghiasi, Ali Broadcom

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

MLD can reorder lanes but figure 85-12 shows specific SL# connected to the each pin of the MDI connector. Connecting lane 1 to lane one of the the MDI could compromise the signal integrity based on QSFP and CXP connector pin out.
Unlike CL85, CL86 allows connecting any host lane to module lane for ease of flexiblity and SI

SuggestedRemedy

Current statement "The Style-1 40GBASE-CR4 MDI connector contact assignment shall be as defined in Table 85-12." to "Example Style-1 40GBASE-CR4 MDI connector contact assignment is shown in Table 85-12. Other wiring assignment is acceptable as long as Tx lane and Rx lane pairs are not broken and the polarity is maintained."

Response *Response Status* **U**

REJECT.
See response to comment#772.

Cl **85** *SC* **85.11.2** *P* **37** *L* **269** # 144

Hajduczenia, Marek ZTE Corp.

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

This comment serves as a reminder to insert proper IEC reference number instead of "IEC XXXXX-X-XX"

SuggestedRemedy

Per comment

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

See comment#544.

Cl **85** *SC* **85.7.1** *P* **240** *L* **33** # 785

Ghiasi, Ali Broadcom

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

TP3 location as identified on Fig 85-2 is not correct

SuggestedRemedy

TP3 is the output of the cable measured as measured with the cable test fixture. Add doted line to show cable test fixture and designate TP3 signal on it

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
See resolution to comment#131-
Under 85.7.1 Link block diagram create table of entries summarizing textual description of test points.

Discussion below:
Figure is too busy to include suggested illustration. Subclause text sufficiently describes TP2 " unless specified otherwise, all transmitter measurements and tests defined in Table 85-4 are made at TP2 utilizing the test fixture specified in 85.8.3.5."

Cl **85** *SC* **85.7.1** *P* **240** *L* **33** # 784

Ghiasi, Ali Broadcom

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

TP2 location as identified on Fig 85-2 is not correct

SuggestedRemedy

Please add TP2 test fixture dotted below the current diagram and its output designated as TP2

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
See comment#785.

Cl **85** *SC* **85.8.3** *P* **244** *L* **10** # 294

Dawe, Piers J G Independant

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

Draft has a table row "Unit interval nominal 85.8.3.8 96.969697 ps". No other 10G/lane PMD has a similar row. However many digits you add, it will never be correct because 1000/10.3125 is a recurring decimal.

SuggestedRemedy

Delete the row, here and in Table 85-6. Delete "The corresponding unit interval is nominally 96.969697 ps." in 85.8.3.8. If you think that not all your readers know what a unit interval is, as it's the same for Tx and Rx, add a sentence at 85.8, "The 40GBASE-CR4 and 100GBASE-CR10 PMDs use NRZ signaling at nominally 10.3125 GBd on each lane, for which the unit interval is approximately 96.97 ps."

Response *Response Status* **W**

REJECT.
Unit interval nominal provided in other clauses in base document e.g., 47, 54. Your suggested remedy provides information in text rather than table.

Cl **85** *SC* **85.8.3.2** *P* **245** *L* **27** # 756

Misek, Brian Avago Technologies

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

Term ICN is too general, this is far-end integrated cross talk which is given the symbol sigma with subscript fx in the referenced section equation 85-31.

SuggestedRemedy

Change ICN to symbol sigma with fx subscript.

Response *Response Status* **W**

ACCEPT.

Cl **85** *SC* **85.8.3.4** *P* **250** *L* **36** # 776
Ghiasi, Ali Broadcom

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

CL 85A TP0 to TP2 definition require min loss why does CL85 does not require min channel loss?

SuggestedRemedy

Please add definition of CL86A6 min channel loss to this section

Response *Response Status* **W**

REJECT.

Equation 86A-16 for IL min does not sufficiently characterize TP0-TP2
or TP3-TP5 insertion loss e.g., 0 dB @ 1 GHz,
~2.08 dB @ 5.15625 GHz.
TP0 to TP2 = 2.08= [TxRx-PCB]+[Mated connector IL]+[TPTF/HCB IL]
TP0 to TP2 = 2.08= [TxRx-PCB]+[Mated connector IL]+1.26
[TxRx-PCB]+[Mated connector IL]=0.82 dB
In addition, the parameters at TP2 and TP3 measured includes affects of TxRxPCB IL therefore a normative minimum TxRxPCB IL is not required.

Cl **85** *SC* **85.8.3.5** *P* **251** *L* **19** # 771
Ghiasi, Ali Broadcom

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

Currently TP2/TP3 test fixtrue hangs in air

SuggestedRemedy

Please add host to the left of the TP2/TP3 test fixture. Replace the DC blocks and scope with rf port

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
See response to comment#831.

Cl **85** *SC* **85.8.4.2** *P* **253** *L* **21** # 762
Misek, Brian Avago Technologies

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

"-" is confusing and this is not MDNEXT but "sigma subscript nx"

SuggestedRemedy

Remove "-" and change MDNEXT to "sigma subscript nx"

Response *Response Status* **W**

ACCEPT.

Cl **85** *SC* **85.8.4.2** *P* **253** *L* **3** # 295
Dawe, Piers J G Independant

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

"The receiver interference tolerance tests shall be implemented": That's wrong: there should be no requirement to implement tests, only requirements to achieve performance. need to change the sentence more, e.g. "To be compliant the receiver interference tolerance shall satisfy the requirements of 85.8.4.3 to 85.8.4.3.4 with the parameters given in Table 85-7." 85.8.4.3 should be 85.8.4.2.1 . Also, please use proper square root sign in the table.

SuggestedRemedy

Change "The receiver interference tolerance tests shall be implemented using the receiver interference tolerance parameters summarized in Table 85-7." to either:
"The receiver interference tolerance of each lane shall comply with the parameters of Table 85-7 if measured according to the methods of 85.8.4.3 to 85.8.4.3.4." to either:
or:
"Receiver interference tolerance tests is defined by the methods of 85.8.4.3 to 85.8.4.3.4 and the parameters given in Table 85-7." and delete the PICS.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Change "The receiver interference tolerance tests shall be implemented using the receiver interference tolerance parameters summarized in Table 85-7."

To"The receiver interference tolerance of each lane shall comply with the parameters of Table 85-7 when implemented using both the receiver interference tolerance test 1 and test 2."

Cl **85** *SC* **85.8.4.3** *P* **253** *L* **38** # 778
Ghiasi, Ali Broadcom

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

Test channel is measured from cable assembly test fixture to cable assembly test fixture and not to the middle of MDI

SuggestedRemedy

Please add 2nd digram showing test channel were it is used for calibration with cable right end terminated to cable assembly test fixture

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
In Figure 85-6 move label MDI over MDI.
Extend hatched line to enclose Tx/Rx PCB, Rx Under Test and Tx. Label hatched rectangle "host under test".

Cl **85** *SC* **85.8.4.3** *P* **253** *L* **38** # 777
Ghiasi, Ali Broadcom

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

FIg 85-6 defines LUT and PGC but you have to read the next section before you know what they are

SuggestedRemedy

Please provide test setup definition in the same section as well as definition of LUT and PGG in this section

Response *Response Status* **W**

ACCEPT IN PRINCIPLE. See comment #696.

Cl **85** *SC* **85.8.4.3.3** *P* **254** *L* **45** # 783
Ghiasi, Ali Broadcom

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

The rise and fall time test patter not provided and definition

SuggestedRemedy

Rise and fall times are measured with pattern of 8 ones and 8 zeros from 20-80%.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
See response to comment#698.

Cl **85** *SC* **85.84.3** *P* **253** *L* **38** # 779
Ghiasi, Ali Broadcom

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

The cable assembly should be CR4/CR10 and not n pairs of Twinaxial cable n=4,10, etc

SuggestedRemedy

Replace with CR4/CR10 cable assembly

Response *Response Status* **W**

ACCEPT IN PRINCIPLE. Change: Figure 85-6 and Figure 85-7
n pair
Twinaxial cable
n=4,10,.
To: cable assembly 4x or 10x consistent with Figure 85-2.

Cl **85** *SC* **85.84.3** *P* **253** *L* **38** # 781
Ghiasi, Ali Broadcom

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

Fig 85-6 is missing load on the left side

SuggestedRemedy

Please add load to the left of the figure terminating all lanes

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Add under sentences in comment#696
"The cable assembly test fixture receive lanes are terminated in 100 ohm differentially."

Cl **85** *SC* **85.84.3** *P* **253** *L* **38** # 782
Ghiasi, Ali Broadcom

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

Fig 85-6 will improve if RX Under test show one lane under test as well as TX on the right all lanes active

SuggestedRemedy

Please implement the suggestion

Response *Response Status* **W**

REJECT.
Figure 85-7 provides the additional details requested.

Cl **85** *SC* **85.84.3.2** *P* **254** *L* **13** # 780
Ghiasi, Ali Broadcom

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

The cable assembly should be CR4/CR10 and not n pairs of Twinaxial cable n=4,10, etc

SuggestedRemedy

Replace with CR4/CR10 cable assembly

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
See response to comment#779.

Cl **85A** *SC* **85A.4** *P* **418** *L* **25** # 275

Trowbridge, Stephen ALCATEL-LUCENT

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

The title "Figure 85A-1- Illustration channel insertion loss budget" " does not indicate the reference frequency.

SuggestedRemedy

Change title to: "Figure 85A-1- Illustration channel insertion loss budget at 5.15625 GHz"

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Page 487- line 1: Change: The channel insertion loss budget is illustrated in Figure 85A-1.
To: The channel insertion loss budget at 5.15625 GHz is illustrated in Figure 85A-1.

Change title to: "Figure 85A-1- Illustration channel insertion loss budget at 5.15625 GHz"
In Figure 85A-1-change: 1.28 dB to 1.26 dB

Cl **86** *SC* **86.1** *P* **279** *L* **20** # 356

Abbott, John Corning Inc.

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

Table 86-1 p.279 The 0.5 to 100m operating range is too broad and should be divided into 2 PMDs, a 0.5 to ~75m for computer interconnects and a ~75m to 150m range for data centers (both with OM3). The 802.3ae length is 300m and supports 150-250m lengths in data centers. The 802.3ba uses MM fiber to take up shorter lengths previously using copper - a distinct PMD -- and the specific applications for OM3 and OM4 fiber warrant 2 PMDs.

SuggestedRemedy

Organize SR into two PMDs as similar as possible but allowing one to focus on lengths currently used for optical fiber in the data center and the other to focus on HPC applications.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
The reach objective over MMF is "at least 100 m". With this objective, two MMF PMDs at each MAC rate are not required.
However, the maximum reach of 40/100GBASE-SR4/SR10 has been changed to 150m over OM4
See response to comment 349

Cl **86** *SC* **86.10.1** *P* **297** *L* **3** # 128

Hajduczenia, Marek ZTE Corp.

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

Table 86-13 is located inside of the text block, cutting sentences in the middle. Please place the anchor in the proper location and set the orphan sentences accordingly. Similar problems with Figure 86-4, page 294/48; Figure 86-2, page 298/51; Table 86-2, page 279/32

SuggestedRemedy

Per comment

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
[Editor's note: Page and line numbers reversed]
Apparently the "number of orphan lines" control doesn't correct this as expected. Fix by hand.

Cl **86** *SC* **86.10.3.2** *P* **299** *L* **50** # 364

Frazier, Howard M Broadcom

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

"arranged in two rows of at least 10 or 12 positions." is vague and there is no justification for a minimum of 12.

SuggestedRemedy

Replace with "...arranged in two rows of at least 10 positions."

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Change
"arranged in two rows of at least 10 or 12 positions."
to
"arranged in two rows of 10 or 12 positions."

Cl **86** *SC* **86.5.1** *P* **283** *L* **4** # 360

Frazier, Howard M Broadcom

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

The diagram appears to include a 4 input AND gate producing SIGNAL_DETECT, and could be interpretted to mean that Ln-1 is not included in the SIGNAL_DETECT function.

SuggestedRemedy

Show a 4 input AND gate, or place an ellipsis between the 2nd and last inputs.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Show a 4 input AND gate

Cl **86** *SC* **86.7.2** *P* **287** *L* **7** # 355

Abbott, John Corning Inc.

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

also line 33(footnote) Clause 86 Table 86-6 p.287 (transmit characteristics) RMS spectral width. Footnote a. "RMS spectral width is the standard deviation of the spectrum". 850nm VCSELs have a line spectrum which is not well described by an RMS value; the use of an RMS value in link calculations gives a different estimate of pulse spreading. See for example
www.finisar.com/download_nC3xpBOptical%20Modes%20In%20VCSELs.pdf
If the RMS value is sufficiently pessimistic the target length should be increased or the extra margin somehow noted. If the RMS value is too optimistic other changes need to be made.

SuggestedRemedy

augment historical link model calculations to account for individual lines in VCSEL spectrum.

Response *Response Status* **W**

REJECT.
As the reference says, MTM spectral "width" is measured per FOTP-127 which is widely adopted and uses the RMS method.
The model is not invalidated by discrete lines, and pessimism is adjusted for by using a k factor much less than 1.

Cl **86** *SC* **86.7.4** *P* **289** *L* **3** # 354

Abbott, John Corning Inc.

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

1.Table 86-9 p. 289 (see also Tables 86-6, 86-7, 86-8). The 802.3ba standard needs not only an illustrative power budget but an illustrative link model similar to 802.3ae models on http://ieee802.org/3/ae/public/index.html. The link needs to satisfy both power penalty and ISI requirements and these depend on more parameters than what is explicitly mentioned in Table 86-9. The illustrative link model gives a set of common baseline assumptions and ensures all link calculations have a common consensus root. The reference to the illustrative link model can be in an annex to clause 86 or in the same section at Table 86-9.

SuggestedRemedy

add an illustrative consensus link model which meets both power and ISI-BER requirements.

Response *Response Status* **W**

REJECT.
The link model used in the 10GbE project was incomplete as it only included the optical impairments, and there have been no improved models made publicly available .
10GbE did not put its model (or include a reference to it) in the standard. With the introduction of newer specification methodologies essential for low cost implementation at 10G/lane, the Ethernet link model becomes only one input to a specification developed with engineering judgement and, one hopes, measurement as other inputs. SRn links are less power-limited and more jitter-limited than 802.3ae optical links. Note that the electrical PMDs don't have an accessible link model at all.

Cl **86** *SC* **86.8.1** *P* **290** *L* **1** # 361

Frazier, Howard M Broadcom

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

In Figure 86-3, there are numerous right angled arrows that clutter the diagram, are difficult to interpret, and seem to add little value.

SuggestedRemedy

Delete the right angled arrows.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Add legend to diagram clarifying that the right angled arrows indicate the direction in which the test stimulus is applied.

Cl **86** *SC* **86.8.3.3.2** *P* **293** *L* **4** # 362

Frazier, Howard M Broadcom

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

Why does the word "normative" appear in the last sentence of this subclause, but not in the parallel sentence of 86.8.3.3.1

SuggestedRemedy

Delete "normative".

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Delete "The normative".

Cl **86** *SC* **86.8.4.4** *P* **293** *L* **39** # 363

Frazier, Howard M Broadcom

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

"Otherwise TDP(i) is zero, TDP(i) = 0." is redundant.

SuggestedRemedy

Replace with "Otherwise TDP(i) = 0."

Response *Response Status* **W**

ACCEPT.

Cl **86A** *SC* **86A** *P* **421** *L* **6** # 338

Dawe, Piers J G Independant

Comment Type **ER** *Comment Status* **R** *Cl1*

We call the MDI, MDI, whatever data rate it supports and however many lanes it has. We don't call it nMDI.

SuggestedRemedy

Change "nPPI" to "PPI" throughout.

Response *Response Status* **U**

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."

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

Cl **86A** *SC* **86A.4.1** *P* **442** *L* **28** # 793

Ghiasi, Ali Broadcom

Comment Type **TR** *Comment Status* **A** *LR4*

To make a future 40GBASE-LR4 module with an unretimed interface feasible, the J2 and J9 limits of the XLPPI interface are proposed to be slightly changed.
A related comment proposes to modify the optical power levels of 40GBASE-LR4.
See king_01_0110.pdf

SuggestedRemedy

In Table 86A-1 change "J2 Jitter output" to "J2 Jitter output for 100GBASE-R" and add a new row above for "J2 Jitter output for 40GBASE-R" with a value of 0.17 UI Max.
In Table 86A-2 change "J2 Jitter tolerance" to "J2 Jitter tolerance for 100GBASE-R" and add a new row for "J2 Jitter tolerance for 40GBASE-R" at "TP1a" with a value of 0.17 UI Max.
In Table 86A-3 change "J9 Jitter output" to "J9 Jitter output for 100GBASE-R" and add a new row above for "J9 Jitter output for 40GBASE-R" with a value of 0.64 UI Max.
In Table 86A-4 change "J9 Jitter tolerance" to "J9 Jitter tolerance for 100GBASE-R" and add a new row above for "J9 Jitter tolerance for 40GBASE-R" at "TP4" with a value of 0.64 UI Max.
See king_01_0110 for further details.
Note, there is a related comment to increase the optical power levels of 40GBASE-LR4

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
[Editor's note: Page number changed from 442]

In Tables 86A-1 and 86A-2 change the J2 Jitter value from 0.18 to 0.17UI and change the J9 Jitter value from 0.26 to 0.29 UI

In Tables 86A-3 and 86A-4 change the J2 Jitter value from 0.46 to 0.42 UI and change the J9 Jitter value from 0.62 to 0.65 UI

Change the title of Annex 86A to include 40GBASE-LR4
Change the text of 86A.1 to include 40GBASE-LR4

A straw poll of the sub-task force was taken:
Do you support:
A in Tables 86A-1 and 86A-2 change the J2 Jitter value from 0.18 to 0.17UI
B in Tables 86A-1 and 86A-2 leave the J2 Jitter value unchanged at 0.18UI
Result:
A 14
B 4

Cl **86A** *SC* **86A.4.1.1** *P* **423** *L* **15** # 365

Frazier, Howard M Broadcom

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

Why is it necessary to plot a constant in Figure 86A-1? Differential to common-mode input return loss does not vary with frequency, and thus does not need to be plotted.

SuggestedRemedy

Delete the plot of Differential to common-mode input return loss.

Response *Response Status* **W**

REJECT.
It helps the reader to compare the various return losses, so he can assess the spec and progress his design. The line costs nothing and takes no space (since it is not on its own chart).

Cl **86A** *SC* **86A.4.1.1** *P* **423** *L* **17** # 366

Frazier, Howard M Broadcom

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

The indication of the "compliant region" in Figure 86A-1 is ambiguous.

SuggestedRemedy

Use shading to indicate the compliant region.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
See response to comment 611.

Cl **86A** *SC* **86A.4.2** *P* **424** *L* **47** # 814

Ghiasi, Ali Broadcom

Comment Type **TR** *Comment Status* **A** *LR4*

"During July 2009 plenary petrilla_01_0709 stated "
At TP4, for the combination of J2 (max = 0.46 UI) X1 = 0.11 UI and J9 (max = 0.63 UI), max TJ is estimated at 0.716 UI. This is higher than the expected 0.68 UI and may place too heavy a burden on the downstream receiver. Relief is proposed by reducing max J9 from 0.63 UI to 0.62 UI to yield a max TJ estimate of 0.704 UI."
The premise for the change was not to exceed TJ of 0.7 UI but the current J2=0.46 and J9=0.62 results in TJ of 0.66 UI, this will increase cost of the optics and will make 100Gbase-SR10 implementation more difficult due to the X10 connector. Please set the specification to what was intended.
"

SuggestedRemedy

Keep J2 but increase J9 to 0.4. TJ 1E-12 depends on the jitter distribution but for the case of max DJ (32 ps) to hit J2 then TJ=0.7 UI.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
See response to comment 793

Cl **86A** *SC* **86A.4.2** *P* **425** *L* **31** # 816

Ghiasi, Ali Broadcom

Comment Type **TR** *Comment Status* **A** *LR4*

"During July 2009 plenary petrilla_01_0709 stated "
At TP4, for the combination of J2 (max = 0.46 UI) X1 = 0.11 UI and J9 (max = 0.63 UI), max TJ is estimated at 0.716 UI. This is higher than the expected 0.68 UI and may place too heavy a burden on the downstream receiver. Relief is proposed by reducing max J9 from 0.63 UI to 0.62 UI to yield a max TJ estimate of 0.704 UI."
The premise for the change was not to exceed TJ of 0.7 UI but the current J2=0.46 and J9=0.62 results in TJ of 0.66 UI, this will increase cost of the optics and will make 100Gbase-SR10 implementation more difficult due to the X10 connector. Please set the specification to what was intended.

SuggestedRemedy

Keep J2 but increase J9 to 0.4. TJ 1E-12 depends on the jitter distribution but for the case of max DJ (32 ps) to hit J2 then TJ=0.7 UI.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
See response to comment 793

Cl **86A** SC **86A.5.1.1.2** P **429** L **44** # 340

Dawe, Piers J G Independant

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

In SFP+ and previously in 86A, HCB-MCB crosstalk was controlled up to 15 GHz. Now 86A refers to 85.10.9.3 with a different methodology and new numbers. In D2.3 we agreed to adjust the frequency limits to suit 86A's purposes. But we still need to see how the new limits compare with the old, and if they are tight enough for 86A compliance boards.

SuggestedRemedy

Compare the ICN specs in Table 85-11 in 0.01 to 15 GHz with the crosstalk spectral limits in D2.2 Figure 86A-6. If appropriate, provide ICN specs specifically for 86A with suitable limits.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
The frequency range has been modified to 0.01 to 12 GHz by comment 383.
No evidence has been provided to indicate that the limits in Table 85-11 are inappropriate.

Cl **86A** SC **86A.8.3** P **441** L **12** # 685

Dambrosia, John Force 10 Networks Inc

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

Missing shall statements for MO, HO, MD

SuggestedRemedy

add shall statements

Response *Response Status* **W**

REJECT. MO, HO and MD are included in the PICS table for the purpose of recording which options have been implemented rather than to confirm compliance with a particular requirement. Consequently it is not appropriate to have a "shall" statement in the text for this item.
In the same way, there is no "shall" statement corresponding to SR, LR, ER, etc. in the clause 52 PICS.

Cl **87** SC **87.12.3** P **331** L **13** # 661

Dambrosia, John Force 10 Networks Inc

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

No corresponding SHALL statements for XLTP1 and XLTP4

SuggestedRemedy

add shall statements

Response *Response Status* **W**

REJECT.
XLTP1 and XLTP4 are included in the PICS to record which options have been implemented, rather than to confirm compliance with a particular requirement. Consequently it is not appropriate to have a shall statement in the text for these items.

Cl **87** SC **87.12.3** P **331** L **26** # 660

Dambrosia, John Force 10 Networks Inc

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

No corresponding SHALL statement to MD PIC

SuggestedRemedy

add SHALL statement

Response *Response Status* **W**

REJECT.
MD is included in the PICS to record which options have been implemented, rather than to confirm compliance with a particular requirement. Consequently it is not appropriate to have a shall statement in the text for this item.

Cl **87** SC **87.12.3** P **331** L **6** # 665

Dambrosia, John Force 10 Networks Inc

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

No corresponding SHALL statements for LR4, INS

SuggestedRemedy

add shall statements

Response *Response Status* **W**

REJECT.
The entries LR4 and INS are all included in the PICS table for the purpose of recording which options have been implemented rather than to confirm compliance with a particular requirement. Consequently it is not appropriate to have a "shall" statement in the text for these items.

Cl **87** *SC* **87.7.1** *P* **314** *L* **30** # 792

Ghiasi, Ali Broadcom

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

To make a future 40GBASE-LR4 module with an unretimed interface feasible, the transmitter power levels of 40GBASE-LR4 are proposed to be increased by 0.3 dB, together with an increase of the maximum TDP by 0.3 dB.
A related comment proposes to change the J2 and J9 limits of the XLPPI interface.
See king_01_0110.pdf

SuggestedRemedy

In Table 87-7 change:
Total average launch power (max) from 8.3 to 8.6 dBm
Average launch power, each lane (max) from 2.3 to 2.6 dBm
Average launch power, each lane (min) from -7 to -6.7 dBm
Optical Modulation Amplitude (OMA), each lane (max) from 3.5 to 3.8 dBm
Optical Modulation Amplitude (OMA), each lane (min) from -4 to -3.7 dBm
Launch power in OMA minus TDP, each lane (min) from -4.8 to -4.5 dBm
Transmitter and dispersion penalty (TDP), each lane (max) from 2.3 to 2.6 dB
RIN20OMA (max) from -128 to -130 dB/Hz
In Table 87-8 change:
Damage threshold (min) from 3.3 to 3.6 dBm
Average receive power, each lane (max) from 2.3 to 2.6 dBm
Average receive power, each lane (min) from -13.7 to -13.4 dBm
Receive power, each lane (OMA) (max) from 3.5 to 3.8 dBm
Receiver sensitivity (OMA), each lane (max) from -9.9 to -9.6 dBm
Vertical eye closure penalty, each lane from 1.6 to 1.9 dB
In Table 87-9 change:
Power budget (for max TDP) from 9 to 9.3 dB
Allocation for penalties (for max TDP) from 2.3 to 2.6 dB
See king_01_0110.pdf for further details.
Note, there is a related comment to modify the J2 and J9 values for the XLPPI interfaces.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

In Table 87-7 change:
Transmitter and dispersion penalty (TDP), each lane (max) from 2.3 to 2.6 dB

In Table 87-8 change:
Stressed receiver sensitivity (OMA), each lane (max) from -9.9 to -9.6 dBm
Vertical eye closure penalty, each lane from 1.6 to 1.9 dB

In Table 87-9 change:
Power budget (for max TDP) from 9 to 9.3 dB
Allocation for penalties (for max TDP) from 2.3 to 2.6 dB

Add a row to Table 87-1 to show clause 86A as optional.

Cl **88** *SC* **88.11.3** *P* **354** *L* **45** # 347

Nikolich, Paul YAS Broadband Ventu

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

Examples of an MDI include the following:a) Connectorized fiber pigtail, b) PMD receptacle Perhaps it is defined elsewhere in the 802.3 Standard, but I could not find a definition or a reference for a "connectorized fiber pigtail".

SuggestedRemedy

Add a definition or appropriate references for a "connectorized fiber pigtail."

Response *Response Status* **W**

REJECT.
[Editor's note: Subclause changed from "88.11.3 Medium Dependent Inter" to "88.11.3"]

The term "connectorized fiber pigtail" is readily understandable without further definition. It has been used in five clauses of the base standard (52, 53, 58, 59, 60) and also in clause 75 of IEEE Std 802.3av-2009 without further explanation.