Cl **00**   *SC* **0**   *P* **1**   *L* **30**   # 60
Dawe, Piers   IPtronics

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

An objective is "Provide Physical Layer specification which support 40 Gb/s operation over at least 2 km on SMF" and from the PAR, "5.4 Purpose: This project will define a 40 Gb/s serial PMD that supports a link distance of at least 2km over single-mode fiber ... which will enable interconnection ...". This draft allows excessive penalties and I do not believe it provides a robust interoperability spec. The transmitter can pass the draft and be poor, and the receiver can pass the draft and fail to receive that transmitter after the fibre. Some changes are needed to come up to 802.3's traditional standards for an interoperability spec.

SuggestedRemedy

See other comments for remedies

Response   *Response Status* **U**

REJECT.
The level of interoperability provided by the specifications for VSR2000-3R2 in G.693 has not been demonstrated to be inadequate by industry use and Clause 89 follows this methodology.
This comment does not propose any specific changes to the draft, for these see the other comment responses.

Cl **01**   *SC* **1.4.x**   *P* **15**   *L* **49**   # 79
Thompson, Geoff   GraCaSI

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

The definition:
1.4.x 40GBASE-FR: IEEE 802.3 Physical Layer specification for 40 Gb/s using 40GBASE-R encoding over one lane on single-mode fiber, with reach up to at least 2 km. (See IEEE 802.3, Clause 89.)
is needlessly obscure. Replace with something more straightforward and descriptive

SuggestedRemedy

I suggest the following definition:
1.4.x 40GBASE-FR: IEEE 802.3 Physical Layer specification for 40 Gb/s using 40GBASE-R encoding over a single wavelength of one single-mode fiber for each direction, with reach up to at least 2 km. (See IEEE 802.3, Clause 89.)

Response   *Response Status* **W**

ACCEPT IN PRINCIPLE.
Adding "for each direction" would make this definition different to that for all of the 10GBASE definitions and 40GBASE-CR4, KR4, LR4, SR4, 100GBASE-CR10, ER4, LR4, SR10
See Response to comment #105

Cl **80**   *SC* **80.1.2**   *P* **23**   *L* **19**   # 91
Ganga, Ilango   Intel

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

Update the base text for objectives as per the latest IEEE Std 802.3ba-2010 document.

Alternatively just insert the new objective to item 1). No need to repeat the entire list in this amendment.

Also delete the informative instruction at line 3.

SuggestedRemedy

As per comment.

Response   *Response Status* **W**

ACCEPT IN PRINCIPLE.
See Response to comment #6

The informative statement at line 3:
"Clause 80 has been added to IEEE Std 802.3-2008 by IEEE Std 803.3ba-201x." is very helpful to users of the document who are not IEEE 802.3 insiders who may not know where to find the rest of the base text for clause 80 and therefore it should not be removed.

If at the time of publication of P802.3bg, this is no longer correct, the IEEE SA editor will remove it.

Cl **80**   *SC* **80.1.2**   *P* **23**   *L* **19**   # 80
Thompson, Geoff   GraCaSI

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

The text:
2) at least 2 km on single-mode fiber (SMF)
is not suffieciently descriptive.
Whether fiber plant is duplex on a single fiber or dual simplex on two fibers is not a given in the world. It needs to be specified.
Parallel change also needed on page 24 line 16.

SuggestedRemedy

Change to:
2) at least 2 km on dual simplex single-mode fiber (SMF)
(I suggest that other definitions in this same section that are outside the scope of ths ballot also be corrected as a service to humanity.)

Response   *Response Status* **W**

REJECT.
This table describes the nomenclature, it is not intended to be a complete description of the PMD.
Whether fiber plant is duplex on a single fiber or dual simplex on two fibers is clearly specified in Clause 89.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **80**
SC **80.1.2**

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Cl **80**   *SC* **80.1.3**   *P* **23**   *L* **34**   # 81

Thompson, Geoff   GraCaSI

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

The text:
"g) The MDI as specified in Clause 89 for 40GBASE-FR uses a single lane data path."
is correct and not sufficiently precise.

SuggestedRemedy

Change to:
"g) The MDI as specified in Clause 89 for 40GBASE-FR uses a single lane data path in each direction."

Response   *Response Status* **W**

REJECT.
This text must be read in the context of subclause 80.1.3 from IEEE Std 802.3ba-2010 which says:
"While this specification defines interfaces in terms of bits, octets, and frames, implementations may choose other data-path widths for implementation convenience. The only exceptions are as follows:"

This text is not defining the MDI, but just pointing out that the implementor does not have freedom to choose the data-path width at the Clause 89 MDI.
Also, "lane" is already defined in 1.4.199 and adding "in each direction" is not necessary. Consequently, it is not necessary to make the new exception different from the existing ones by adding "in each direction" as that is clear from the specifications in Clause 89.

Cl **89**   *SC* **89.6.1**   *P* **37**   *L* **14**   # 61

Dawe, Piers   IPtronics

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

I do not believe that this draft is "optically compatible with existing carrier 40Gb/s client interfaces" (from the PAR and objectives).
An implementer could make a very slow transmitter with excessive transmitter penalty as long as he got the dispersion penalty OK, and call it compliant. I don't believe that existing VSR2000-3R2 transmitters are that bad, and I don't believe that existing VSR2000-3R2 receivers could receive this worst allowed signal with confidence, and I doubt that folks want to redesign their receivers.
A motion in Geneva doesn't fix this.
Notice that TDP uses the same with/without dispersion measurement that this draft uses already. After the sensitivity to the reference transmitter has been established as a one-off, using a TDP spec will be a cost-effective way to plug the gap and avoid interoperability problems.

SuggestedRemedy

As TDP uses the same tests as DP, after the reference transmitter/sensitivity has been established as a one-off, using a TDP spec will be a cost-effective way to plug the gap and avoid interoperability problems. Suggested TDP limit 3.3 dB (the largest limit in 802.3ae less the polarisation penalty here).

Response   *Response Status* **U**

REJECT.
Including TDP in the transmitter spec would be inconsistent with Motion #1 from the Geneva Task Force meeting in May 2010.
Move to adopt the ITU-T style of optical power budget specification as proposed in slide 4 of anslow_03_0510.
Y: 32, N: 0, A: 0
There is an eye mask requirement to protect against exessively slow transmitter waveforms. The dispersion penalty is measured with the actual transmitter and therefore takes in to account any effect of a slow transmitter waveform and includes the effect of reflections. The PMD penalty has been significantly reduced due to the response to comment #62 which has changed DGD_max to 3ps.
This means that a TDP test is not required to ensure interoperability.

The level of interoperability provided by the specifications for VSR2000-3R2 in G.693 has not been demonstrated to be inadequate by industry use and Clause 89 follows this methodology.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **89**
SC **89.6.1**

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Cl **89**   *SC* **89.6.2**   *P* **37**   *L* **36**   # 86

Frazier, Howard   Broadcom Corporation

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

The receive characteristics in Table 89-7 include two center wavelength ranges.
Given that the transmitter is constrained to a center wavelength range of 1530 to 1565 nm,
the addition of the 1290 to 1330 nm wavelength range at the receiver might add
unnecessary cost. It doesn't make sense to force the receiver to accept a range of center
wavelengths that are so far removed
from the transmitter's.

SuggestedRemedy

Remove the 1290 to 1330 nm wavelength range from Table 89-7.

Response   *Response Status*   **U**

REJECT.
The cost impact of this extra requirement is expected to be very small and it has the benefit
that a possible future 1310 nm serial PMD with a greater distance capability could interwork
with a 40GBASE-FR transciever over up to 2 km.
This characteristic was the subject of a motion of the task force in the Geneva meeting May
2010:
Motion #2
Move to adopt the receiver characteristics from slide 6 of anslow_03_0510, with the
modification that the operating wavelength range will be 1290-1330 nm and 1530-1565 nm.
All in room: Y: 28, N: 0, A: 3
802.3,   Y: 21, N: 0, A: 1

The Task force voted on comment #35 which also proposed to remove the 1310 nm
requirement and contained an identical rebuttal:
Should the Task force accept the proposed response above?
Yes (keep the 1310 nm requirement)
No (remove the 1310 nm requirement)
Yes 19
No 1

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open   W/written   C/closed   U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **89**
SC **89.6.2**

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