



LCA 500

Lightwave Component Analyzer



The Luna LCA 500 is a fast and accurate component analyzer that is ideal for production test and quality control. The LCA 500 provides the high throughput and connectivity needed for the manufacturing floor while delivering the extremely high resolution and sensitivity that is critical when testing and validating modern photonic devices and network subsystems.

The LCA 500 provides single-scan measurements for testing a wide range of passive components from couplers to specialty fiber and everything in between (Fiber Bragg Gratings, arrayed waveguide gratings, free-space filters, tunable devices, amplifiers, etc.).



The LCA software provides an easy-to-use graphical interface for quick measurement setup as well as visualization and management of data.

KEY FEATURES

- Single scan measurement of critical component parameters
 - Insertion Loss (IL)
 - Return Loss (RL)
 - Polarization Dependent Loss (PDL)
- High resolution (1.6 pm) and sensitivity (80 dB dynamic range)
- Measure in transmission or reflection
- No external tunable laser needed
- Compatible with C and L band (LCA 500) or O band (LCA 513)
- Complete measurement scan of full band in less than 3 seconds
- User-friendly interface

APPLICATIONS

- Passive component testing
 - DWDMs, AWGs, filters, switches, waveguide gratings, modulators, couplers, etc.
- High-resolution measurements for planar light circuits (PLCs) and silicon photonic devices
- Manufacturing test and quality control
- Flexible tunable laser source splitters

Fast and accurate component analyzer provides single scan measurement of critical component parameters

KEY FEATURES

Parameter	Specification		Units
	Fast Mode ¹	Averages Mode ²	
Length Characteristics			
LCA 500	1525-1610		nm
LCA 513	1270-1340		nm
Wavelength			
Standard resolution	1.6		pm
Accuracy ³	±1.5		pm
Repeatability	±0.1		pm
Loss Characteristics			
Dynamic range	60	80	dB
Ripple ⁴	±0.05	±0.01	dB
Resolution	±0.05	±0.002	dB
Insertion loss accuracy	±0.1	±0.05	dB
Return loss accuracy	±0.2	±0.1	dB
PDL			
Extinction ratio (dynamic range)	40	50	dB
Accuracy	±0.05	±0.03	dB
Measurement Timing			
Laser sweep rate	70		nm/s
All-parameter measurement rate ⁵	30		ms/nm
Fully specified measurement time ⁶	12	55	s
Laser sweep rate	1	N/A	Hz
Maximum Device Length (including leads)			
Transmission	150		m
Reflection	75		m
Physical			
Class 1 Laser	<10		mW
Operating power (max)	100		W
Weight (processor not included)	35.8 (16.2)		lb (kg)
Case size (W X D X H)	18.6 X 16.5 X 8.1 (47 X 42 X 21)		in (cm)

ORDERING

Product #	Description	Includes
LCA 500	Lightwave Component Analyzer, 1525 nm - 1610 nm	LCA 500 mainframe for C and L band, LCA software, instrument controller and accessory kit.
LCA 513	Lightwave Component Analyzer, 1270 nm - 1340 nm	LCA 500 mainframe for O band, LCA software, instrument controller and accessory kit.
OPT02006	Expanded Dynamic Range	Enables enhanced dynamic range (see Performance table).

NOTES

1. Fast Mode: No averaged calibration scans, 4 averaged measurement scans, 30 pm resolution bandwidth, 8 m device length (accuracies verified using NIST certified artifacts except for IL). Expanded dynamic range option enabled.
2. Averaging Mode: 4 averaged calibration scans, 64 averaged measurement scans, 30 pm resolution bandwidth, 8 m device length (accuracies verified using NIST certified artifacts except for IL). Expanded dynamic range option enabled.
3. Accuracy maintained by an internal NIST-traceable HCN gas cell.
4. 80, 60 and 50 dB dynamic ranges in 'Averaging Mode' for IL and PMD are with the "Expanded Dynamic Range" option installed and enabled.
5. Rate calculated from combined laser sweep and analysis time per scan.
6. Measurement with full specification (see note 4) over Fast Mode: 40 nm range, and Averaging Mode: 2.5 nm range. Excludes calibration time.



+1.866.586.2682
solutions@lunainc.com
www.lunainc.com