

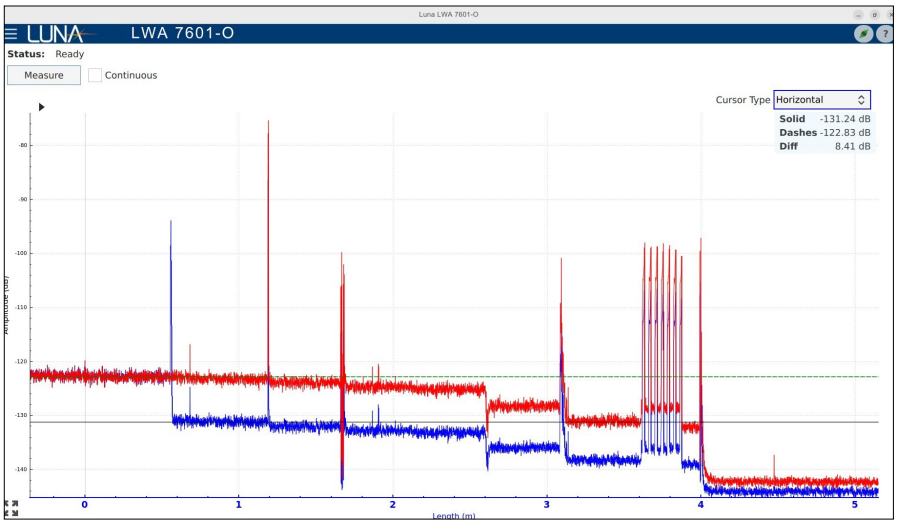
LWA 7600 Series

Lightwave Analyzer - O Band

High-Speed and High-Resolution OFDR Measurements for R&D and Manufacturing Test

The LWA 7601-O Lightwave Analyzer is a fast and simple-to-use tool for testing passive optical components and networks. The LWA 7601-O measures and analyzes the Insertion Loss (IL) and Return Loss (RL) distribution, as well as length, scanning optical components in either reflection or transmission mode.

The LWA 7601-O instrument utilizes optical frequency domain reflectometry (OFDR) technology to measure backscattered or transmitted light as a function of distance/time (or wavelength). The extremely high sensitivity and sampling resolution (<5um in Silicon Photonics (ng =3.5)) make an ideal analyzer for photonic integrated circuits (PICs). When combined with the extended measurment range, up to 1000 m measurment range is achived, making the testing of fiber networks an easy task. The LWA 7601-O reduces the cost and complexity of test while increasing throughput by measuring RL, IL and length in reflection or transmission with a single instrument.



Model	Length measurment Modes (in Reflection)
LWA 7601-O	20 m, 50 m, 100 m Optional: 200 m, 500 m, 1000m

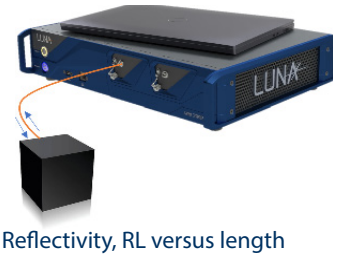
KEY FEATURES

- Return loss (RL) and insertion loss (IL) analysis
- Analyze components in reflection and transmission
- Trace distributed RL over length of optical path
- Spectral analysis of RL and IL
- Detect and precisely locate reflective events and measure path length (up to 1000 m)
- Speed, resolution and accuracy for optimizing production test
- 4.29 µm sampling resolution in Silicon Photonics (ng =3.5) or 10 µm in fiber (ng =1.5)
- 1 Hz scan/acquisition rate

APPLICATIONS

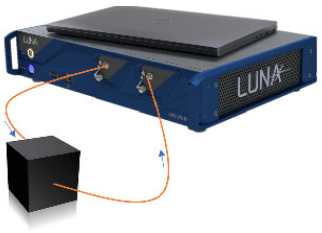
- Spatial RL testing
- Automated IL test and analysis
- Skew measurement with sub-picosecond resolution
- PIC waveguide devices, PLCs, AWGs, ROADMs, etc.
- Optical fiber networks, cable and subassemblies

Reflection Measurements



- Reflectivity, RL versus length
- Event loss measurement (RL, IL)
- RL spectral amplitude analysis
- Event length measurement

Transmission Measurements



- Total Insertion Loss (IL)
- Spectral amplitude response
- Total path length

PERFORMANCE

PARAMETER		SPECIFICATION				UNITS
Measurement						
		LWA 7601-O	LWA 7601-O[1]			
Maximum Measurement length	Reflection	100	200	500	1000	m
	Transmission	200	400	1000	2000	m
Sampling resolution (two-point)[2]		10	20	80	80	µm
Wavelength accuracy[3]		±1.5				pm
Wavelength resolution (max)[3]		0.02				pm
Time-of-flight delay accuracy[3]		± 0.001	± 0.001	± 0.005	± 0.005	%
Center wavelength		1305				nm
Wavelength scan range		± 30	± 15	± 3.75	± 3.75	nm
Measurement time (in continous mode)		~1 (50 m) ~2.1 (100 m)	~2.3	~1.3	~2.3	s
Maximum optical power		5				mW
Return Loss Characteristics (Reflection Mode)						
RL dynamic range[4]		90				dB
Total range[5]		0 to -140				dB
Sensitivity[5]		-145				dB
Resolution[6]		0.05				dB
Accuracy[6]		±1				dB
Insertion Loss Characteristics (Reflection/Transmission)						
IL dynamic range, in transmission mode		90				dB
IL dynamic range, in reflection mode[7]		20				dB
Resolution[8]		0.05				dB
Accuracy[8]		± 0.4 (typical ± 0.2)				dB
Physical						
Remote Interface		SCPI API over TCP/IP				–
Optical connector type		FC/APC				–
Dimensions		35 (L) x 47 (W) x 10 (H)				cm
Weight (controller not included)		25 (11.4)				lb (kg)

ORDERING

Product #	Description	Includes
LWA 7601-O	Lightwave Analyzer	Instrument mainframe for O band with measurement length modes of up to 100 m in reflection mode (200 m in transmission), instrument controller (workstation-class laptop), application software and accessory kit.
LWA 7601-O-RM	Lightwave Analyzer Rack-mountable Mainframe	Instrument mainframe for O bands with measurement length modes of up to 100 m in reflection mode (200 m in transmission), instrument controller (rack-mountable), application software and accessory kit.
OPT07651	Extended range option	Extends measurement length of the LWA 7601-O to 1000 m (in reflection).

NOTES

1. With extended range option (OPT07650 / OPT07651 for 500 m / 1000 m).
2. Distance between two sample points along the length axis in SMF-28.
3. Accuracy guaranteed via internal NIST-traceable HCN gas cell.
4. Range between strongest reflection greater than -60 dB and noise floor.
5. Noise floor return loss at half of maximum length.
6. Measured with 50 cm integration width, and 85 nm wavelength range / 10 THz optical frequency range
7. Two way loss before backscatter reaches noise floor and IL measurements are no longer possible.
8. Applies to measurement of the Insertion Loss occurring at a spatially localized event, based on the difference of the Return Loss of the fiber Rayliegh scatter immediately before and after the event.
   - The IL measurement assumes that the same fiber type is used before and after the event, so that the same intrinsic fiber Rayleigh scatter level is expected in the absence of Insertion Loss leading up to tht section of fiber.
   - To obtain specified accuracy and given the natural spatial variation of fiber Raleigh scatter for telecom grade SMF, the spectral range of laser sweep should be at least 10 THz.
   - To obtain specified accuracy and given the natural spatial variation of fiber Raleigh scatter for telecom grade SMF, integration width over which the fiber scatter RL is determined should be at least 0.5 m in extent.

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*Specifications subject to change without notice.