SMF TBDs

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Introduction

In addition to the big ticket items listed in anslow_3bs_01_0915 the P802.3bs draft 1.0 contains a number of TBDs that must be removed before the draft can proceed to Working Group ballot.

Some of these were highlighted in stassar_01_0915_smf.

BER

All four PMDs have a requirement that the BER < 2×10^{-4} and that the FLR is < 6.2×10^{-11} when processed by Clause 119 FEC.

Having chosen to form the PCS lanes by symbol interleaving from two FEC codewords, the BER requirement could be relaxed to 2.4×10^{-4} (0.1 dB optical penalty) while still only requiring the total BER due to the electrical sub-links to be 3.5×10^{-5} (see anslow_3bs_03_0915).

The format of the D1.0 “Bit error ratio” subclauses follows that of Clause 95 where the additional errors due to CAUI-4 are negligible. For 400G, with 0.1 dB degradation allowed for the electrical link, a PMD that only gives an FLR of 6.2×10^{-11} when processed by Clause 119 FEC will not meet that FLR when additional errors from the electrical sub-links are added. The “Bit error ratio” subclauses therefore need to be modified to fix this.

The post FEC FLR expected from a BER of 2.4×10^{-4} is 9.2×10^{-13} so one option is to change the PMD FLR requirement to this.

ALL SMF PMDs

Delay constraints: 8192 bit times (16 pause_quanta or 20.48 ns)

Skew constraints: SP2 43 ns, SP3 54 ns, SP4 134 ns, SP5 145 ns

Skew Variation: SP2 0.4 ns, SP3 0.6 ns, SP4 3.4 ns, SP5 3.6 ns

400GBASE-DR4

Skew measurement CDR bandwidth	TBD MHz
Transmitter	
• SMSR	30 dB
• $RIN_{XX}OMA$	
• Optical return loss tolerance	TBD dB
Receiver	
• 3 dB electrical upper cutoff frequency	TBD GHz
Channel	
• DGD_max	2.24 ps
• Optical return loss	TBD dB
• Connector insertion loss	2 dB
• Fiber attenuation	TBD dB/km

400GBASE-FR8 and 400GBASE-LR8

Transmitter	FR8	LR8
• SMSR	30 dB	30 dB
• Average launch power, each lane (min)	-3 dBm	-2.5 dBm
• Difference in power between lanes (OMA)	TBD dB	TBD dB
• $RIN_{XX}OMA$		
• Optical return loss tolerance	TBD dB	TBD dB
• Transmitter reflectance	TBD dB	TBD dB
Receiver		
• Damage threshold	5.2 dBm	5.2 dBm
• Difference in power between lanes (OMA)	TBD dB	TBD dB
• Receiver reflectance	TBD dB	TBD dB
• 3 dB electrical upper cutoff frequency (max)	21 GHz	21 GHz
Channel		
• Maximum discrete reflectance	TBD dB	TBD dB
• Optical return loss	21 dB	21 dB

Thanks!