*Cl* **113** *SC* **113.3.2.2.16** *P* **92** *L* **52** # 2

Slavick, Jeff — Avago Technologies

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

The transcoding process causes all 64b blocks to be able to land in all 8 locations of the transcoded word. This adds complexitity that isn't necessary.

*SuggestedRemedy*

Change the transcoder to move the first Control block to position 0 and bump all data blocks from position 0 to the first Control block down by 1 value. This means location 0 must have an 8:1 mux, but the other 7 only need a 2:1 (previous or normal).

ie.
0 - 0001 xxxx C0-C7 Control (orignial location 4)
1 - Data block (original location 0)
2 - Data block (original location 1)
3 - Data block (original location 2)
4 - Data block (original location 3)
5 - Control block
6 - Control block
7 - Data block

*Response* *Response Status* **U**

REJECT.
Commenter does not provide sufficient detailed remedy for text

*Cl* **113** *SC* **113.1** *P* **65** *L* # 9

Brown, Matt — APM

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

Subclause 113.1 does not define all of the mandatory and optional sublayers required for a complete physical layer as is done for all 10GBASE-R, 40GBASE-R, and 100GBASE-R PHYs. An example is Table 84-1 for 40GBASE-KR4. Such a table is helpful to identify the related layers and interfaces that are relevant to 40GBASE-T but not defined in the Clause 113 such as the XLGMII (81), RS (81), XLAUI (83A, optional), 40GBASE-R PCS (82, optional, but req'd for XLAUI) and 40GBASE-R PMA (83, optional, but req'd for XLAUI).

*SuggestedRemedy*

Add a table "Physical Layer clauses associated with the 40GBASE-T PCS/PMA" list the "associated clauses" and indicate "optional" or "mandatory" for each.

*Response* *Response Status* **U**

ACCEPT IN PRINCIPLE.
Add the following on page 65, line 17, after "Clause 45, or equivalent." (same paragraph)
"Please refer to Table 80-2 for associated sublayers and options for assembling a 40Gb/s system with the 40GBASE-T PHY."

*Cl* **113** *SC* **113.3.4** *P* **110** *L* **12** # 93

McClellan, Brett Marvell

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

The optional periodic training sequence in this text is identical to the 10GBASE-T periodic training that was added to Clause 55 based on a vendor proposal:
http://www.ieee802.org/3/an/public/nov04/ungerboeck_1_1104.pdf slide 23
However, the same vendor recently reported that the periodic training sequence is not used by any 10GBASE-T device and is not suitable for adapting equalizer and canceller coefficients.
http://www.ieee802.org/3/bq/public/jul14/souvignier_3bq_01_0714.pdf slide 3
If requested by the link partner a local device is required to transmit the periodic training sequence resulting in poor adaptation of echo and NEXT cancellers at the local device.
Further, 10GBASE-T and 40GBASE-T share one advertisement bit for the periodic training request from the link partner. Since 10GBASE-T PHY's cannot work with the periodic training, a 10G/40G capable PHY will never advertise the periodic training.

*SuggestedRemedy*

Eliminate the optional periodic training sequence.

113.3.4 PMA training side-stream scrambler polynomials
remove text:
"Moreover during Auto-Negotiation each transceiver may request the remote transceiver to reinitialize the values of its scrambler state after every 16384 symbol periods, to generate a periodically repeating pattern with repetition period 16384. The initial 33-bit values of the scrambler state shall be generated by combining 0x39A422 for the 22 MSBs and random value SB10-SB0 from Table 113-20 generated by the local device for the 11 LSBs as shown in Figure 113-14."
Figure 113-14
remove text from "n mod 16384 = 0" through "else:"
113.3.5.3 Refresh period signaling
delete the text:
"The training sequence without periodic reinitialization described in 113.3.4 shall be used during the LPI mode, with the scramblers free-running starting in the state PMA_PBO_Exch. If scrambler reinitialization is used for normal training, it shall be disabled and the scramblers shall begin free-running when the PHY Control state diagram is in the state PMA_PBO_Exch and the receiver detects a valid requested transmitter PBO setting (Oct 7 Valid<7> equal to 1)."

113.4.2.5.15 page 141 line 15
change "The training sequence without periodic re-initialization described in 113.3.4 shall be used
during fast retraining, with the scramblers free-running from PCS Reset. If scrambler re-initialization is used for normal training, it shall be disabled and the scramblers shall begin free-running when the PHY Control state diagram enters the PCS_Test state and the variable fr_active is FALSE."
to "The training sequence in 113.3.4 shall be used during fast retraining, with the scramblers free-running from PCS Reset."

113.6.1 Support for Auto-Negotiation
page 168 line 38 delete item c)

Table 113-20 in row U20 change text from "LD PMA training reset request"
to either "10GBASE-T LD PMA training reset request" or "This bit is not defined for 10GBASE-T but reserved for future use." depending on resolution to comment on 10GBASE-T periodic training.
113.12.3 Physical Coding Sublayer (PCS)
delete the line items:
PCT19 PMA training scrambler reset
PCT31 Disable scrambler reinitialization
under "PCT30 LPI scrambler" delete the text:
"The training sequence without periodic re-initialization described in 113.3.5 shall be used"

*Response* *Response Status* **U**

REJECT.
See comment 84.
Periodic training sequence for 40GBASE-T was modified during d1.1.1 comment resolution to address issues with 10GBASE-T periodic training.

*Cl* **113** *SC* **113.6.1.2** *P* **170** *L* **20** # 107

Lo, William — Marvell Semiconductor

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

40GBASE-T specifies option to reset training PRBS. However it is not clear such bit is defined in table 113-20

*SuggestedRemedy*

Option 1:
In bit U20 rename "LD PMA training reset request" to
"40/10GBASE-T LD PMA training reset request"
The rationale of sharing the same bit for both speeds is that any implementation that prefers one way for one speed will most likely prefer the same way for the other speed. There is no need to specify a separate bit for 10G and 40G.

Option 2:
Remove the option to reset PMA training PRBS every frame in 40GBASE-T

Commenter is ok if either option 1 or 2 adopted.

*Response* *Response Status* **U**

ACCEPT IN PRINCIPLE.
See comment 84.

Task Force to discuss with 93 & 84
Straw Poll:
Allocate a new autoneg bit (U21) for 40GBASE-T LD PMA training reset request
4

OR

Remove the option to reset PMA training PRBS every frame in 40GBASE-T
13

Move to remove the option to reset PMA training PRBS every frame in 40GBASE-T
M: Brett McClellan
S: William Lo
Y: 13
N: 6
A: 17
MOTION FAILS (Technical >= 75%)

*Cl* **00** *SC* **0** *P* *L* # 116

Anslow, Pete — Ciena

*Comment Type* **TR** *Comment Status* **A** *25G*

The objectives of the P802.3bq project were changed by motion #32 of the Berlin plenary to include:
"Support a data rate of 25 Gb/s at the MAC/PLS Service Interface
Define a single 25 Gb/s PHY supporting operation on the link segment"

This draft does not include a PHY to satisfy these objectives

*SuggestedRemedy*

Either:
remove the objectives
or:
modify the project PAR and CSD responses to reflect the additional objectives and revise the draft to include a suitable PHY

*Response* *Response Status* **U**

ACCEPT IN PRINCIPLE.
Objectives are removed AND
PAR modifications were accidently omitted from motions at Berlin plenary - project CSD modifications were approved.
Move project PAR for WG approval and progress project documentation at earliest opportunity.

*Cl* **01** *SC* **1.3** *P* **20** *L* **8** # 228

Booth, Brad — Microsoft

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

Reference to ANSI specification is incorrect. This draft specification must reference an existing specification or draft specification, not a pending specification.

*SuggestedRemedy*

Provide the correct reference.

*Response* *Response Status* **U**

REJECT.
Referenced document is a draft specification.

*Cl* **113** *SC* **3** *P* **99** *L* # 403

Wang, Zhongfeng — Broadcom Corp.

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

Table 113-2
title: Trancoded bocks including control blocks (without leading 0).

Given the trancoding operation shown in Table 113-2, we always move control blocks to the top and dmove ata blocks to the bottom. Since data blocks in original 512B block can be in any row, this operation will involve muxing logic for all 64 bits for every data and control block, which casue extra hardware. In addition, at the receiver side, we need wait until entire 513B data is received before finishing reverse trancoding.

*SuggestedRemedy*

1) We only need swap location of first byte for each data or control block.
This leads to much reduced muxing logic.
2) We transmit the first bytes of each data and control block immediately after leading 0. Then we transmit the rest 7 bytes for each data and control block. This will save signiifcant processing latency at receiver side.

The aboves changes fully maintain data mapping of original trancoding operation for each data byte. Only data reordering is involved. So there is no performance hurt.

Please see wang's contributions for detailed description.

*Response* *Response Status* **U**

REJECT.
Attempt at accept-in-principle:

Make changes documented in Text-comments-40G-T-transcoding.pdf, with the following changes:
give Editor license to connect text edit (3) in "comments…" correctly to referenced 'above case with pure data blocks'.

Straw Poll: Y: 8 N: 11

No consensus to make change

*Cl* **113** *SC* **113.8.1** *P* **183** *L* **3** # 466

Lackner, Hans — QoSCom GmbH

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

IEC 60603-7-51/81 is not suitable for all applications. It should be possible to use as alternative connector IEC 61076-3-110 or 60603-7-82.

*SuggestedRemedy*

If backward compatibility offered with IEC 60603-7-81 is not required, the interface specified in IEC 61076-3-110 or 60603-7-82 may be used.

*Response* *Response Status* **U**

REJECT.

Motion: To implement suggest remedy "If backward compatibility offered with IEC 60603-7-81 is not required, the interface specified in IEC 61076-3-110 or 60603-7-82 may be used."
M: Val Maguire
S: Yakov Belopolsky
Y:6
N:16
A:2

IEC 60603-7-51/81 shall be used. 113.8.1 MDI connectors
Eight-pin connectors meeting the requirements of IEC 60603-7-51 (published) with the improved characteristics and frequency extensions specified in IEC 60603-7-81 shall be used as the mechanical interface to the balanced cabling. The plug connector shall be used on the balanced cabling and the jack on
the PHY.

*Cl* **113** *SC* **113.7.1** *P* **174** *L* **3** # 480

Thompson, Geoff — GraCaSI S.A.

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

It says in this line that 40GBASE-T uses "star topology". That is untrue. It uses point-to-point topology as do ALL 802.3 devices which utilize "Link Segments".

*SuggestedRemedy*

Replace "star" with "point-to-point"

*Response* *Response Status* **U**

ACCEPT IN PRINCIPLE.

Change: a) 40GBASE-T uses a star topology with balanced cabling listed in Table 113–22 used to connect PHY
entities.

To: a) 40GBASE-T uses balanced cabling listed in Table 113–22 in a star topology to connect PHY entities.