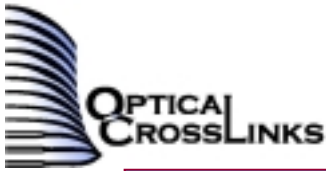


Each slide has a “follow-along” narrative block summarizing the key OXL benefit(s).

Polymer Technology

Performance Data and

Design Considerations

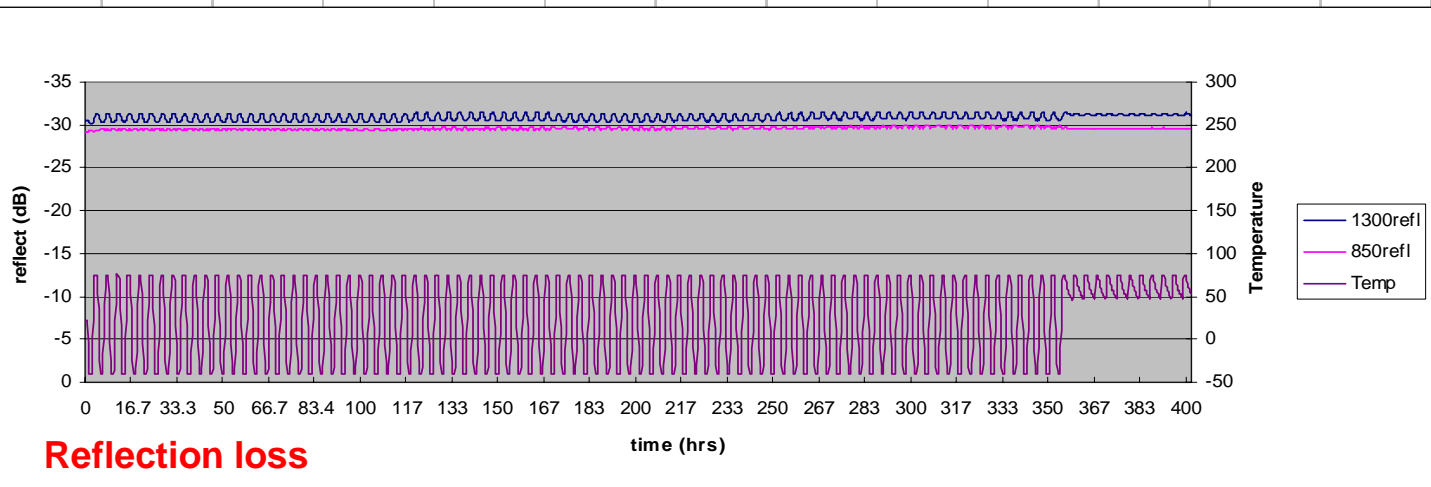
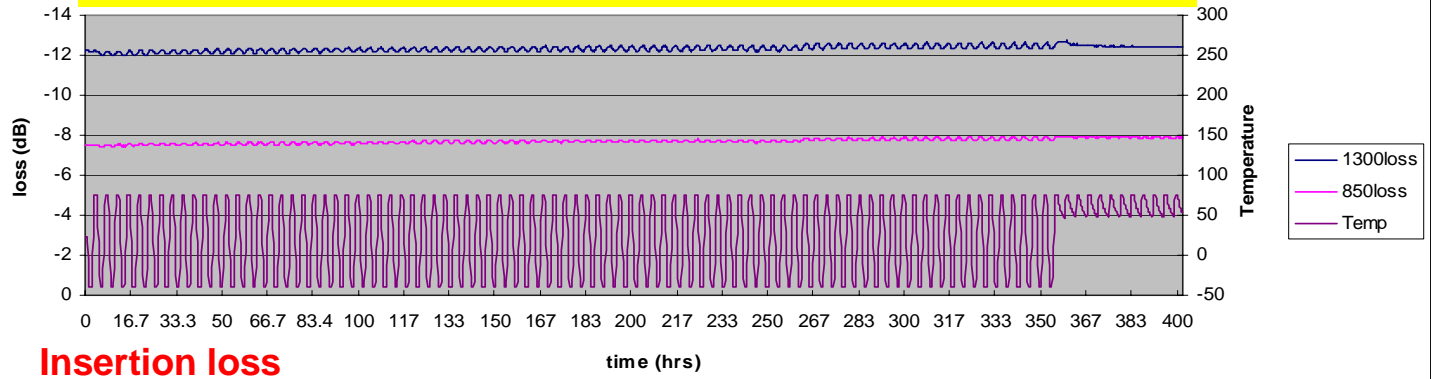


GuideLink™ Stability Data*

Driving optical integration

OXL's polymer platform dispels long held belief that polymers are unstable!

Multimode straights; Docking Port passive fiber attachment; Fully mode-filled
100 cycles (-40°C to +85°C); ambient humidity; constantly monitored light λ s



*** Test data independently generated by major telecom product vendor**

General Specifications

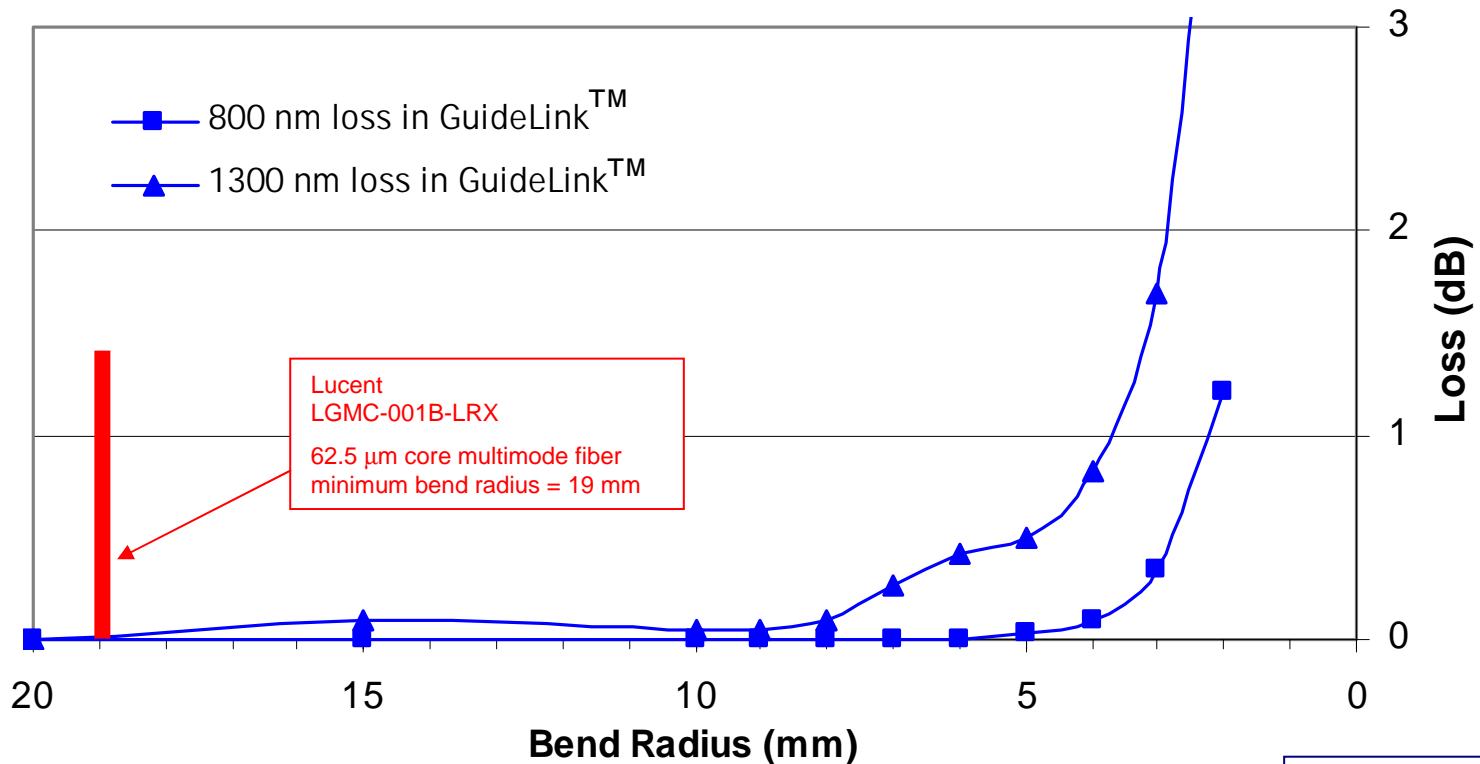
Driving optical integration

OXL's current polymer platform is ideal for short wavelength (600nm-980nm) multi-mode applications and is being evolved for long wavelengths (1200nm-1700nm) single-mode uses.

<i>Optical Losses</i>	<i>Multimode</i>	<i>Single Mode</i> Experimental – Projected
800 nm	0.08 dB/cm	0.2 dB/cm – 0.1 dB/cm
1300 nm	0.35 dB/cm	0.30 dB/cm – 0.2 dB/cm
1500 nm	1.3 dB/cm	0.70 dB/cm – 0.2 dB/cm
Min. Guide Separation	10 μm	30 μm non evanescent - ~ 2 μm evanescent
Relative Guide Index	0.01 – 0.05	0.003 - 0.015+
Bulk Index	1.485-1.50	1.44 - 1.48
Effective CTE	Polycarbonate pkg 90 ppm, Kapton Silicon or glass substrate - ~15 ppm	
Core Size	4 μm to 200+ μm (height and/or width)	

OXL's polymer exhibits ultra-tight bending enables low packaging heights and 90° interconnections.

Comparison of Out-of-Plane Bend Loss (multimode)

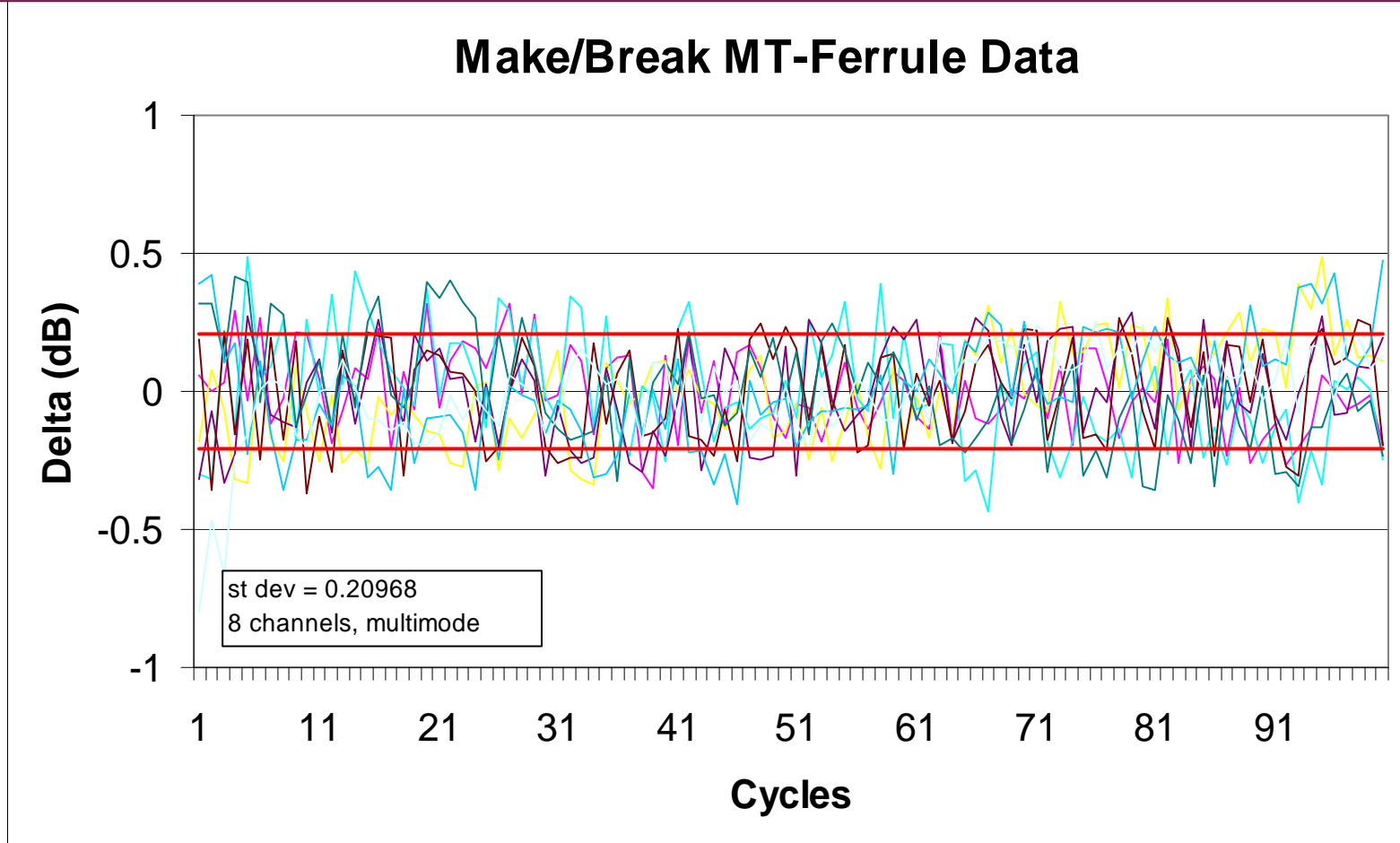


50 μm square guides

OXL's polymer platform offers a variety of interface and interconnectivity options.

Connector Type/Method	Single Mode	Multimode
Single Fiber	<0.2 dB	<0.2 dB
Fiber Ribbon	<0.5 dB	<0.5 dB
Slot Connector Single	<0.2 dB	<0.2 dB
Slot Connector Array	<0.5 dB	<0.5 dB
Mirror Coupling	<0.3 dB	<0.3 dB
MT ferrule	<0.8 dB	<0.5 dB
SC/PC	<0.5 dB	<0.5 dB
Embedded Devices	Device dependent	Device dependent

OXL's highly accurate multi-fiber interconnections repeatedly exhibit very low losses without any signs of degradation even after more that 100 make-break connections.



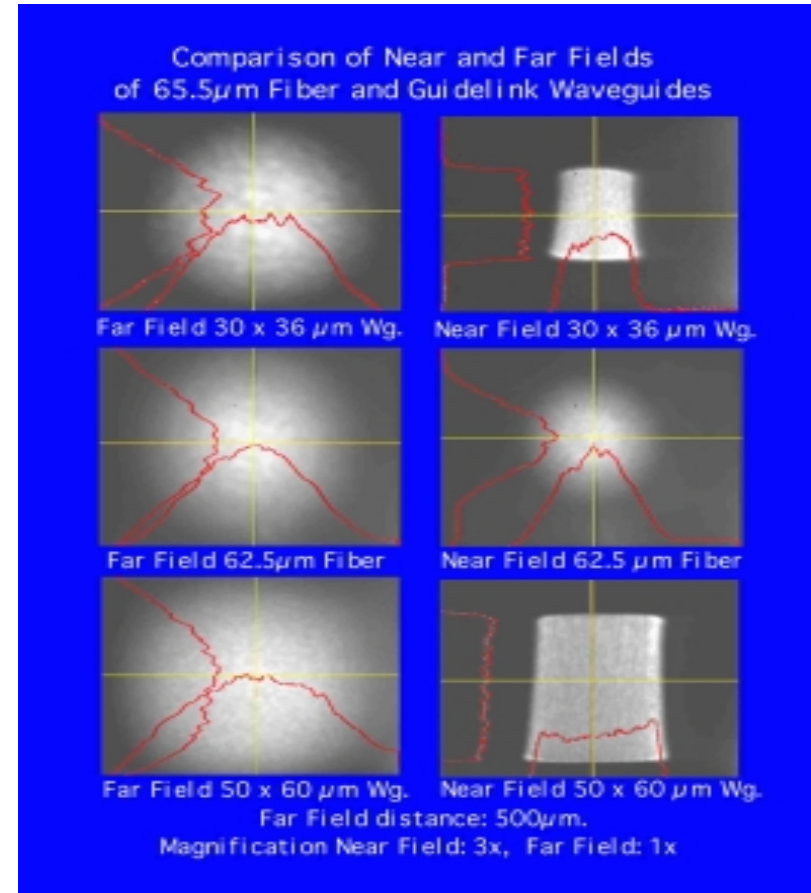
OXL's polymer platform allows designers to tailor numeric aperture and waveguide size to accommodate the differences in detector and emitter propagation patterns.

VCSEL → Waveguide → Fiber:

- Progressively larger aperture:
10um → 30um → 62.5um
- Progressively larger NA:
0.2 (VCSEL) → 0.24 (WG) → 0.27 (Fiber)

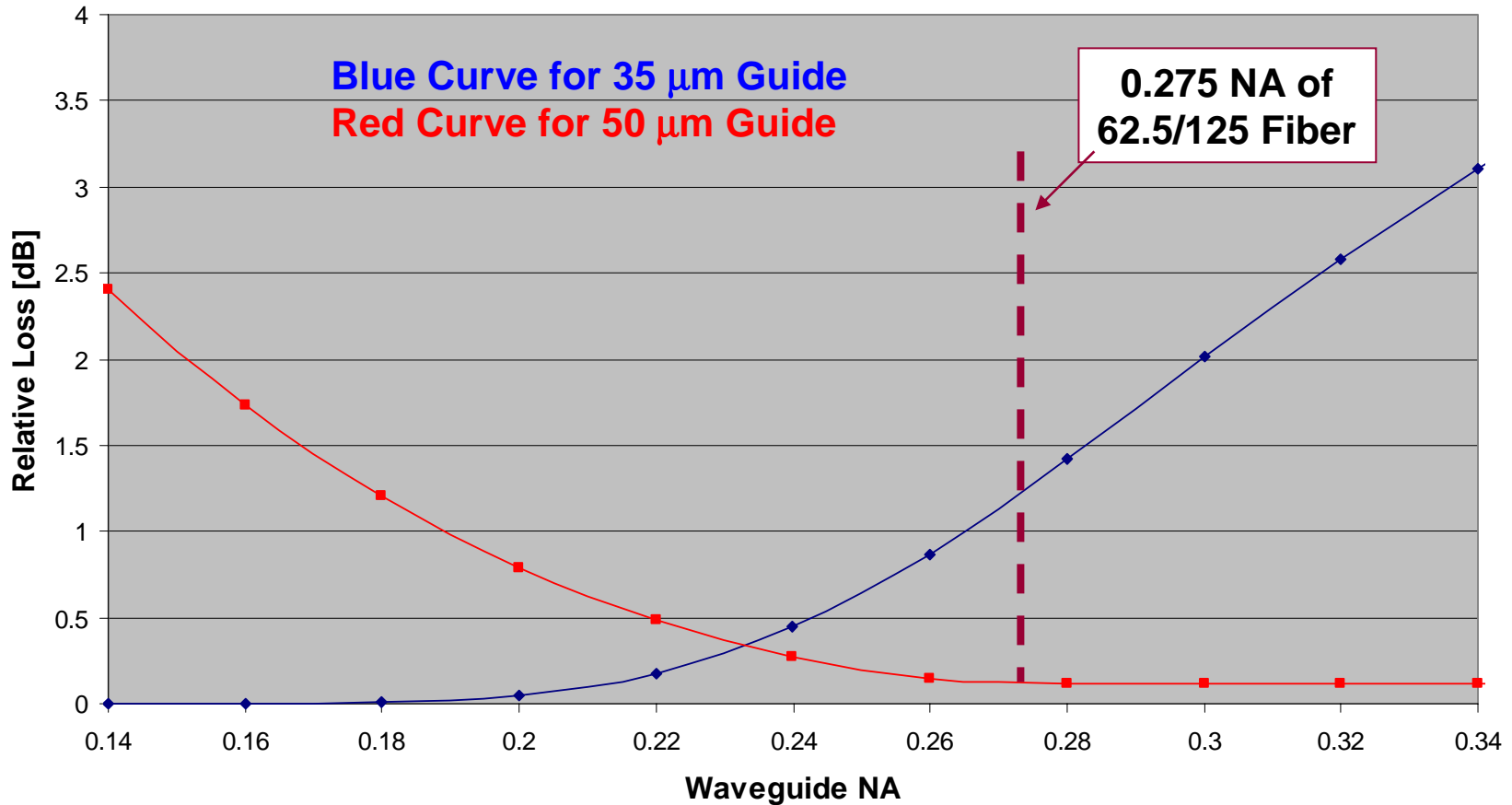
Fiber → Waveguide → Detector:

- Maintain Aperture:
62.5um → 50 x 60 um
- Progressively larger NA:
0.27 (Fiber) → 0.32 (WG) → detector



Only OXL's polymer platform allows designers to optimize interconnection performance.

Coupling Loss vs. NA (Blue - WG to Fiber, Red- Fiber to WG)



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