

Chromatic Dispersion Tolerance of 400GbE DMT

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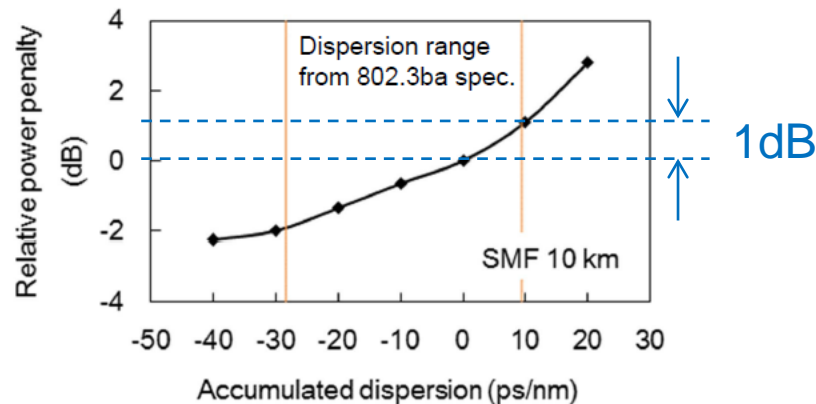
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- “tanaka_3bs_01_0514.pdf”: simulation results of chromatic dispersion penalty for optical 4x100G/lambda DMT after 10-km SMF
 - Dispersion penalty was about 1 dB for the worst channel in channel specification for chromatic dispersion from IEEE802.3ba.
- “This contribution”: experimental results of chromatic dispersion penalty

(Ref.: tanaka_3bs_01_0514.pdf)

Dispersion Penalty

- Dispersion penalty: about 1 dB
 - Channel specification for dispersion from IEEE802.3ba
 - After 10-km SMF
 - 4ch. LAN-WDM configuration

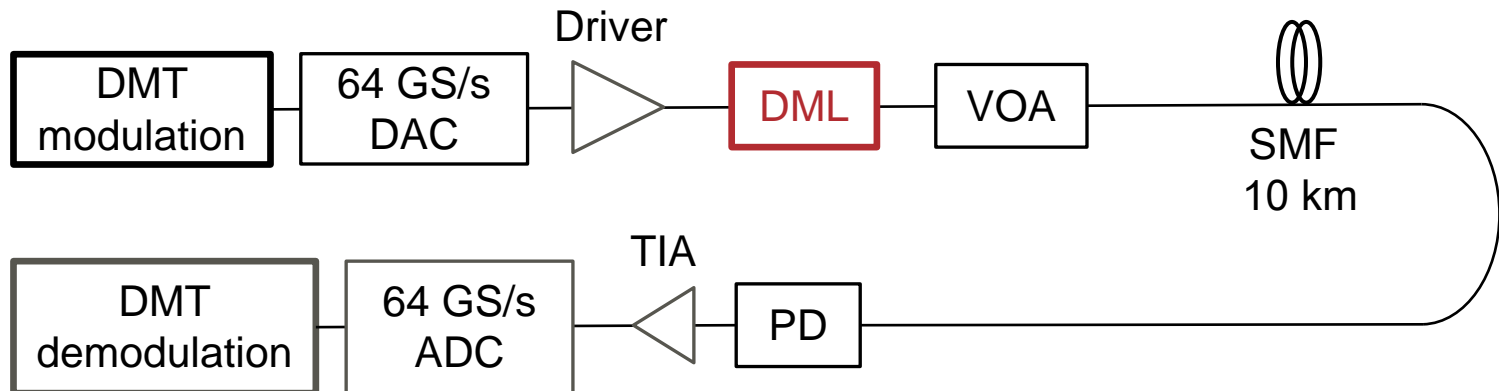


Experimental Setup

- 116 Gbps Discrete Multi-Tone (DMT)
- 64 GS/s DAC and ADC evaluation boards with off-line processing
- We evaluate the dispersion penalty of 400GE DMT with each DML (chirp parameter α : about +3.5), whose dispersion is in the chromatic dispersion range of IEEE802.3ba specification.

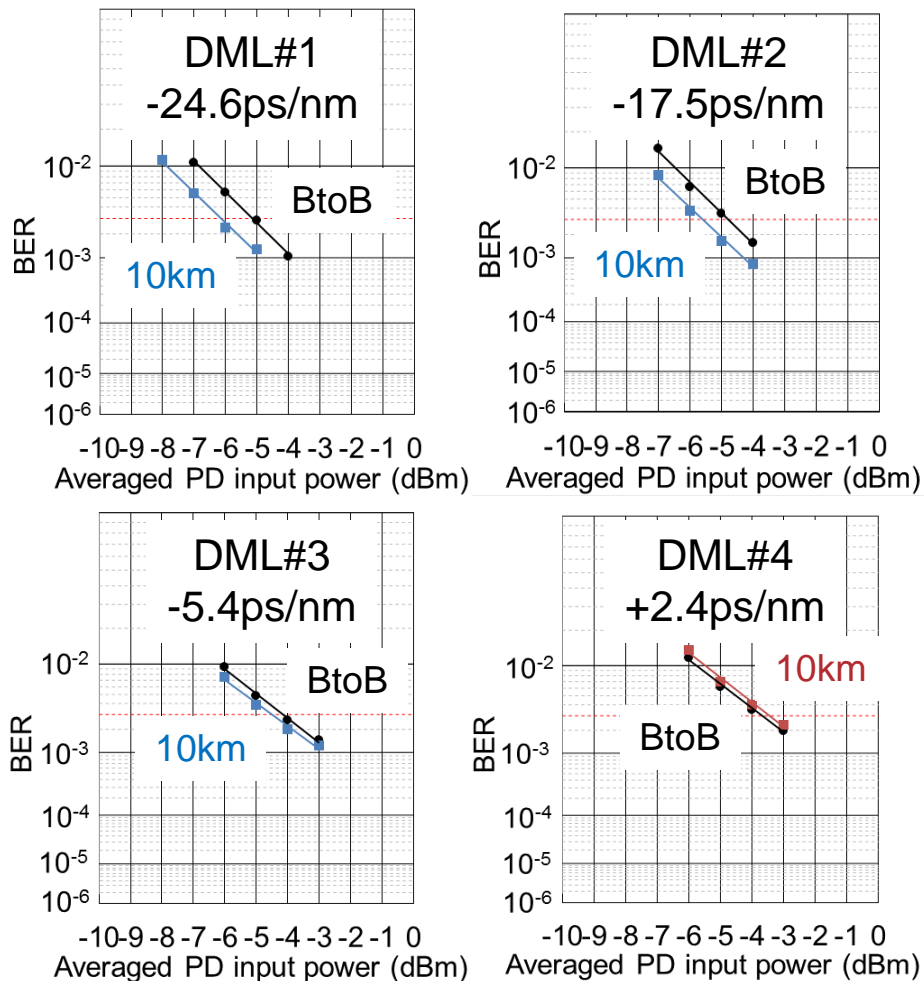
Parameter	Value
Number of subcarriers	256
Cyclic prefix	16
Data pattern	Random

DML	Dispersion after 10-km SMF
DML#1 (1285 nm)	-24.6 ps/nm
DML#2 (1293 nm)	-17.5 ps/nm
DML#3 (1307 nm)	-5.4 ps/nm
DML#4 (1316 nm)	+2.4 ps/nm

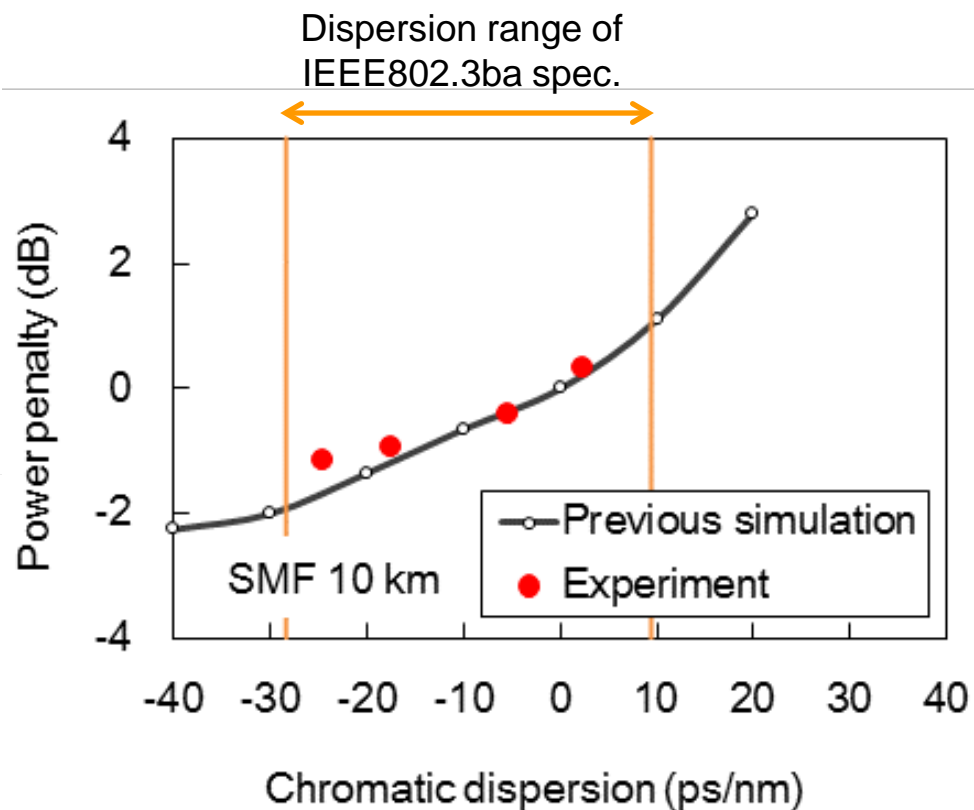


Experimental Result

BER measurement result



Chromatic dispersion penalty



■ Experimental results agree with the simulation results.

- Experimental results of the power penalty due to chromatic dispersion agree with the simulation results.
- The power penalty of about 1.0 dB due to chromatic dispersion is sufficient in the experiment for 4x100G/lambda DMT and 10-km SMF.

Thank you