

Finisar[®]

WaveAnalyzer

High-Resolution Optical Spectral Analysis



**Next Generation Optical Spectral Analysis from the
World's Leader in Optical Communications**

The WaveAnalyzer 1500S Optical Spectrum Analyzer is a real-time, very-high-resolution optical spectrum analyser for R&D and production test applications. Based on Finisar’s fast-stepping solid-state laser, the WaveAnalyzer 1500S uses coherent detection techniques to achieve an outstanding combination of resolution, dynamic range and measurement speed.

This next-generation Optical Spectrum Analyzer provides spectral measurements with sub-pm resolution at an update rate of 4 measurements per second across the entire C-band. Scanning across smaller spectral regions is even faster, with update rates of over 10 measurements per second across any 200 GHz window, enabling interactive adjustment of optical components and systems.

The WaveAnalyzer’s coherent receiver provides polarization resolved data of the signal whilst its two input ports, for different power levels, ensures coverage of a large range of optical input signals; low power single channel signals can be analyzed as accurately as high power WDM signals.

The WaveAnalyzer 1500S is very compact and rugged, as it contains no moving parts. It is controlled using a USB or Ethernet connection to a Windows-based computer which runs Finisar’s WaveAnalyzer software package. A Graphical User Interface (GUI) and an Application Programming Interface (API) are both provided.

KEY FEATURES

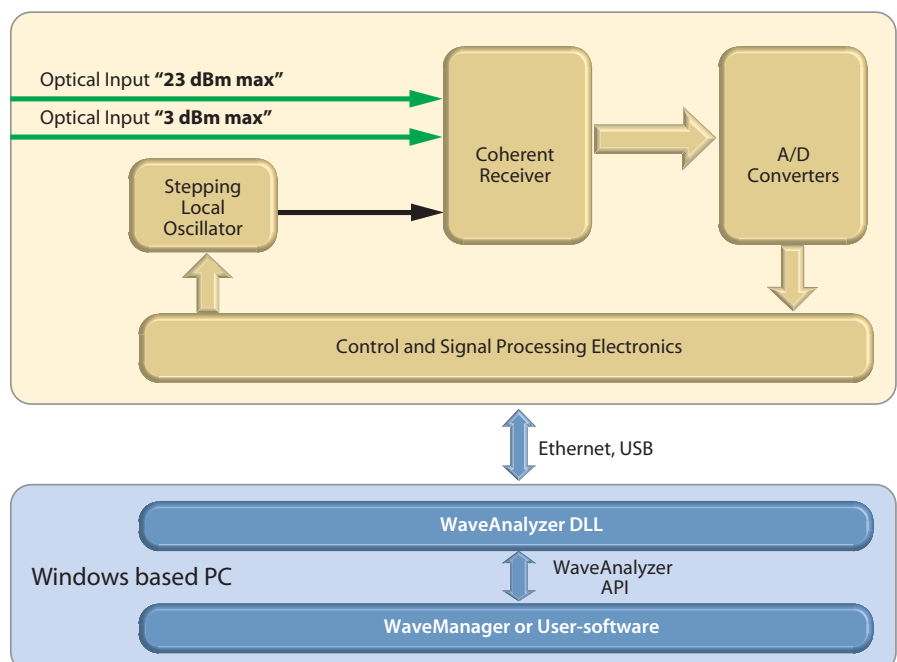
- ▶ High spectral resolution
- ▶ Real time measurement
- ▶ Update rate:
 - 4 Hz for full C-band scan
 - 10 Hz for scan across any 200 GHz window
- ▶ Spurious-free Dynamic Range > 50 dB
- ▶ Full C-band coverage
- ▶ External Trigger



WaveAnalyzer 1500S
High Resolution Optical Spectrum Analyzer

APPLICATIONS

- ▶ High-Resolution spectral analysis on optical components
- ▶ Modulation analysis on optical signals
- ▶ Modulator test
- ▶ Modulator bias and polarization adjustments
- ▶ Transceiver test
- ▶ SMSR measurements
- ▶ Network monitoring
- ▶ General Purpose spectral analysis in optical labs

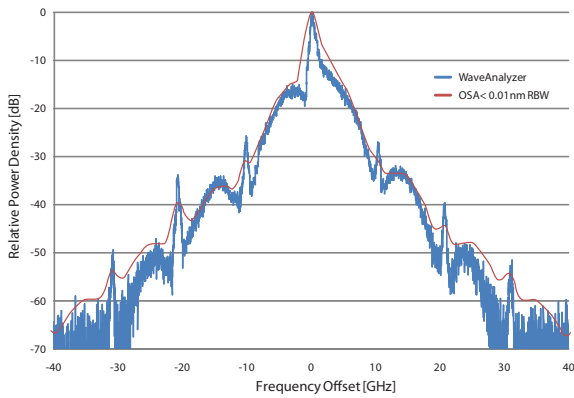


Block Diagram of WaveAnalyzer System

MEASUREMENT

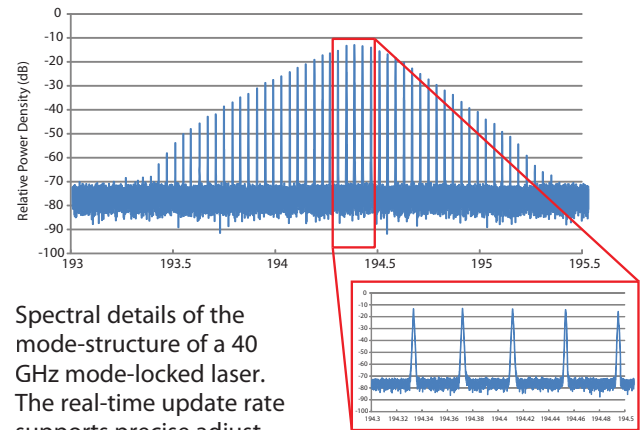
The WaveAnalyzer 1500S supports spectral measurement applications in various domains, including communications and pulsed lasers, as shown in the examples below.

10.3 Gb/s PRBS



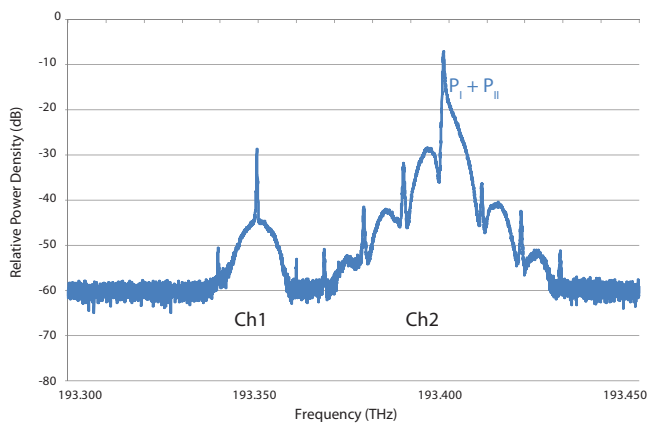
High resolution trace of the WaveAnalyzer in comparison to a standard grating based OSA which offers a 0.01 nm resolution bandwidth

40 GHz Mode-locked Laser

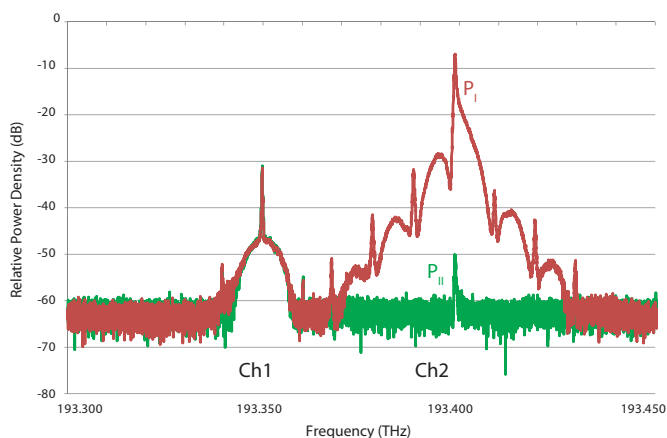


Spectral details of the mode-structure of a 40 GHz mode-locked laser. The real-time update rate supports precise adjustment of the laser cavity.

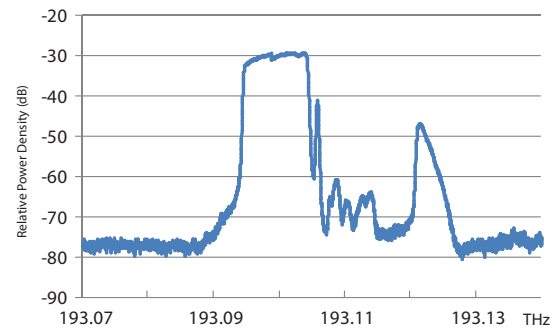
10 Gb/s NRZ



Two 10 Gb/s channels separated by 50 GHz; Channel I being attenuated by 20 dB. The graph above shows the sum of the two polarization components, whereas the graph below displays the polarization components P_I and P_{II} separately.



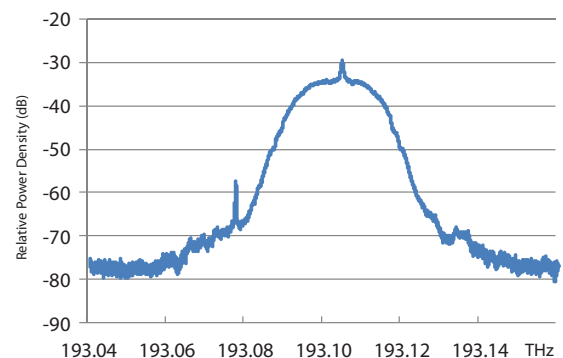
25 Gbaud, 300 Ch OFDM



OFDM, 25GBaud/s, 300 sub-carriers, single sideband

This measurement displays a single-sideband OFDM signal with 300 sub-carriers and suppressed carrier. The symbol rate is 25 Gbaud. Adjustment of polarization and bias on the IQ Modulator has been achieved using real-time spectral feedback information obtained by the WaveAnalyzer.

25 Gbaud, 16 QAM



Measurement taken on a single polarization 16-QAM signal with symbol rate of 25 Gbaud.

SPECIFICATIONS

Specifications are guaranteed except where stated as typical (typ).

Spectral	Frequency Range	191.15 to 196.35 THz (1526.9 to 1568.5 nm)
	Spectral Sampling Resolution	20 MHz
	Resolution Bandwidth (FWHM)	150 MHz
	Absolute Frequency Accuracy (1)	+/-1 GHz
	Frequency Repeatability (sweep to sweep)	50 MHz
	Measurement Update Rate (2): full C-band scan Scan across any 200 GHz window	4 updates / s 10 updates / s
Power (3)	Max total Power	23 dBm (3 dBm for "3 dBm max" optical input)
	Max power density	0 dBm / 20 MHz
	Relative Power Accuracy	+/-0.2 dB
	Spurious free dynamic range (1)	>50 dB
	Close-In dynamic range (4)	>40 dB @ +/- 1 GHz (+/- 8 pm)
Mechanical, Electrical and Environmental	Operating Temperature	15°C to 35°C
	Operating Humidity	10% to 85%
	Communications Interface	USB 2.0, Ethernet
	Trigger input	TTL (SMA)
	Trigger output	TTL (SMA)
	Power Consumption	100 V - 240 V; 20 VA
	Connector Type	FC/APC
	Size	241 mm x 88 mm x 316 mm
Weight	<4 kg	

- Notes:**
1. Valid within recommended recalibration period
 2. Requires a PC with at least an i7 processor or equivalent and a Gigabit Ethernet connection
 3. Specifications valid on the "23 dBm max" optical port, except where stated differently
 4. When measuring on one optical channel

Part Number: WaveAnalyzer 1500S: WA-AA-1500S-ZZ-H

WaveAnalyzer Video on YouTube

Watch a live demo of the WaveAnalyzer on youtu.be/XX702zNmLeQ. Alternatively you may access the video by searching for "Finisar" and "WaveAnalyzer" on www.youtube.com. Finisar's YouTube channel is available at bit.ly/XdGnTg.



Scan this code to access the website

Finisar®

1389 Moffett Park Drive
Sunnyvale, CA 94089-1133, USA

Telephone: +1 408-548-1000
Sales: +1 408-541-5690
www.finisar.com

Ordering Information:



800 Village Walk #316
Guilford, CT 06437
Ph: 203-401-8093

Email orders to: sales@xsoptix.com
Fax orders to: 800-878-7282

©2014 Finisar Corporation. All rights reserved. Finisar is a registered trademark of Finisar Corporation.
Features and specifications are subject to change without notice. WaveAnalyzer Product Brochure 02/14