

Tunics Reference – High Performance Tunable Laser Source



Highest Accuracy : down to ± 5 pm

Tunics Reference is the new benchmark in tunable laser sources for test applications offering the best specifications for all types of DWDM measurements. This "gold standard" tunable laser features a ± 25 pm wavelength accuracy with an automated built-in recalibration process, avoiding the need for an external wavelength meter. When higher wavelength accuracy is needed, a built-in Michelson-based wavelength meter could be added to reach an impressive ± 5 pm absolute wavelength accuracy (IWM option).

High Output Power : more than +10dBm

Fast, reliable measurements of high performance telecommunication components and systems often present challenging power budget constraints, which only a high-power, yet low-noise source can resolve. While featuring the broadest tuning range in the industry, the Tunics Reference delivers optical power in excess of +10 dBm. This is a must when characterizing optical amplifiers and DWDM systems.

Wide Tuning Range : up to 160nm

In one single instrument, the Tunics Reference guarantees a tuning range of up to 150 nm at 0 dBm, covering multiple bands from 1390 nm to 1610 nm.

Sweeping and Step-by-Step Modes

The Tunics Reference features two operating modes. The sweeping mode delivers a continuous variation of the wavelength at a constant rate to enable a fast and uninterrupted measurement. In the step-by-step mode, the laser stops at the required wavelength to allow for long-term testing as well as in-process alignments..

Entirely Mode-Hop Free : the largest range in the industry

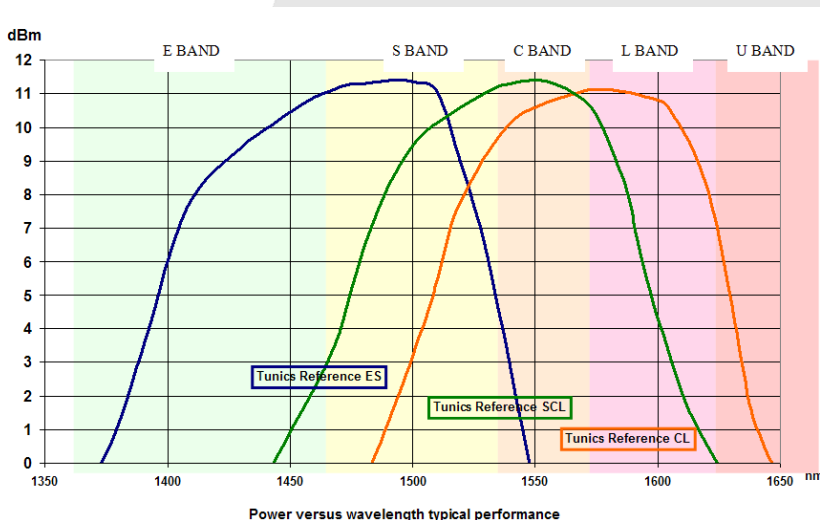
With continuous output power whether stepping or sweeping, Tunics Reference guarantees smooth spectral sweeps free of any mode hops over the entire 150 nm tuning range thanks to real-time optimization of the laser cavity alignment through the use of feedback loops.

Highest Stability : down to ± 1 pm/h

Offering ± 1 pm/h wavelength stability (with IWM option, ± 5 pm/h otherwise)
Tunics Reference allows long-term testing such as thin-film growth monitoring.

Additional Features

- Tunics Reference provides both optical and electrical monitoring outputs. It is able to interface with wavelength meters (through RS-232 C) to achieve their accuracy or with oscilloscopes for quick and easy spectral insertion loss characterization.
- Tunics Reference provides IEEE 488.2 interface along with SCPI commands.



All information and specifications are subject to change without notice

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Tunics Reference Specifications

		Tunics Reference ES	Tunics Reference SCL
Tuning Characteristics	Wavelength range (mode hop free) • P = 0 dBm • P = 3 dBm • P = 6 dBm • P = 8 dBm • P = 10 dBm	1390-1540 nm 1410-1530 nm 1420-1520 nm 1440-1510 nm 1450-1510 nm	1460-1610 nm 1470-1590 nm 1480-1580 nm 1500-1580 nm 1520-1570 nm
	Absolute wavelength accuracy ^{*1, *7}	±25 pm	
	Wavelength stability ^{*3}	±5 pm / h (±3 pm / h typical and ±5 pm / 24h typical)	
	Tuning repeatability (typ.)	±5 pm	
	Wavelength setting resolution	1 pm	
	Optical frequency fine tuning	±2 GHz	
Integrated Wavelength Meter Option (IWM)	Tuning speed (typ.)	1s (100 nm)	
	Absolute wavelength accuracy ^{*1, *8}	±5 pm	
	Wavelength stability ^{*3}	±1 pm / h (±1 pm / 24h typical)	
Laser Output Characteristics	Tuning repeatability (typ.)	±1 pm	
	Power stability ^{*3}	±0.01 dB / h (±0.025 dB / 24h typical)	
	Side mode suppression ratio ^{*4}	>45 dB	
	Signal to source spontaneous-emission ratio ^{*5}	>55 dB	
	Relative intensity noise ^{*4, *6}	-145 dB/Hz (typ.)	
Sweeping Mode Characteristics	Spectral Width (FWHM)	500 kHz typical (coherence control OFF) >100 MHz (coherence control ON)	
	Mode hop free range	Whole wavelength range for each specified power	
	Scan speed	Adjustable from 1 to 100 nm/s	
	Power flatness during scan (typ.)	±0.25 dB	
Interfaces	Power repeatability from scan to scan (typ.) ^{*2}	±0.05 dB	
	Optical connector	FC-APC	
	Output fiber	SMF-28™	
	Output isolation	35 dB	
	Return loss	60 dB	
	Remote control	RS-232 C and IEEE-488.2 ^{*9}	
	Low frequency modulation	10 kHz to 8 MHz	
High frequency modulation	30 kHz to 200 MHz		
Environment	Operating temperature range	+18 to +35°C (+60 to +85°F)	
	Power supply	100 to 240 V / 50 to 60 Hz	
	Dimensions (W x H x D) in mm ³	448 x 133 x 370	
	Weight	12.5 kg	

Unless otherwise specified, specifications are given after 30 minute warm-up.

*1 : After self calibration, temperature remaining within ±3°C from self-calibration temperature

*2 : Over 100 scans at constant temperature

*3 : Over one hour at a constant temperature and after 2 hour warm-up

*4 : Measured with 0 dBm output power

*5 : Spontaneous emission measured within a 0.1 nm bandwidth at ±1 nm from the signal

*6 : Measured at an electrical frequency of 100 MHz

*7 : Accuracy given at 3 sigma after automated self recalibration: the wavelength errors on the whole spectral range follow a normal distribution, with 99.7% of the values are inferior to 25 pm.

*8 : With M option: for operating temperature between +18°C and +30°C.

*9 : Tested and validated with National Instruments GPIB board

Options

M : Polarization maintaining output fiber (orientation TE in slow axis, in line with connector key)

IWM : Integrated Wavelength Meter (absolute wavelength accuracy: 5 pm)

Ordering Information

Please specify the model name followed by the option.

Example: Tunics Reference SCL / M / IWM

Contact Information

We are happy to discuss your tunable laser requirements, please contact YENISTA OPTICS at sales@yenista.com

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