

Dispersion Penalty Measurement Using Silicon Photonics Tx

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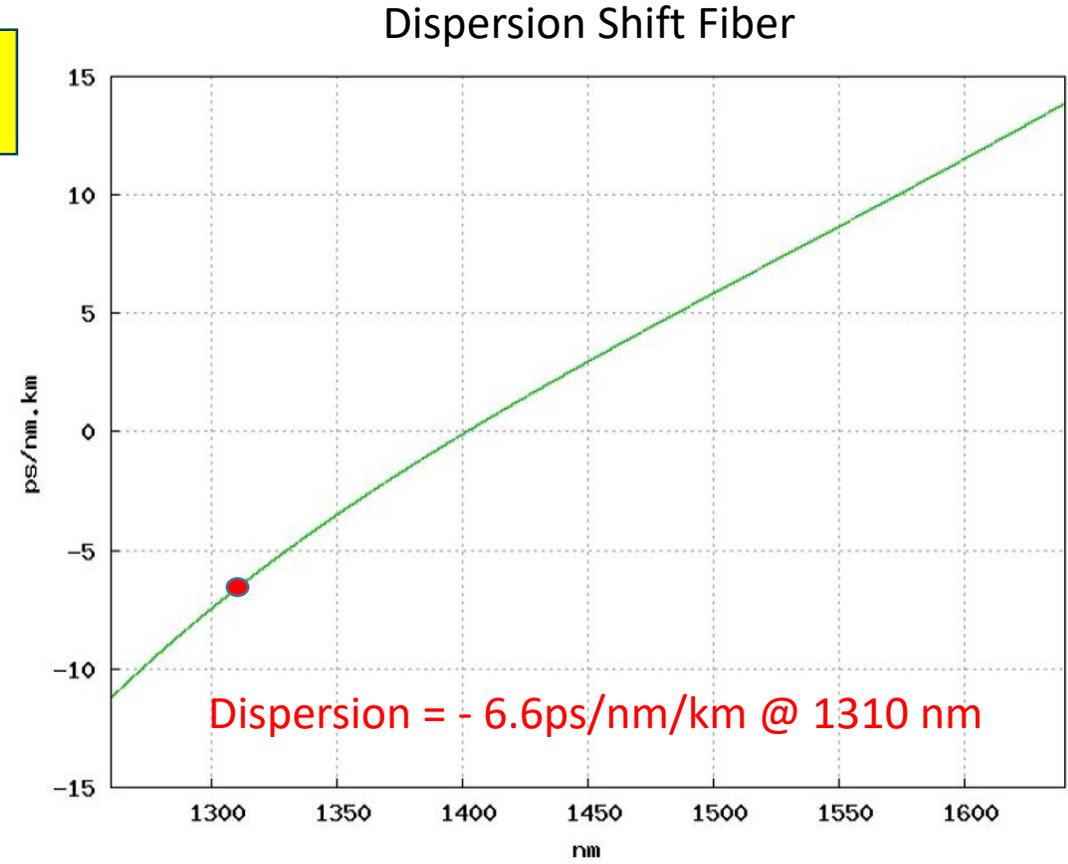
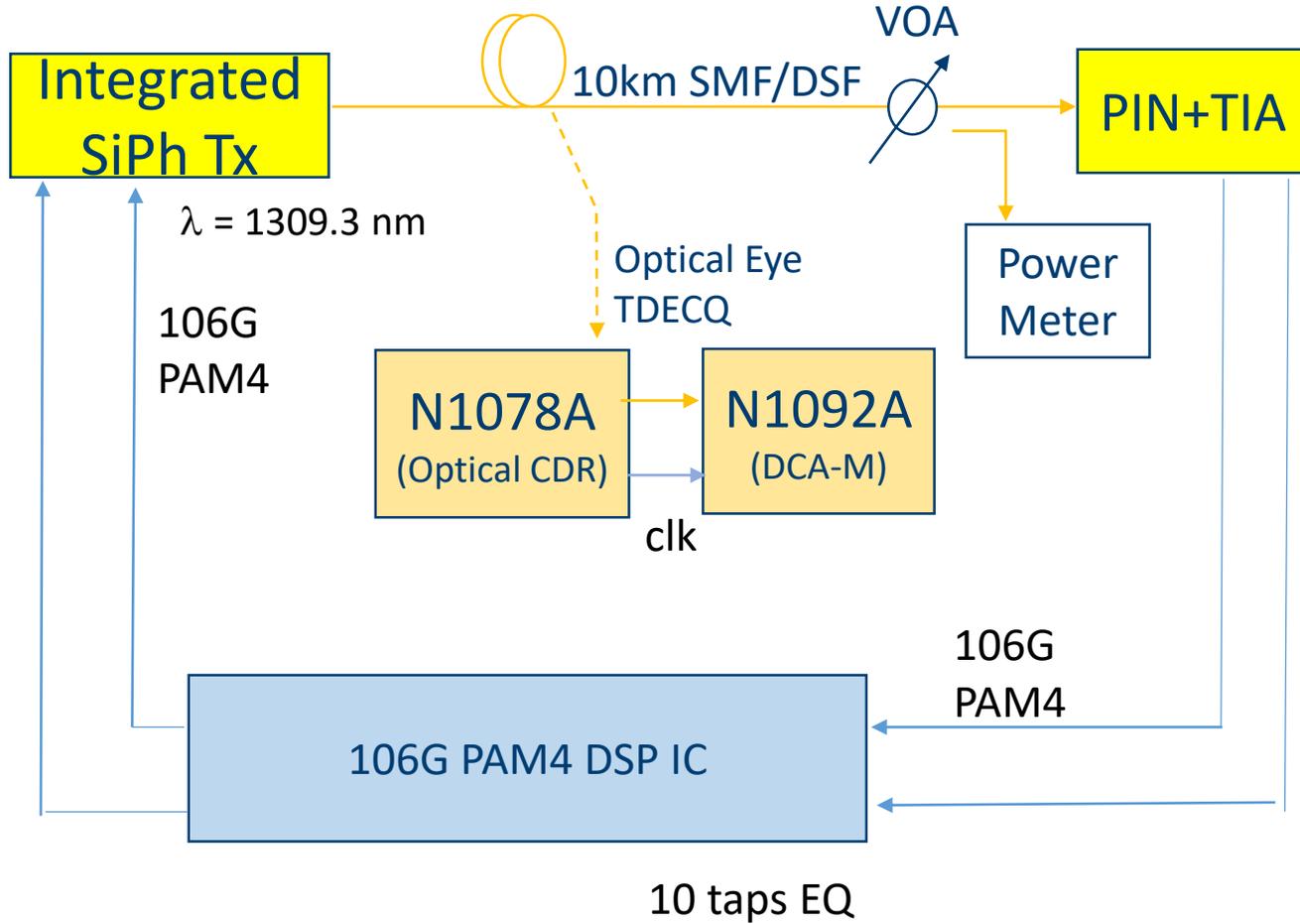
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Overview

- 400G-LR4 on CWDM wavelength grid might have excessively high dispersion penalty under the corner case of dispersion conditions for 2 outer channels (- 59 ps/nm for L0 and 33 ps/nm for L3).
- We showed (in Sept. 2018) dispersion penalty measurements using chirped Tx ($\alpha = +/- 0.7$)
 - Excessively high penalty with -ve chirp in -ve fiber dispersion region
 - 2.2 dB penalty with +ve chirp in +ve fiber dispersion region
- This presentation will show the dispersion penalty measurements using SiPh MZI based Tx.

Measurement Setup



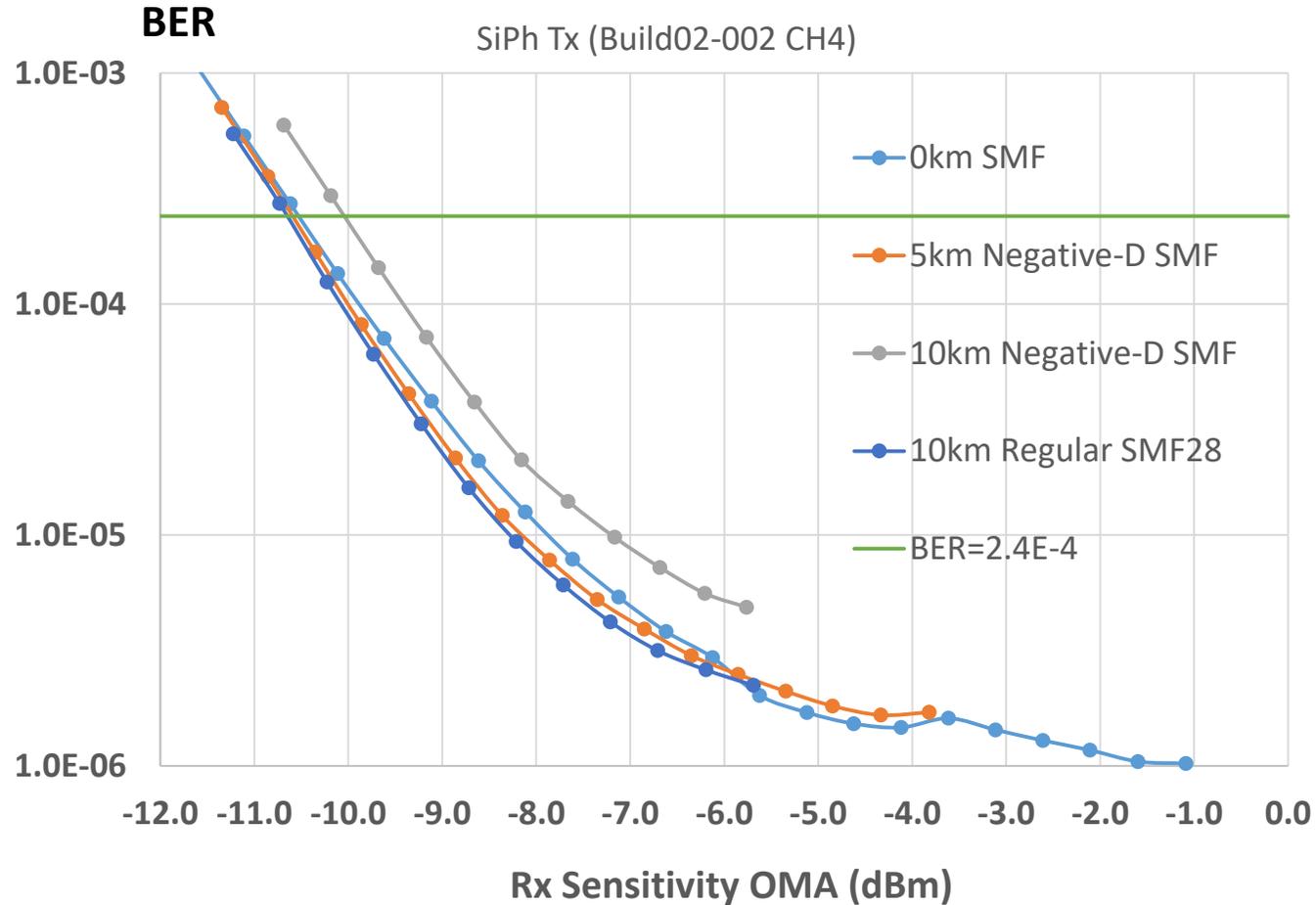
10km DSF \Rightarrow worst case -ve dispersion

Tx Characteristics



ER = 3.8 dB
SECQ = 1.6 dB

BER Measurements



- 0.7 dB penalty with 10km of DSF (dispersion = -66 ps/nm)
- Negligible penalty with 10km of standard SMF

Conclusions

- Measured dispersion penalty using SiPh MZI based Tx @ 106 Gb/s from BER tests
 - 0.7 dB penalty with – 66 ps/nm total dispersion
- Expect the dispersion penalty to be manageable for SiPh MZI based Tx for CWDM wavelength grid, supporting 400G-LR4 baseline.