

10G High-Power Signal Source

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Supporters

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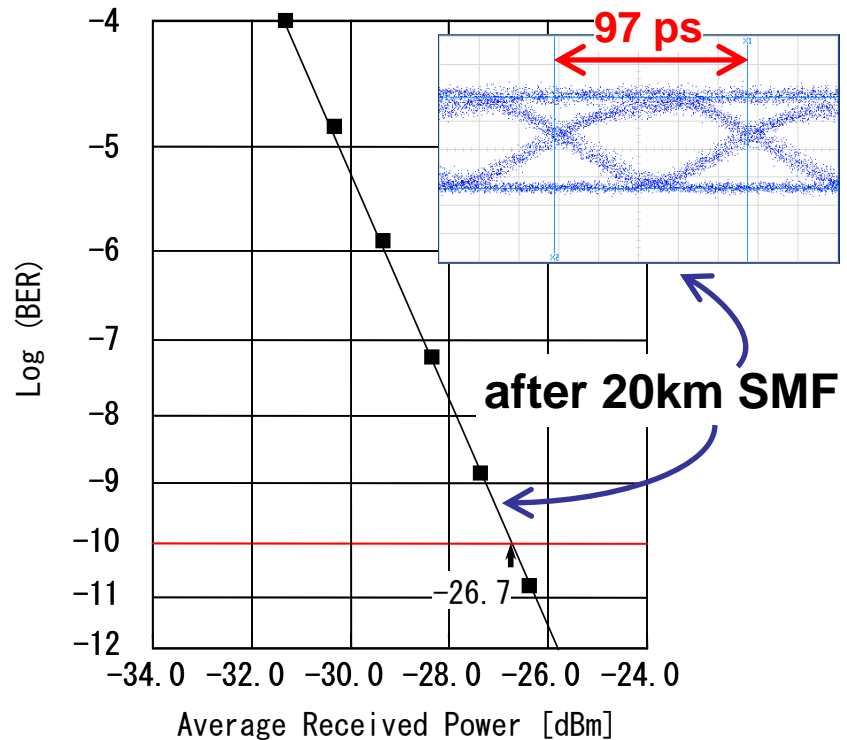
Sample data of 10Gbps downstream

- Experimental Configuration

	Transmitter	Receiver	Remarks
D/S config.	EA-DFB	APD	20km SMF, $\lambda = 1539\text{nm}$, 10.3Gbps, NRZ PRBS $2^{31}-1$

- Error rate measurement

- Output power:
+5.6dBm
 - Receiver sensitivity
after 20km SMF:
-26.7dBm@BER 10^{-10} (*)
 - Power budget:
32.3dB (*)
- * measured w/o FEC and
w/o WDM filter**

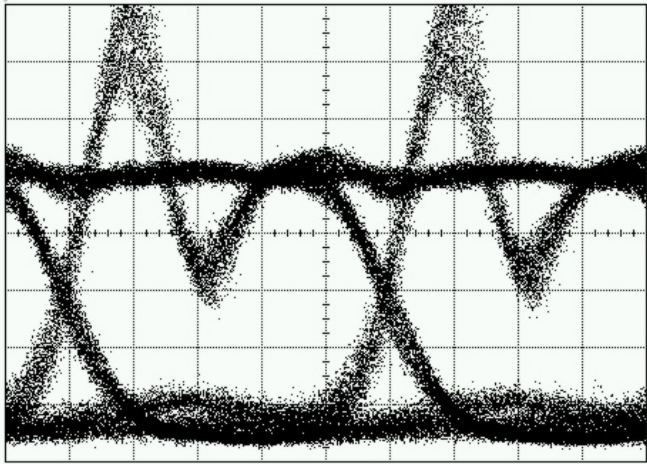


EML (Supplier A)

	1.55 μ m EA based ILM
Data Rate (Gb/s)	10
Wavelength (nm)	1530 to 1562
Package	7-pin HF Conn 14x30x9.65 mm
Operating Temperature (degC)	-5 to 75
Modulated Output Power (dBm)	>-1
Extinction Ratio (dB)	>10
Dispersion (ps/nm)	>1600
Reach (km)	<80
Penalty (dB)	<2
Availability	Available

1310nm High Power DML module for 10G Upstream

Experiment result of High Power 10G/1310nm DML module



Optical output waveform

Wavelength : 1310nm
Bit Rate : 9.95328Gbps
Extinction Ratio = 8.2dB,
Fiber Output Power = +6.3dBm

Note:

- (1) SMA connector + 7pin Butterfly typed package with 50 ohm matching resistor, thermo-electric cooler and Pigtail fiber.
- (2) Device vender X product sample (As of Nov. 2006)

Electrical/Optical characteristics

Parameter	Specifications
Fiber output power	4mW(min.) / 5mW(typ.)
Power Consumption	1.5W (typ.) / 2.4W (max)
Peltier Current	1.2 A (max)
Operation case temperature	-5 to 70 deg. C

Discussions

High-power EML

XFP (>80km, EML-APD) : >0dBm spec.

(XFP-LR2, G.959.1 P1L1-2D2)

Relaxed dispersion (<20km) may extends some power

L-band EML (157x nm) new development necessary

High-power DFB

XFP (>10km, DFB-PIN) : >-6dBm spec.

(XFP-SR, 10GBASE-L, G.959.1 P1I1-2D1)

Few applications so far for high-power DFB

High-power Issues

Chip yield ; Cost

Coupling efficiency ; Cost, Size

Temperature control ; Cost, Power dissipation