850 and 910 nm Transmission on GI POF

Ramana Murty
Broadcom Inc.

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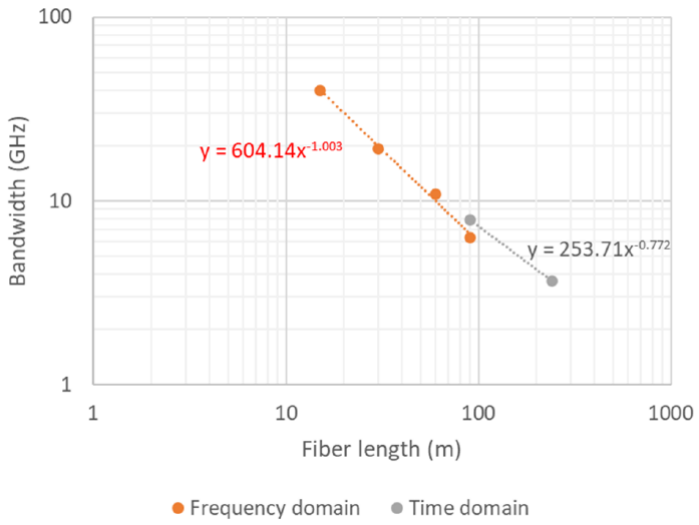
GI POF

Properties of the graded index plastic optical fiber were presented in Watanabe_3dh_02_2207.pdf.

Measurements of fiber bandwidth and minimum values at 850 nm were presented. There is no information at other wavelengths.

- This report: Examine fiber transmission at 850 and 910 nm on a sample of A4i GI POF.

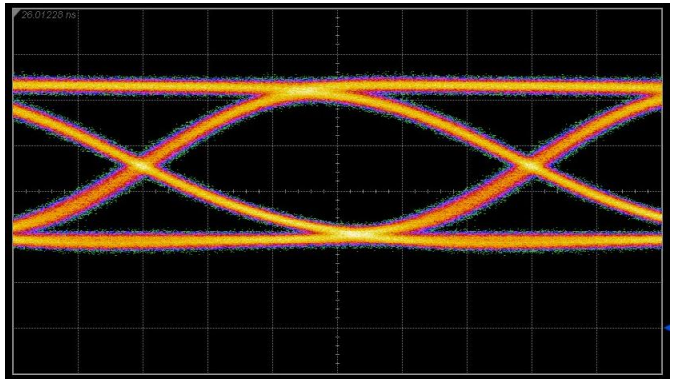
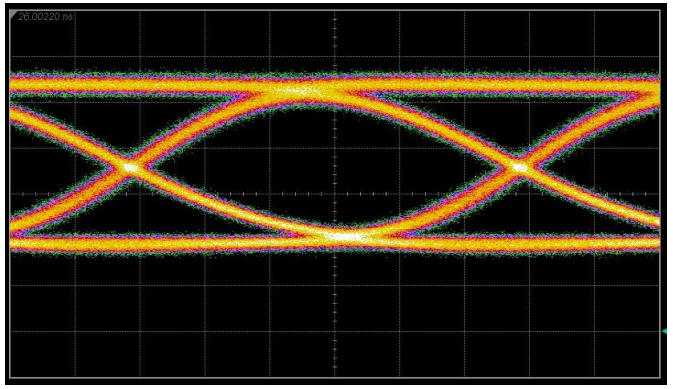
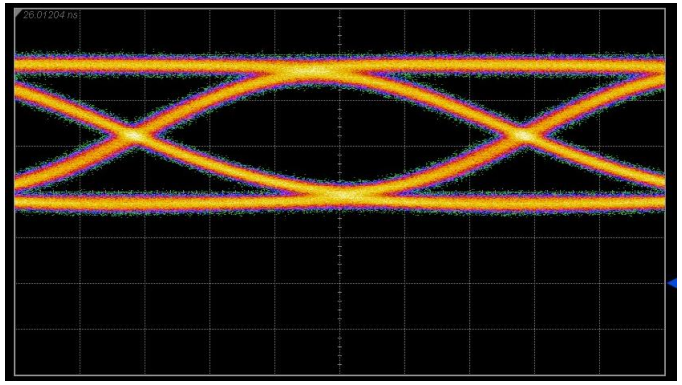
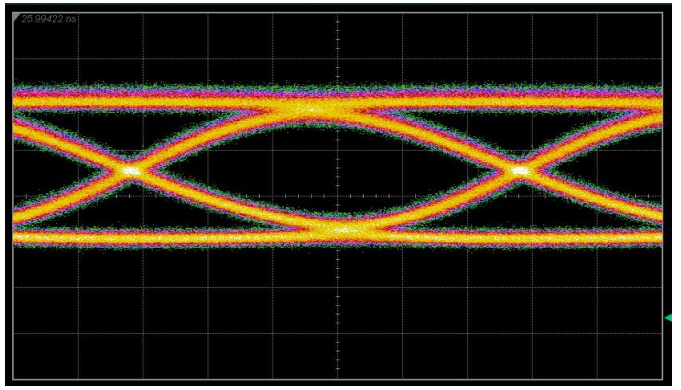


Proposed transmission properties of A4j

AGC
Your Dreams, Our Challenge

Attribute	Unit	Limit
Attenuation at 850 nm	dB/100 m	10
Minimum modal bandwidth at 850 nm	GHz over 15 m	20
Attenuation at 980 nm	dB/100 m	TBD
Minimum modal bandwidth at 980 nm	GHz over 15 m	TBD

850 and 910 nm Transmission

	850 nm	910 nm
2 m glass fiber		
30 m GI POF (A4i)		

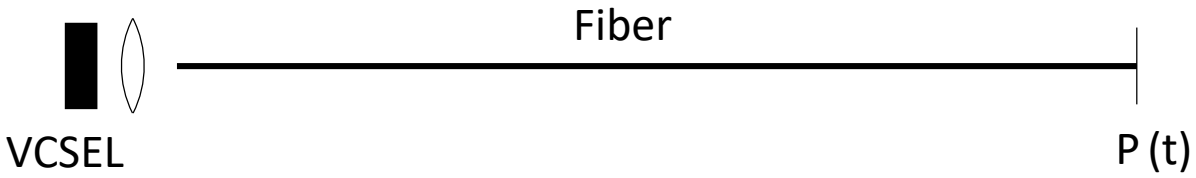
25.78125 Gb/s
RT
ER 4 dB

No equalization

Channel Bandwidth

This is a quick and easy measurement of effective fiber bandwidth.*

Fiber suppliers have established ways to measure fiber modal and chromatic dispersion.



Compare optical waveforms P(t)

- OM4 2m and
- GI POF 30 m

	–3 dBe bandwidth (GHz) of 30 m GI POF (A4i)	Uw (nm)
910 nm channel	28 ± 2	0.43
850 nm channel	32 ± 2	0.35

The –3 dBe bandwidth is the combined modal and chromatic dispersion bandwidth.

* The devices used for channel bandwidth measurement are different from the ones used for fiber transmission.

Summary

The reach objective in 802.3dh is 15 m at speeds up to 25G.

The sample of A4i fiber has adequate bandwidth for a 15 m link at 850 and 910 nm, and gives confidence in the specification of a broad wavelength range for the VCSEL.