

Wavelength Swept Laser Technology

Introduction

The Optoplex Swept Wavelength Laser (SWL) is designed for fiber sensing application, especially for FBG fiber sensor interrogation. The SWL swept wavelength laser consisted of an Optoplex proprietary Fiber Optical Tunable Filter (FOTF) and an Erbium-Doped Fiber Amplifier (EDFA). The SWL is driven by a built-in electronic triangular generator.

The SWL outputs a wavelength continuously scanning laser beam. The standard SWL wavelength range covers 1525nm-1565nm C-band. The L-band (1570nm-1605nm) and C+L band (1530nm-1605nm) can be customized. The standard SWL has more than 20dBm output power with narrow linewidth 0.01nm, high OSNR 50dB and high scanning rate ~100Hz.

Optoplex SWL features TTL 100GHz comb output with a standard notch WDM wavelength for wavelength calibration.

Optoplex SWL presents a most cost effective solution for OEM application from telecommunication to fiber sensing interrogation.

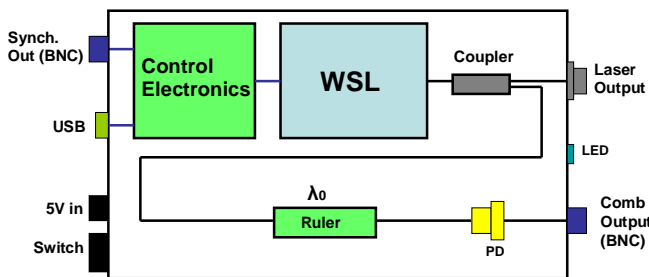


Figure 1, Functional schematic of WSL

Applications

- Distributed FBG sensing interrogation
- Fiber optics production line measurement
- Optical spectrum calibration

Key Features and Benefits

- High output power: 20-23dBm
- Narrow line width: 0.01nm
- Compact size
- Wide tuning range: C-band 1525nm – 1565nm
- High sweep frequency: 100Hz
- High OSNR: >50dB

Output Spectral Examples

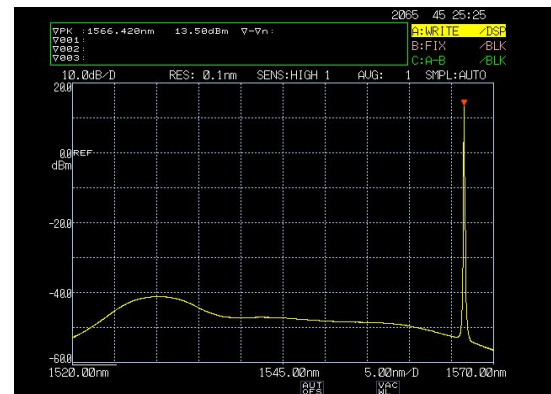
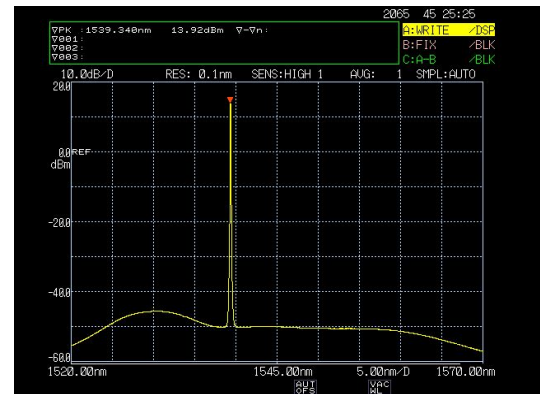
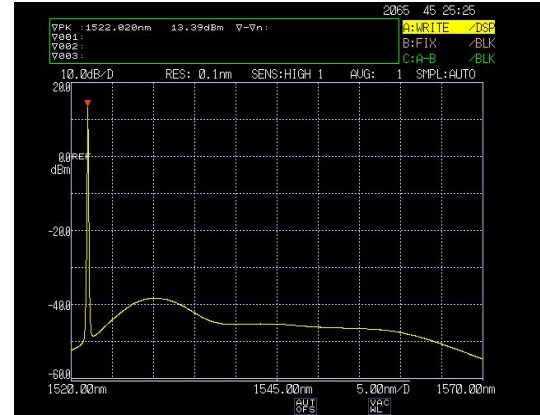


Figure 2, WSL output Spectral at C-band

Comb Output Spectral

100GHz comb output with a standard ITU notch wavelength for wavelength calibration. Notch wavelength is customized.

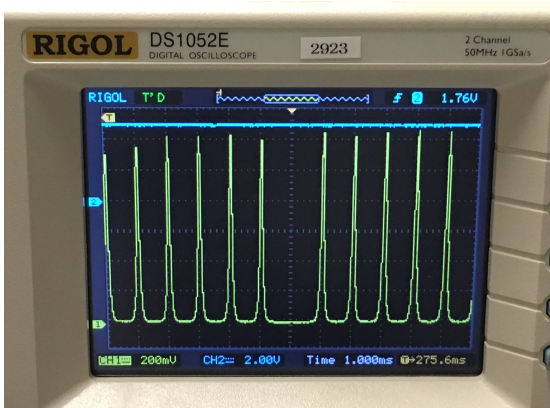
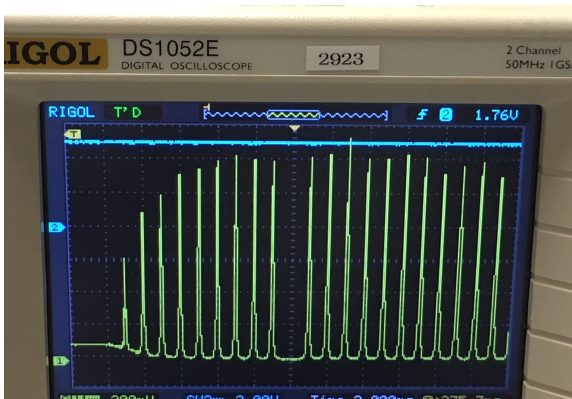
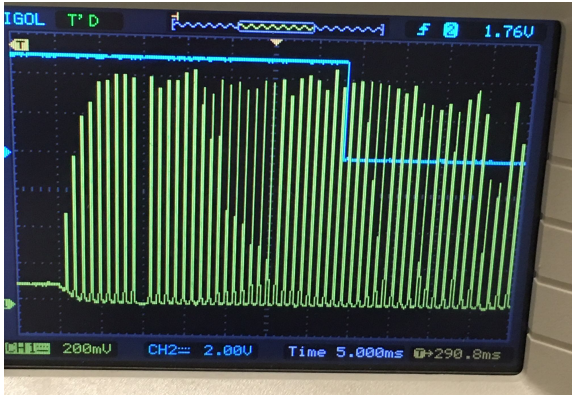


Figure 3, WSL Comb output spectral

WSL Specification

Parameter	Rating
Swept Wavelength	C-band (1525nm-1565nm)
Spectrum Range	40nm
Linewidth	0.01nm
Output Power	20dBm
OSNR	>50dB
PDL	<0.2dB
PMD	<0.2ps
Mode	TEM ₀₀
Maximum Scanning Frequency	100Hz

Ordering Information

Below is the general ordering information for Optoplex's standard C-band Wavelength Swept Laser.

Custom design and manufacturing are available upon request. Contact Optoplex for details.

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