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LIAISON STATEMENT

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For information to: IEEE 802.3

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Abstract: This liaison is to continue the discussion on the topic of bidirectional single fiber point-to-point optics standardization.

Q2 would like to inform the 802.3 working group about the recent progress in the draft new recommendation G.9806. The document was consented at the February meeting, and is now in the alternative approval process (AAP). The draft received comments during the first "Last Call" period, and Q2 has worked to address these comments, the most relevant of which is that the PMD values in G.9806 should correspond to those in 802.3cp.

When considering this alignment, we note that G.9806 has the S and B- classes of optics, and these have the same loss budget as 802.3cp BR20 and BR40+, respectively. Immediately, we can say that the Q2 group has no comments on the BR10 and BR40 PMD types, as there is no corresponding class in the recommendation.

The BR20 and BR40+ budgets are special in that they have a rather large loss range (15 and 13 dB, respectively). This results in the receiver overload levels being quite high, and this is seen as an implementation problem. After much discussion, a solution was developed that uses APD type detectors along with Reed-Solomon FEC a la clause 108. This reduces the receiver sensitivity level, and then all the link levels can be reduced as well. The revised levels for both G.9806 and 802.3cp are shown in tables 1 and 2. Please note that some of the numbers between these two tables do not match exactly, because of the difference in specification style, but they are physically equivalent and a single PMD could satisfy both specs equally well.

Table 1. Proposed PMD values for G.9806. Cells highlighted in yellow are newly proposed values

		Consented Class S (BR20) PIN Rx	Proposed. Class S (BR20) APD Rx	Consented Class B- (BR40+)	Proposed. Class B- (BR40+)
Mean launch power MAX	dBm	5	-5.6	5	+4.0
Mean launch power MIN	dBm	2	-9.0	2	-0.4
Minimum overload	dBm	5	-5.6	5	-6.0
Minimum sensitivity	dBm	-14.0	-25.0	-23.0	-25.0
Damage threshold MAX	dBm	5	-4.6	5	-5.0
Optical path penalty MAX	dB	1	1	2	1.6
Transmitter Penalty	dB		1		1
Extinction Ratio Nominal	dB		6.5		6.5
Extinction Ratio MIN	dB	>3	>5	>5	>5
BER		1E-12	5E-5	1E-12	5E-5

Table 2. Corresponding PMD values for IEEE802.3cp. Cells in blue are newly proposed values

		In D1.3. BR20 (Class S) PIN Rx	Proposed. BR20 (Class S) APD Rx	In D1.3. BR40+ (Class B-)	Proposed. BR40+ (Class B-)
Average launch power (max)	dBm	5.4	-5.6	6	+4.0
Average launch power (min)	dBm	0.4	-12.0	0	-4.0
Launch power (min) in OMA minus TDP	dBm	2.4	-10	2	-2.0
Optical Modulation Amplitude (min)	dBm	3.4	-9	3	-1.0
Transmitter and dispersion penalty (max)	dB	3	2	2.6	2.6
Average launch power of OFF transmitter d(max)	dBm	-30	-30	-30	-30
Extinction ratio (min)	dB	3	5	5.5	5
Average receive power (max)	dBm	5.4	-5.6	-4	-6.0
Average receive power (min)	dBm	–14.4	-27.2	-23.3	-27.2
Receiver sensitivity (max) in OMA	dBm	-12.6	-25	-21	-25.0
Maximum receive power (for damage)	dBm	6.4	-4.6	4	-5
BER		1E-12	5E-5	1E-12	5E-5

The proposed changes to BR20 and BR40+ have been submitted as comments against draft 1.3. We look forward to reviewing your consideration of these comments. Our next meeting is May 12, 2020, which follows only a few days after 802.3cp's meeting of May 6.