CWDM Equivalent TDP
50G PAM4 Measurements

400 Gb/s Ethernet Task Force

SMF Ad Hoc Conference Call

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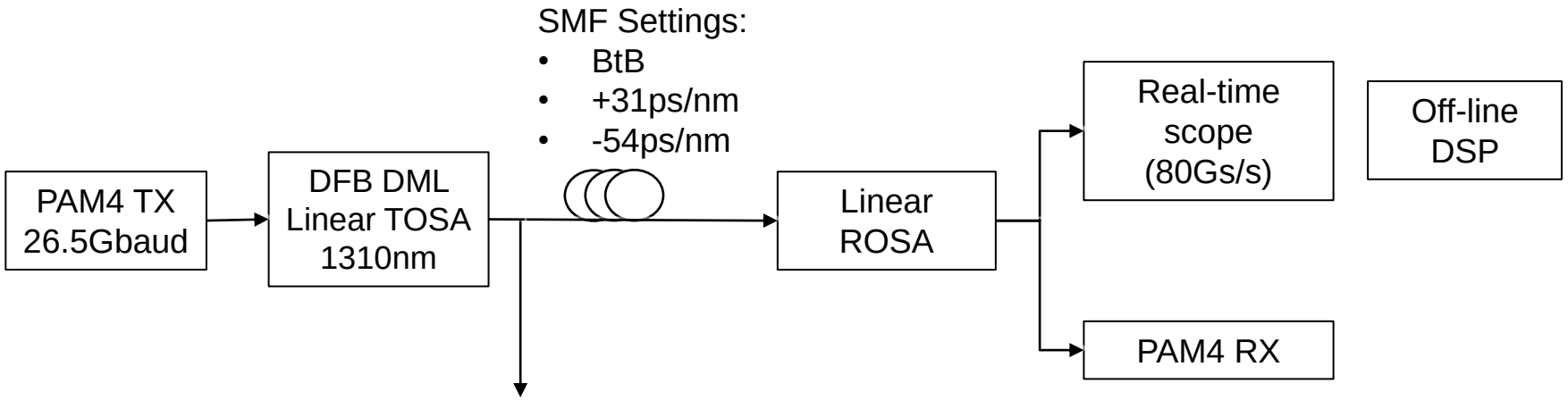
IEEE

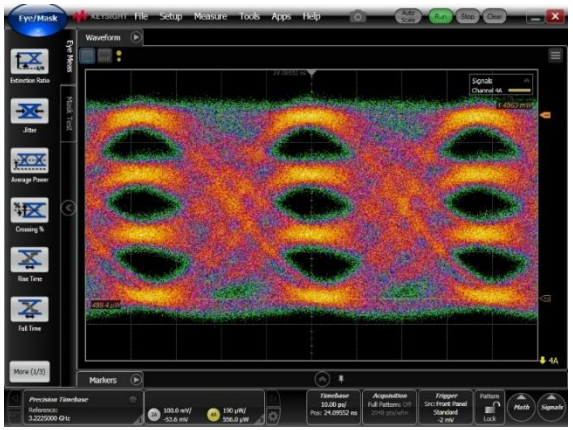
FINISAR®

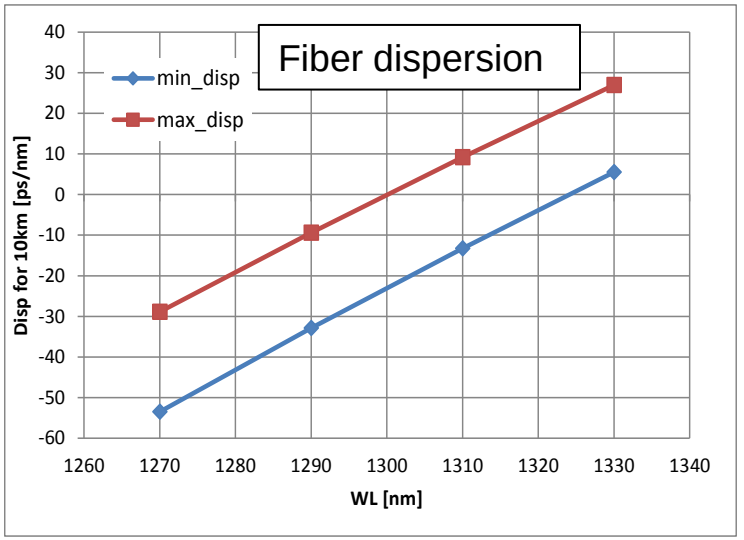
CWDM Wavelengths

- L0 Wavelength: 1271nm (1264.5 to 1277.5nm)
  - Dispersion at 1264.5nm w/ 1324nm ZD: -5.93ps/nm-km
    - G.652 A, B, C, D SMF theoretical worst case dispersion
    - 10km dispersion: -59.3ps/nm
- L3 Wavelength: 1331nm (1324.5 to 1337.5nm)
  - Dispersion at 1337.5nm w/ 1300nm ZD: 3.34ps/nm-km
    - G.652 A, B, C, D SMF theoretical worst case dispersion
    - 10km dispersion: 33.4ps/nm
  - Dispersion at 1337.5nm w/ 1304nm ZD: 3.0ps/nm-km
    - realistic field SMF worst case dispersion
    - 10km dispersion: 30ps/nm

Measurement Set-up

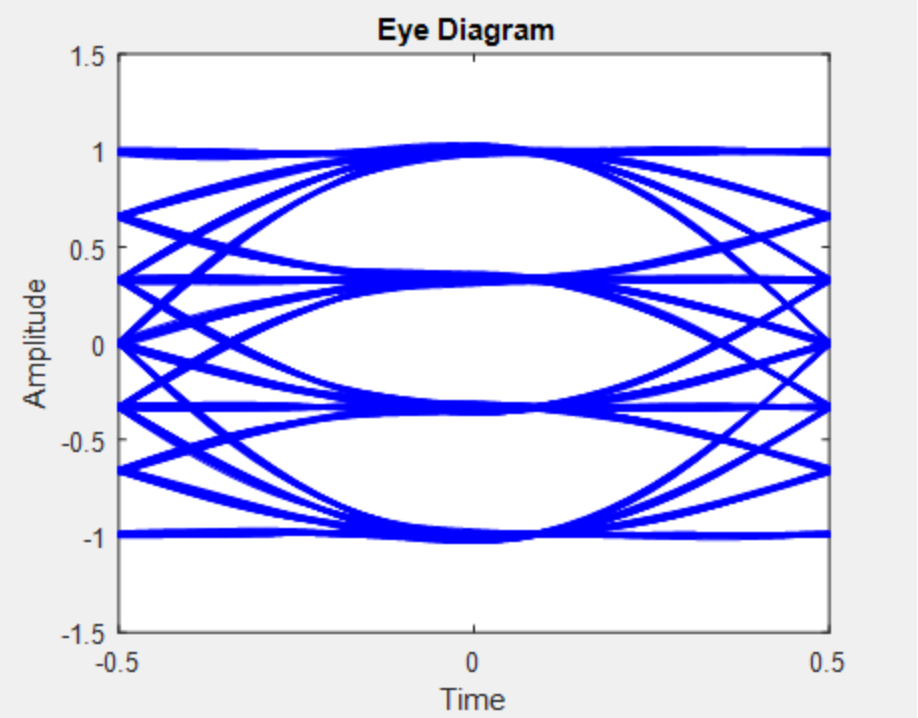




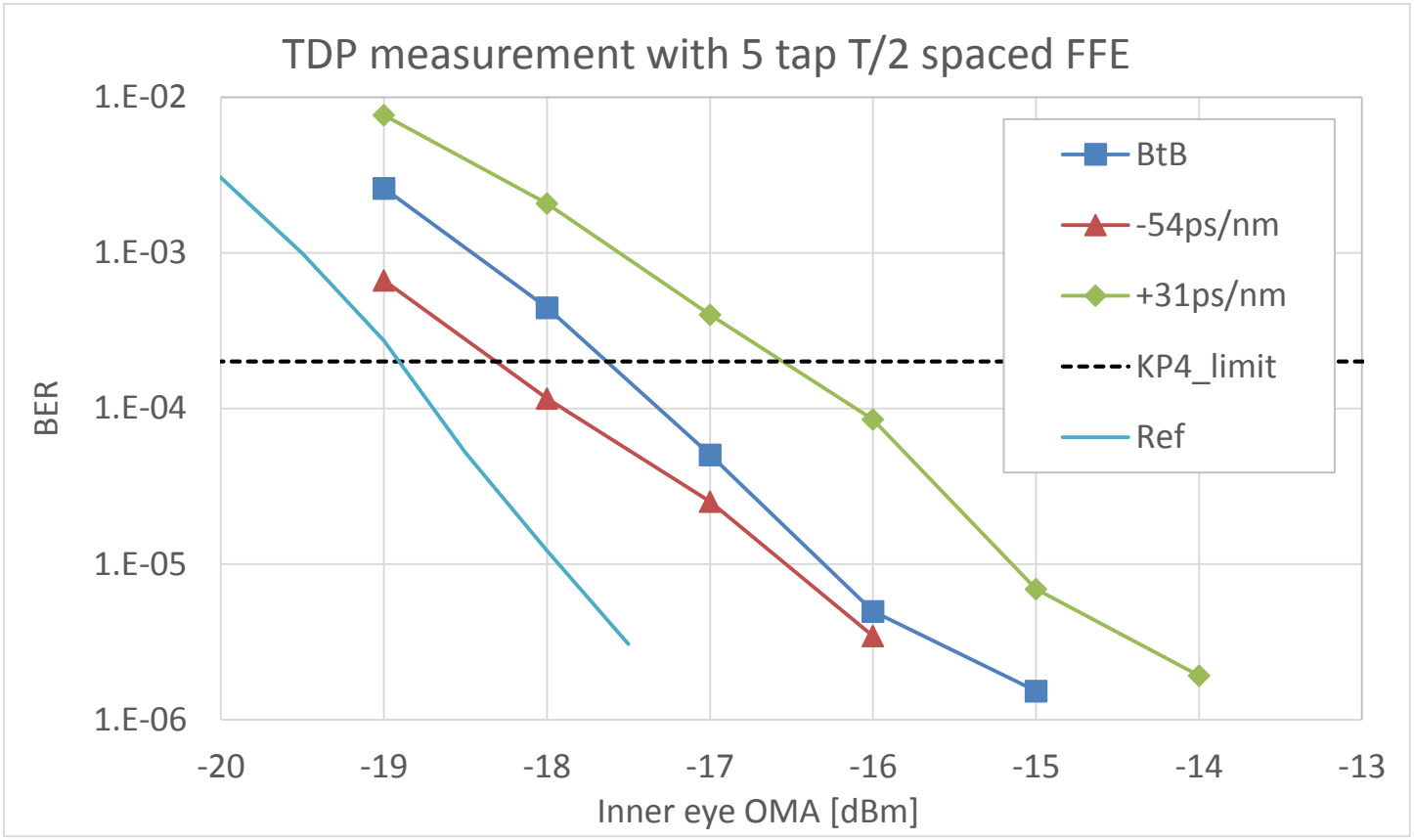


Off-line DSP RX Reference (Ref.)

- 19.5GHz BW
- 0.8 A/W responsivity
- 12.5pA/sqrt(Hz) input referred noise
- DSP reference signal eye diagram (no noise):

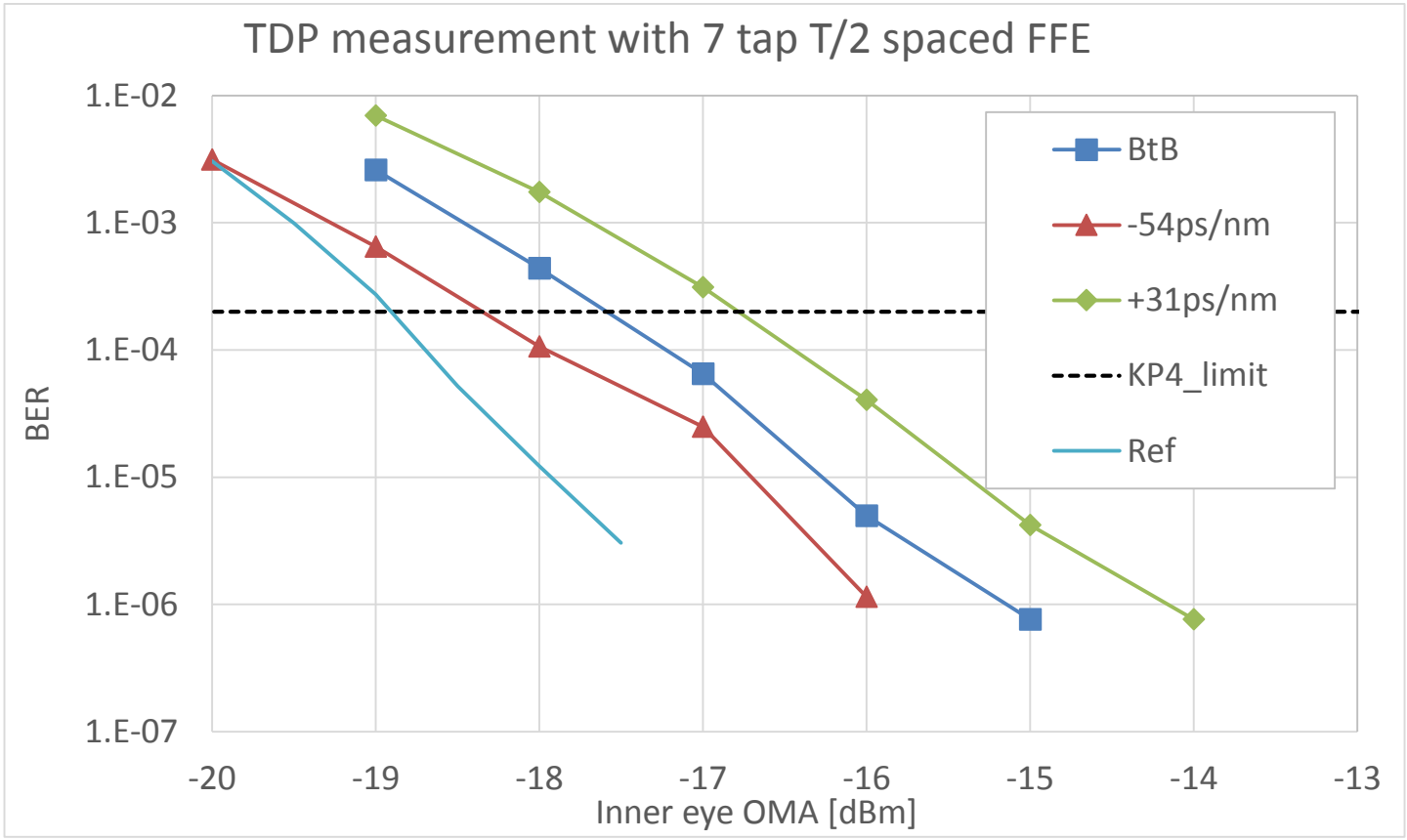


Off-line DSP TDP: 5-tap T/2 spaced FFE



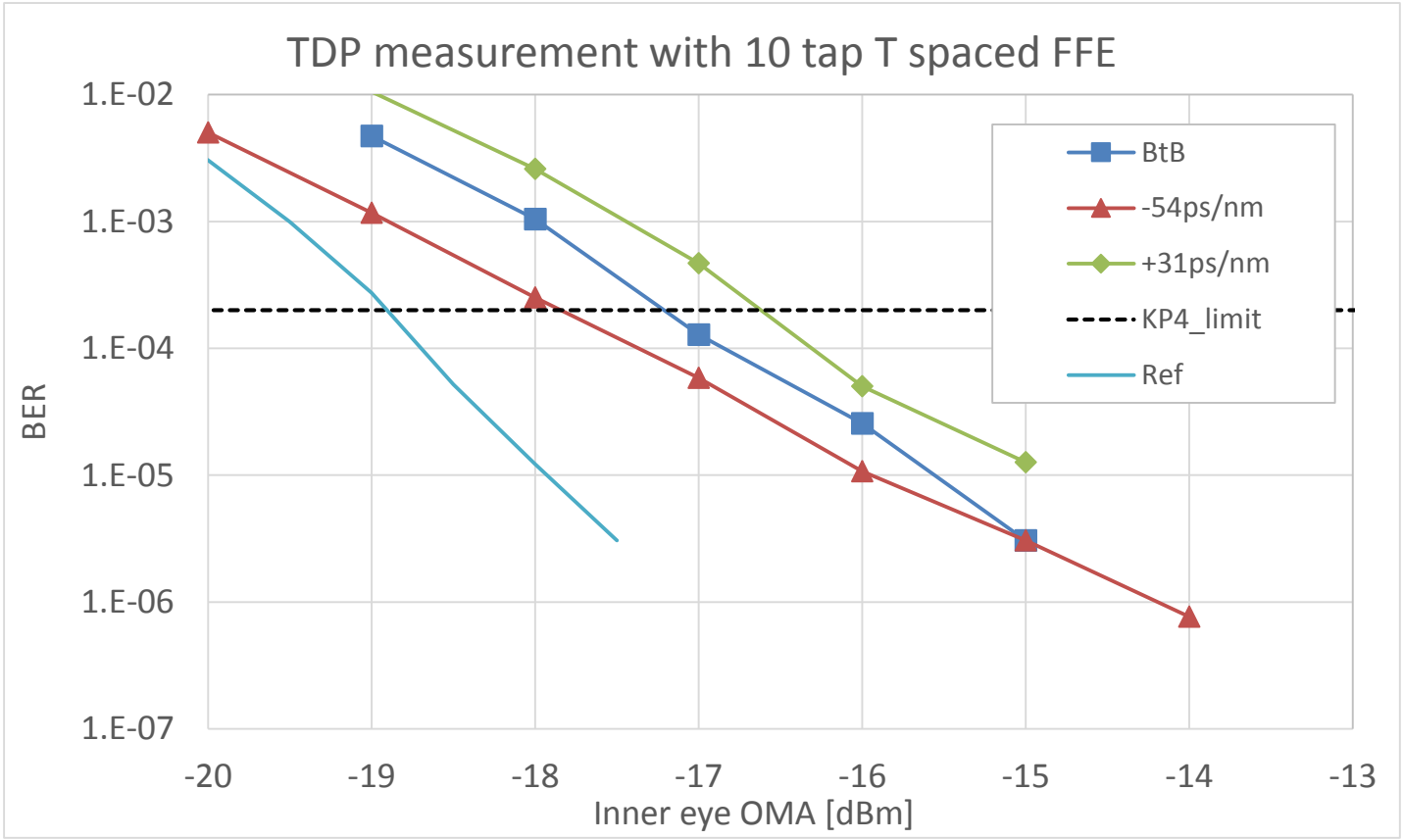
Dispersion	TDP dB	DP dB
+31ps/nm	2.3	1.0
-54ps/nm	0.6	-0.7

Off-line DSP TDP: 7-tap T/2 spaced FFE



Dispersion	TDP dB	DP dB
+31ps/nm	2.1	0.8
-54ps/nm	0.6	-0.7

Off-line DSP TDP: 10-tap T spaced FFE



Dispersion	TDP dB	DP dB
+31ps/nm	2.1	0.6
-54ps/nm	1.0	-0.6

Summary

DML TX	TDP dB		DP dB	
RX FFE	+31ps/nm	-54ps/nm	+31ps/nm	-54ps/nm
5-tap T/2	2.3	0.6	1.0	-0.7
7-tap T/2	2.1	0.6	0.8	-0.7
10-tap T	2.1	1.0	0.6	-0.6

- Transmitter using EML or MZ will result in lower TDP

1331nm Equivalent 50G PAM4 TDP

Thank you