Discussion on 100GBASE-BR40 Receiver sensitivity

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Supporters

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Background

- At the April and May meeting power budget of BR40 were discussed.
- First proposal on APD OMA sensitivity was -12.8 dBm, however some commenters at April meeting have suggested -13.8 dBm.
- And -13.5 dBm was suggested in May meeting.

- In this contribution, APD OMA sensitivity based on experiments is proposed.

Proposed APD OMA sensitivity

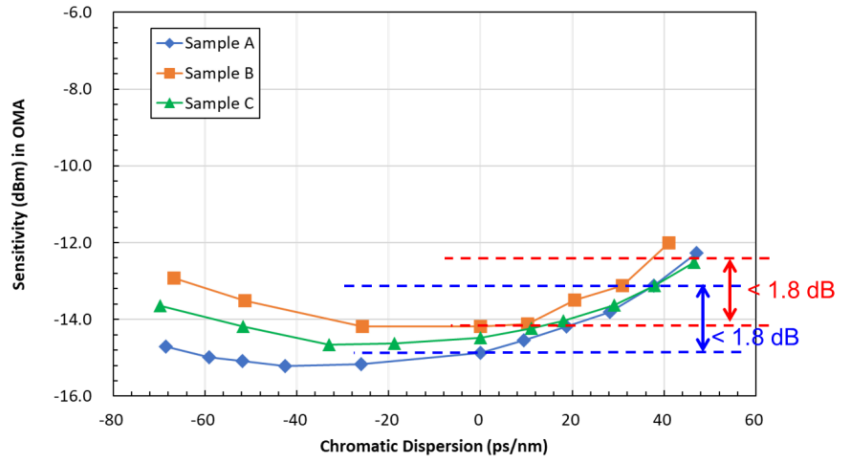
	Receiver Sensitivity For TECQ < 1.4 dB	Receiver Sensitivity For 1.4 dB ≦ TECQ ≦ 3.9 dB or TDECQ(max)
3dk_takahara_2404_1a.pdf	-12.8	-14.2 + TECQ
3dk_lutz_2404_1a.pdf	-13.8	-15.2 + TECQ
3dk_effenberger_2405_1.pdf	-13.5	(-14.9 + TECQ)

- G.9806 loss budgets for class B_L is from 10 to 20 dB.
- On the other hand, maximum link loss of 100GBASE-BR40 is 18 dB.
- This difference of 2.0 dB should be allocated for cost reduction of transmitter and receiver.

Experimental results (recap)

Receiver sensitivity for chromatic dispersion

- Experimental results demonstrated the feasibility of 100G/λ 40-km transmission.



- Receiver sensitivity of -14.2 dBm was achieved for BtoB.
- Chromatic dispersion penalty for -77 to 37 ps/nm was less than 1.8 dB.

3dk_jackson_2307_1r1.pdf

This results of -14.2 dBm is -13.2 dBm, if loss of filter is 1.0 dB.

This results is based on the test setup.

New specification proposal

	Receiver Sensitivity For TECQ < 1.4 dB (dBm)	Receiver Sensitivity For 1.4 dB ≦ TECQ ≦ 3.9 dB or TDECQ(max) (dBm)
3dk_takahara_2404_1a.pdf	-12.8	-14.2 + TECQ
3dk_lutz_2404_1a.pdf	-13.8	-15.2 + TECQ
3dk_effenberger_2405_1.pdf	-13.5	(-14.9 + TECQ)
New Proposal	**-13.2**	**-14.6 + TECQ**

- From link loss relaxation, 0.3 dB is allocated for receiver.
- Compare with experimental results (slide.5), improvement of sensitivity must be expected by design optimization in transceiver production. This improvement will be expected to be a margin of sensitivity.

Thank You!