

OP1021

Launch Condition Analyzer System

Overview

Launch Condition Analyzer System

The **OP1021** Launch Condition Analyzer is a convenient and compact benchtop Nearfield and Farfield scanner for optical fibers. Coupled with windows application **OPL-LCA**, the user can scan and easily plot both the Nearfield and Farfield patterns of any compatible fiber. Besides comparing the Nearfield and Farfield patterns to standard launch templates, the Encircled Flux is calculated and compared to various IEC templates.



Model OP1021 Launch Condition Analyzer System

The optical interface of the instrument accepts all standard 2.5mm ferrules. Other connector sizes upon request.

The **OP1021** can be equipped with two internal LEDs with 850nm and 1300nm wavelengths. The internal 105/125 μm 0.22NA fiber allows for overfill testing of most applications.

Nearfield

The Nearfield (NF) describes the optical power density on the surface of a radiating source or the end of a fiber.

The **OP1021** complies with IEC 61280-1-4 specifications for a pinhole scanning mechanism to gather the Nearfield distribution. A microscope objective is implemented, which magnifies the fiber endface onto a projected plane. A pinhole, 100 μm in diameter, is situated in front of a detector on this plane and is mechanically scanned across the projected image to gather the nearfield distribution data.

The **OP1021** has 3 software controlled positioners to allow for movement in all 3 spatial dimensions. One allows for bringing the image into focus (z-axis), while two allow the system to scan the projected plane (x, y-axis) for centering purposes. With a +/-250 μm effective scan range and a 0.1 μm resolution this Nearfield scanner is capable of analyzing the majority of fiber endfaces and launches.

Nearfield Analyzer	Measurement Scanning Range	- 250 μm to + 250 μm
	Scanning Resolution	0.1 μm
	Scanning Aperture	100 μm
	Receiver Sensitivity (at Optical Interface)	+3dBm ... -60dBm
	Receiver Wavelength	850nm to 1700nm (or 450nm 1100nm upon request)
	Resolution, Optical Power	0.01dBm or 0.1%
	Measurement Linearity, Relative Accuracy	0.05dB
	Scanning Speed	1 sec. depending on scanning resolution
	Connector Interface	Universal 2.5mm

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Farfield

The **OP1021** conforms to the standards specified in TIA-455-177-B Technique 1 for measuring numerical aperture from the farfield plot. The farfield scan in the **OP1021** is performed by moving a 100µm core fiber along the semicircular arc formed by rotating the normal ray to the input fiber endface in a radial motion. The receiver is a 100/250µm fiber that is placed approximate 5cm from the endface of the input fiber and can be rotated from -0.5 radians to +0.5 radians about the radial center.

The farfield launch measurement does illustrate the farfield launch profile of a fiber. With the farfield scan the numerical aperture of the fiber can be measured, given that there was an overfilled launch condition.

Farfield Analyzer	Measurement Scanning Range	-0.5 NA to +0.5 NA (-0.5rad to +0.5rad)
	Scanning Resolution	2.2 mrad
	Scanning Aperture	0.22 NA
	Receiver Sensitivity (at Optical Interface)	+3dBm ... -60dBm
	Receiver Wavelength	850nm to 1700nm (or 450nm 1100nm upon request)
	Resolution,Optical Power	0.01dBm or 0.1%
	Measurement Linearity, Relative Accuracy	0.05dB
	Scanning Speed	1 sec. depending on scanning resolution
	Connector Interface	Universal 2.5mm

Internal LED (optional)

Wavelength	850nm and 1300nm
Optical Output Power	typ. -13dBm into 105µm Fiber
Connector Interface	fixed FC/PC

General Specifications

Data Interface	USB 1.1 (or later) compatible data rate and interconnect
Operating Temperature Range	0 °C to 50 °C (32°F to 122°F)
Mech Dimension	19" Rack Standard (16.8 x 3.8 x 10 inch)
Power Supply	Universal AC input: 90VAC to 264VAC, 43Hz.. 63Hz

Specifications are subject to change, please confirm specific performance characteristics of the product at the time of ordering

Applications

- **OPL-LCA** is the companion software to the **OP1021** Launch Condition Analyzer. It controls all aspects for the Farfield and Nearfield scan and offers, templates for Nearfield-Farfield launch as well as Encircled Flux.
- Displays the Nearfield or Farfield plot in a user friendly graph.
- User defined step size for both Nearfield and Farfield actuators allowing the user further control of the scan resolution and scan duration.
- Data exportation into an Excel spreadsheet for further data analysis.
- Quick chart printing directly from **OPL-LCA**.
- Encircled flux calculations with the ability to load encircled flux templates for various launch condition specifications.