



850nm Serial PMD Experimental Update

Jack Jewell, Chris Simoneaux, Russ Patterson, Stan Swirhun - Picolight
Paul Kolesar, John George - Lucent
Steve Swanson, et al. - Corning

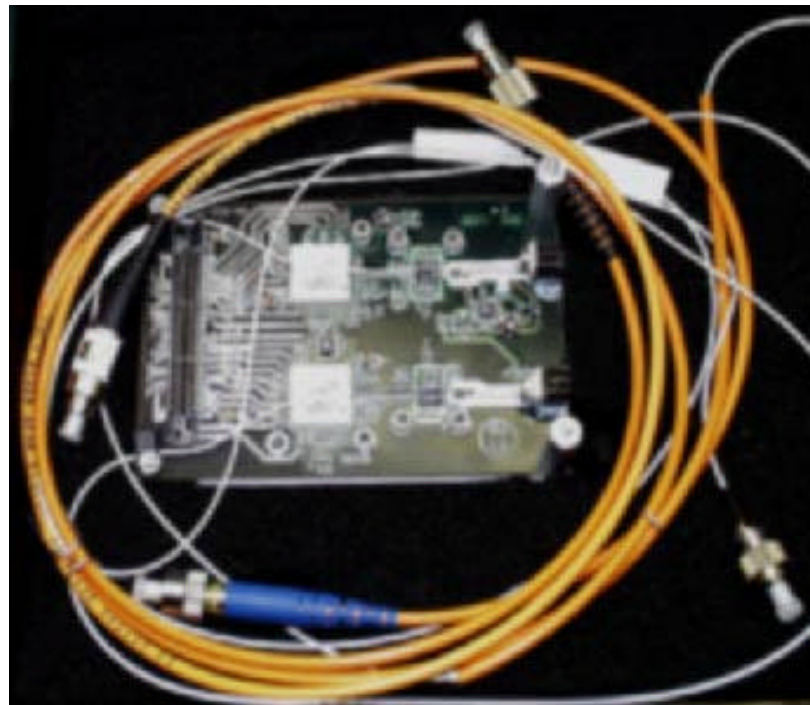
Objective

Broaden the base of experimental 850nm Serial data:

- Higher-level feasibility
- Multiple fiber vendors
- Spectral width
- Misalignment
- Encircled flux

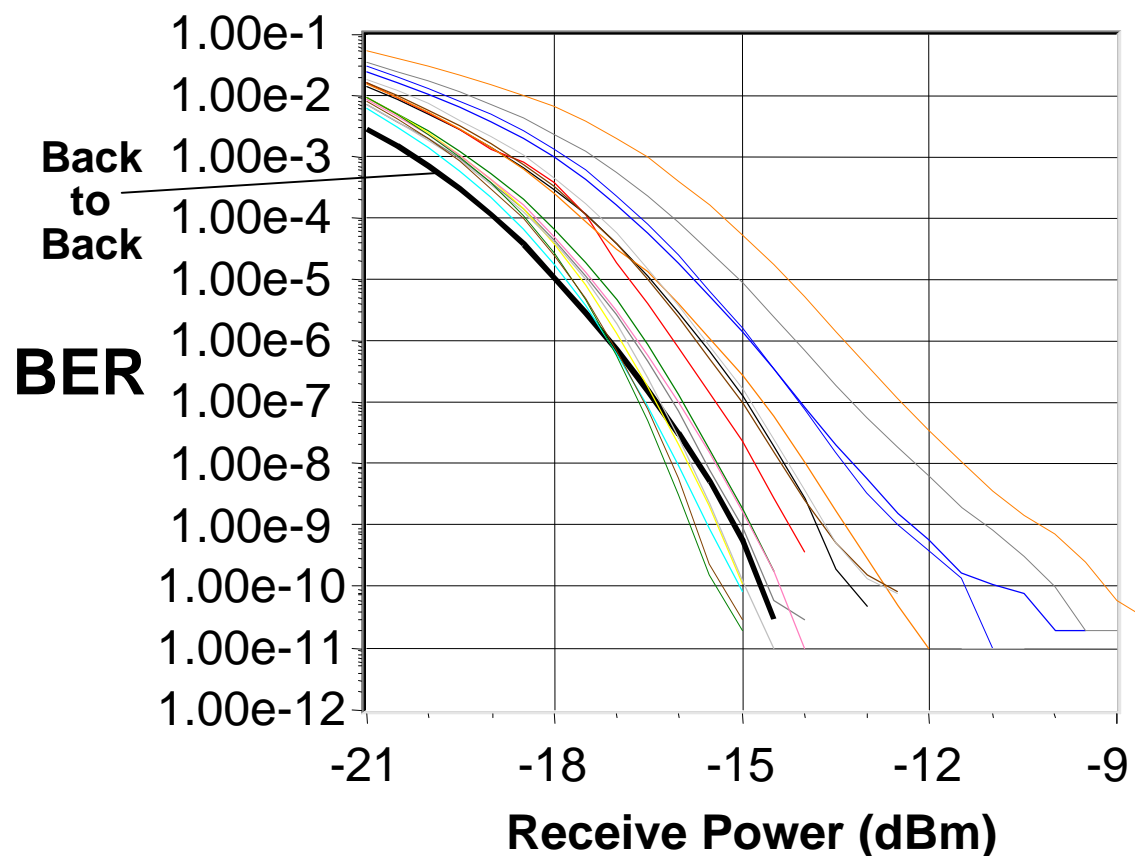
10Gb/s Transponder - Live Demo

Networld & Interop - May 9-11, 2000 - Picolight



Multiple Fibers

17 Corning Fibers: 300m Length, 50mm Core



Bit Pattern:
 $2^{31} - 1$

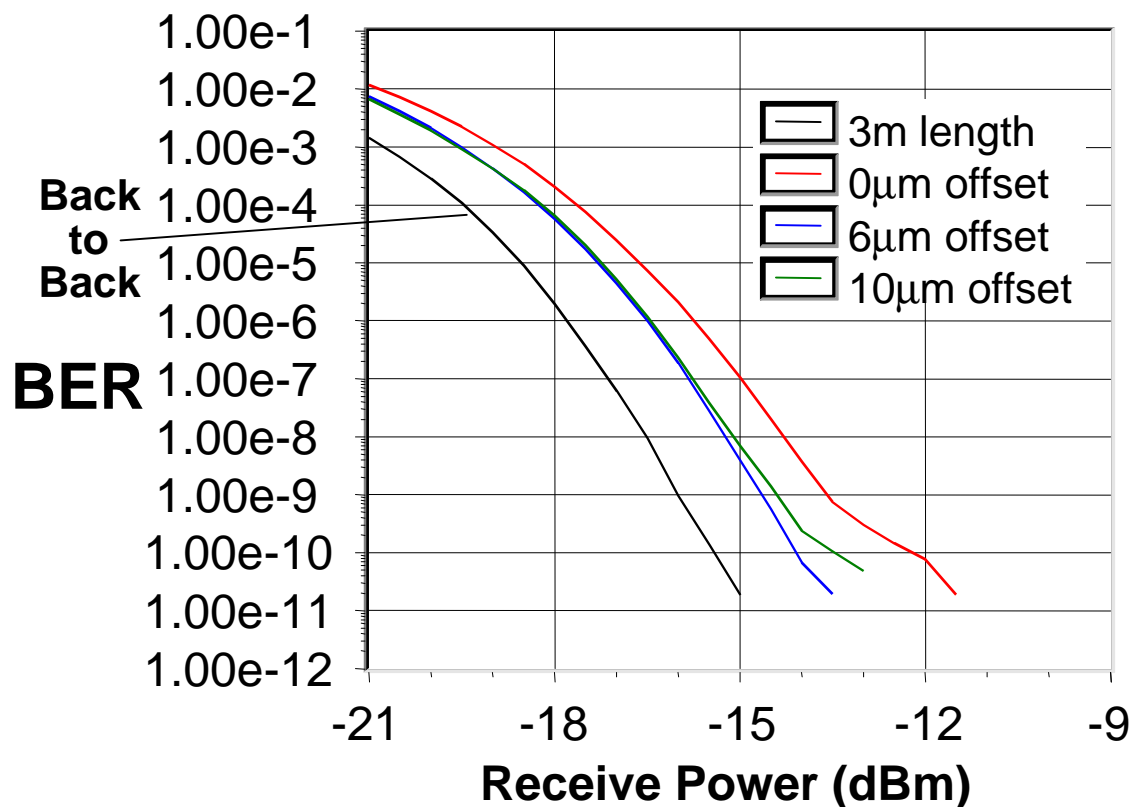
Alignment:
Maximum Power

Extinction Ratio:
6dB

Spectral Width:
0.58nm

Corning Fiber With Misaligned Coupling

Corning Fiber: 300m Length, 50mm Core



Bit Pattern:

$2^{31} - 1$

“0” Alignment:

Maximum Power

Extinction Ratio:

6dB

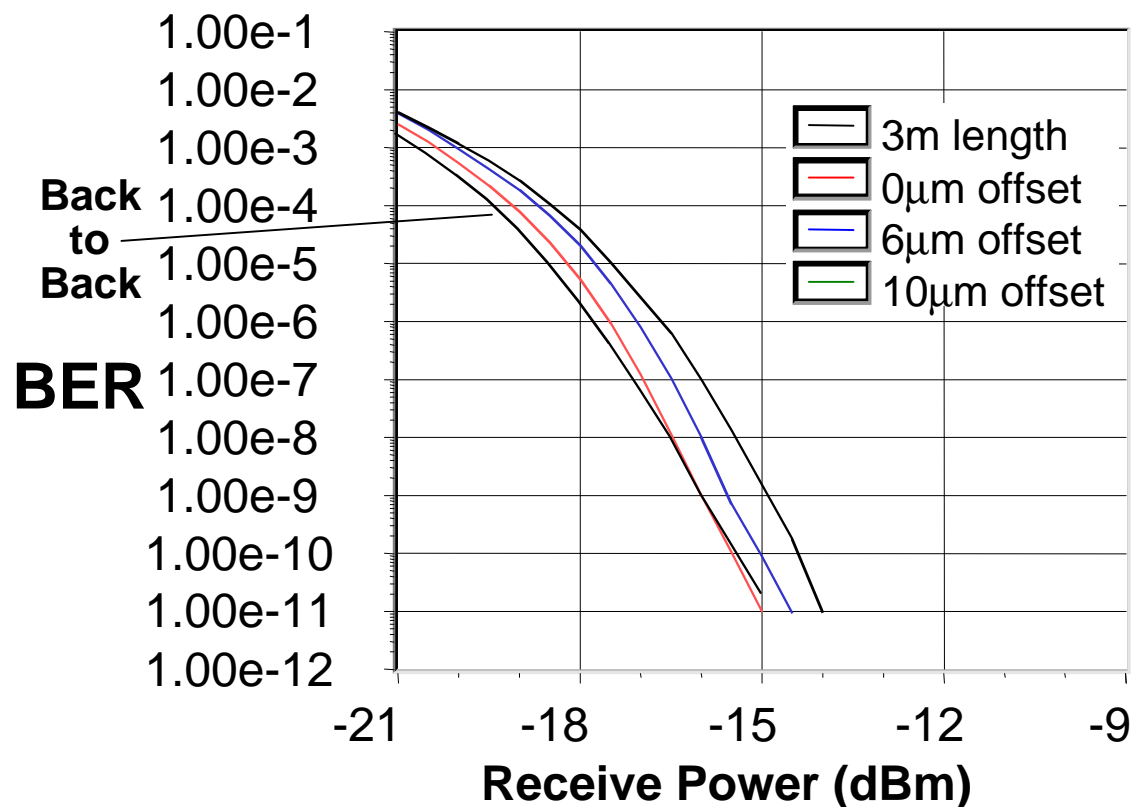
Spectral Width:

0.58nm



Lucent Fiber With Misaligned Coupling

LazrSPEED[®] Fiber: 300m Length, 50mm Core



Bit Pattern:
 $2^{31} - 1$

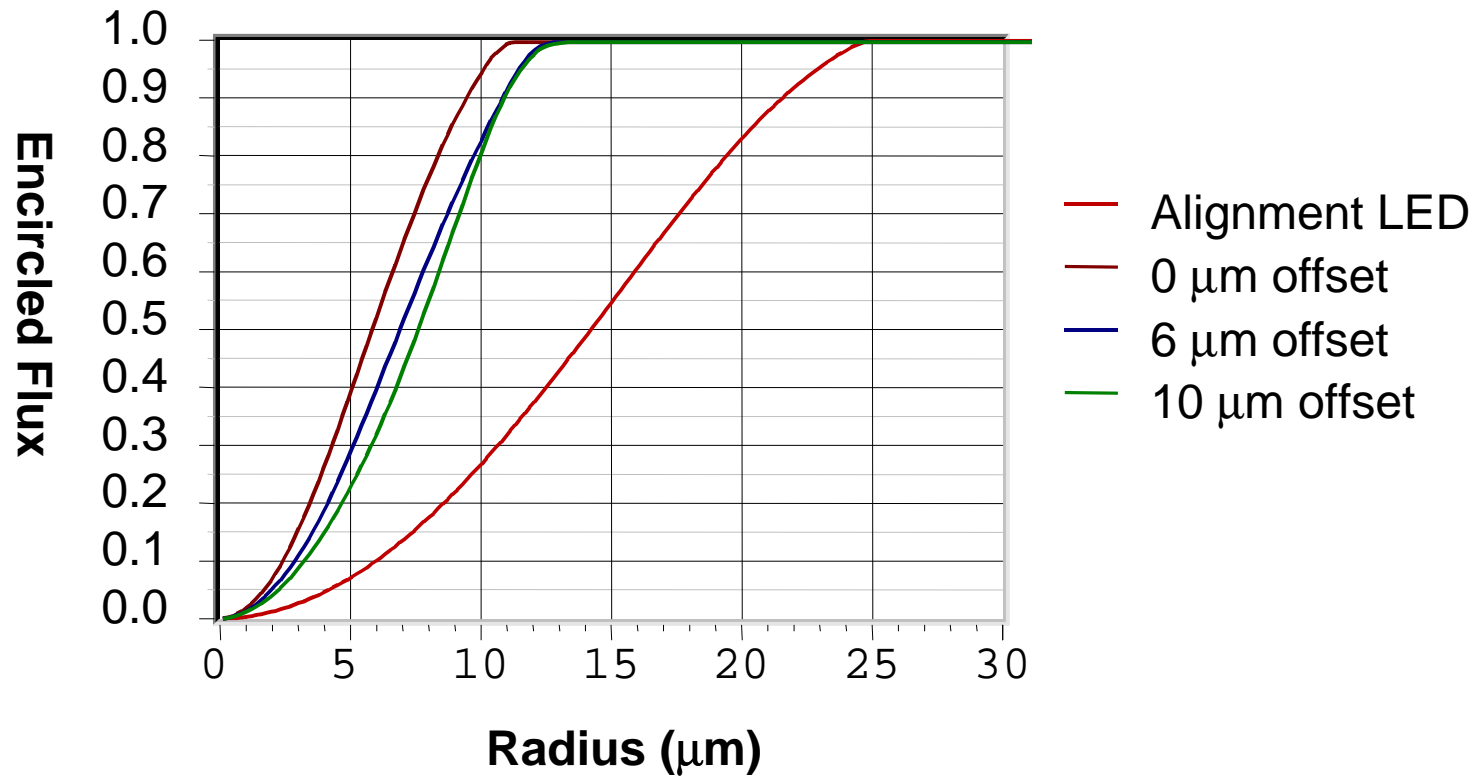
“0” Alignment:
Maximum Power

Extinction Ratio:
6dB

Spectral Width:
0.58nm



Encircled Flux With Misalignment



Summary

- Large body of mature feasibility demonstrations for 850nm serial PMD
- High Bandwidth MMF has multi-vendor supply
Lucent, Corning, (Alcatel, Plasma not tested at Picolight)
- Spectral widths of 0.58nm do not inhibit transmission over 300m of High Bandwidth MMF

Further Work:

- Add misaligned couplers
- Assessment of modal partition noise and spectral width
- Assessment of encircled flux requirements in fibers from multiple vendors