Cl **122** *SC* **122.7.1** *P* **45** *L* **35** # P-197

Nowell, Mark Cisco

Comment Type **T** *Comment Status* **X**

Public Review Comment no. [197] by [mnowell@cisco.com] on draft designation [802.3cn]:This comment touches a number of different numbers in the draft beyond the one identified in the comment.

The recent technical contributions reviewed in the P802.3cu Task Force indicate that new technical information has been made available since this draft went into SA ballot. The TDECQ value of 3.4 dB seems low (or the reach too long) for the chromatic dispersion that the 400GBASE-ER8 transmitter will experience.

In http://www.ieee802.org/3/cu/public/Sept19/stassar_3cu_01_0919.pdf it was showed that due to dispersion a CWDM based 100 Gb/s PAM4 signal would experience excessive chromatic dispersion limiting the reach of the interface. Based on this contribution and other contributions, the P802.3cu TF concluded that the reach should be reduced to 6km.

The general rule of thumb is that the dispersion penalty scales with the square of the data rate. Therefore, it should be expected that the maximum dispersion that the 400GBASE-ER8 should be ~ 4x that defined in P802.3cu. However, comparing the adopted baseline in P802.3cu http://www.ieee802.org/3/cu/public/Sept19/lewis_3cu_02a_0919.pdf to the values in D3.0 of P802.3cn we find for negative dispersion that this results in -35.2 ps/nm vs -201 ps/nm.

This is ~5.7x higher in D3.0 which seems excessive given the lower TDECQ in D3.0 regardless of the other differences between 100 Gb/s and 50 Gb/s.

SuggestedRemedy

Re-examine the 400GBASE-ER8 link budget to ensure the same criteria is applied given the new insights and wealth of experimental evidence examined in P802.3cu.

Based on the simple rule of thumb this would suggest a max negative dispersion of ~ -140 ps/nm which is close to the 30km reach called out in D3.0.

Suggested change is to reduce the max reach to 30 km and reconcile that numbers in the rest of the link budget.

This includes but is not limited to:
- remove 40km column for 400GBASE-ER8 from Table 122-13 and Table 122-17
- Reduce Max DGD to 8.8ps for 400GBASE-ER8 in Table 122-17
- update dispersion length coefficient for 400GBASE-ER8 for reduced length in Table 122-16

Proposed Response *Response Status* **O**

Cl **122** *SC* **122.7.3** *P* **48** *L* **37** # P-198

Nowell, Mark Cisco

Comment Type **T** *Comment Status* **X**

Public Review Comment no. [198] by [mnowell@cisco.com] on draft designation [802.3cn]:Table 122-13 lists the illustrative power budgets based on the normative transmit and receive specifications in Tables 122-11 and 122-12.

The Allocation for penalties for 400GBASE-ER8 calls out 3.9 dB implying 0.5 dB allocated beyond the TDECQ of 3.4dB.

Per http://www.ieee802.org/3/cn/public/19_01/anslow_3cn_03_0119.pdf this 0.5 dB is allocated as 0.25 dB for MPI and 0.25 dB for DGD.

However, as identified in that presentation the DGD penalty was shown to exceed 0.25 dB (0.6 dB) and that further review was required.

SuggestedRemedy

Was the suggested further analysis completed. Commenter could not find it. Hard to make a suggested change until the analysis is completed and the impact is understood. On an already tight link budget an extra 0.35 dB is significant but this might become less impactful if the reach is reduced.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45** *P* **22** *L* **1** # P-199

Cole, Chris Finisar

Comment Type **G** *Comment Status* **X**

Public Review Comment no. [199] by [chris.cole@finisar.com] on draft designation [802.3cn]:50GBASE-FR, 50GBASE-LR, 50GBASE-ER need 1 suffix to be consistent with 802.3 convention, pages 22 to 27, lines 1 to 54 pn each page

SuggestedRemedy

Change to 50GBASE-FR1, 50GBASE-LR1, 50GBASE-ER1 everywhere in the document

Proposed Response *Response Status* **O**

Cl **122** *SC* **122** *P* **45** *L* **16** # P-200

Cole, Chris Finisar

Comment Type **T** *Comment Status* **X**

Public Review Comment no. [200] by [chris.cole@finisar.com] on draft designation [802.3cn]:400G ER8 can only support 30km, lines 16 to 18

SuggestedRemedy

Keep 200GBASE-ER4 2 m to 30 km || 2 m to 40 kma, Change 400GBASE-ER8 to 2 m to 30 km only, make same changes everywhere else in the entire document

Proposed Response *Response Status* **O**

Cl **122** *SC* **122** *P* **46** *L* **21** # P-201

Cole, Chris Finisar

Comment Type **T** *Comment Status* **X**

Public Review Comment no. [201] by [chris.cole@finisar.com] on draft designation [802.3cn]:Outer Optical Modulation Amplitude (OMAouter), each lane (min)b for 200GBASE-ER4 of 3.4 dBm it too high, lines 21 to 22

SuggestedRemedy

Change Outer Optical Modulation Amplitude (OMAouter), each lane (min)b for 200GBASE-ER4 to 1.2 dBm

Proposed Response *Response Status* **O**

Cl **122** *SC* **122** *P* **46** *L* **27** # P-202

Cole, Chris Finisar

Comment Type **T** *Comment Status* **X**

Public Review Comment no. [202] by [chris.cole@finisar.com] on draft designation [802.3cn]:Launch power in OMAouter minus TDECQ, each lane (min): for extinction ratio > 4.5 dB for 200GBASE-ER4 of 2 dBm is too high, lines 27 to 28

SuggestedRemedy

Change Launch power in OMAouter minus TDECQ, each lane (min): for extinction ratio > 4.5 dB for 200GBASE-ER4 to -0.2 dBm, Change all other limits in this table consistent with the OAM (min) reduction by 2.2dB.

Proposed Response *Response Status* **O**

Cl **122** *SC* **122** *P* **48** *L* **18** # P-203

Cole, Chris Finisar

Comment Type **T** *Comment Status* **X**

Public Review Comment no. [203] by [chris.cole@finisar.com] on draft designation [802.3cn]:TX OAM (min) reduced by 2.2dB in Table 122-9, lines 18 to 54

SuggestedRemedy

Change all limits in this table consistent with the TX OAM (min) reduction by 2.2dB in Table 122-9

Proposed Response *Response Status* **O**

Cl **122** *SC* **122** *P* **47** *L* **26** # P-204

Cole, Chris Finisar

Comment Type **T** *Comment Status* **X**

Public Review Comment no. [204] by [chris.cole@finisar.com] on draft designation [802.3cn]:Outer Optical Modulation Amplitude (OMAouter), each lane (min)b for 400GBASE-ER8 of 2.4 dBm is too high, lines 26 to 27

SuggestedRemedy

Change Outer Optical Modulation Amplitude (OMAouter), each lane (min)b for 400GBASE-ER5 to 0.2 dBm

Proposed Response *Response Status* **O**

Cl **122** *SC* **122** *P* **47** *L* **32** # P-205

Cole, Chris Finisar

Comment Type **T** *Comment Status* **X**

Public Review Comment no. [205] by [chris.cole@finisar.com] on draft designation [802.3cn]:Launch power in OMAouter minus TDECQ, each lane (min): for extinction ratio > 4.5 dB for 200GBASE-ER4 of 1 dBm is to high, lines 32 to 33

SuggestedRemedy

Change Launch power in OMAouter minus TDECQ, each lane (min): for extinction ratio > 4.5 dB for 200GBASE-ER4 to -1.2 dBm, Change all other limits in this table consistent with the OAM (min) reduction by 2.2dB.

Proposed Response *Response Status* **O**

Cl **122** *SC* **122** *P* **49** *L* **10** # P-206

Cole, Chris Finisar

Comment Type **T** *Comment Status* **X**

Public Review Comment no. [206] by [chris.cole@finisar.com] on draft designation [802.3cn]:TX OAM (min) reduced by 2.2dB in Table 122-10, lines 10 to 54

SuggestedRemedy

Change all limits in this table consistent with the TX OAM (min) reduction by 2.2dB in Table 122-10

Proposed Response *Response Status* **O**

Cl **139** *SC* **139** *P* **73** *L* **1** # P-207

Cole, Chris Finisar

Comment Type **G** *Comment Status* **X**

Public Review Comment no. [207] by [chris.cole@finisar.com] on draft designation [802.3cn]:50GBASE-FR, 50GBASE-LR, 50GBASE-ER need 1 suffix to be consistent with 802.3 convention, pages 73 to 87, lines 1 to 54 on each page

SuggestedRemedy

Change to 50GBASE-FR1, 50GBASE-LR1, 50GBASE-ER1 everywhere in the document

Proposed Response *Response Status* **O**