

CT400

Optical Component Tester

Yenista's CT400 is a compact tester for fast and accurate characterization of passive optical components (Mux/Demux, filters, splitters...) and modules (ROADM, WSS). The unit covers the spectral range from 1240 to 1680 nm, so measurements can be made over the full telecom band.



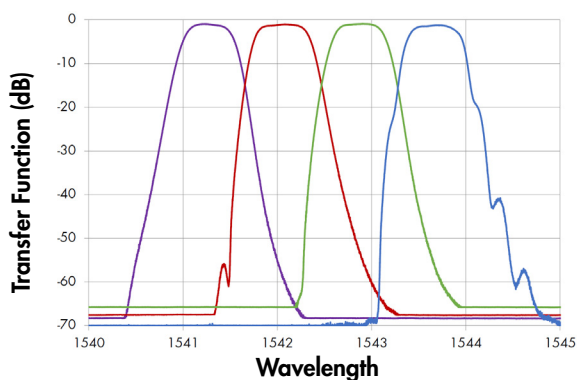
Full Band Sweep

The CT400 is a unique instrument that allows you to sweep continuously over several lasers (up to four) in order to achieve a fast full-range measurement from 1240 to 1680 nm (in SMF version).

It adapts to most tunable laser sources.

Real-time IL Measurement

The CT400 is a unique combination of high speed electronics and optical interferometry. Up to four real time measurements are now possible with ± 5 pm wavelength accuracy. This allows the use of CT400 during optical alignment in manufacturing, as well as for optical sensor analysis.



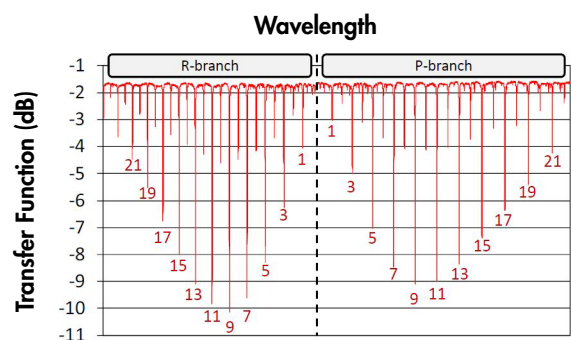
CWDM Filter Analysis in Single Sweep

Accurate IL Measurement

A sweeping set-up needs to do real time acquisition for power and wavelength measurements. The quality of the tunable lasers sources is a key factor: mode hops, sweeping velocity, power flatness, wavelength accuracy are various phenomena that need to be controlled in order to make reliable measurements. The CT400 provides all these features for accurate measurements in a single box when interfaced with a tunable laser source (TLS) and a PC.

Key Features

- Fast IL Measurement
- Wavelength Band:
 - SMF type: 1240–1680 nm
 - PM13 type: 1260–1360 nm
 - PM15 type: 1440–1640 nm
- Wavelength Resolution: 1 to 250 pm
- Wavelength Accuracy: ± 5 pm
- Dynamic Range: 65 dB @ single sweep
- Combines up to four tunable lasers (SMF type)
- Heterodyne detection of laser lines (SMF type)
- Trigger generated from TLS sweep



Gas Cell Analysis

Specifications

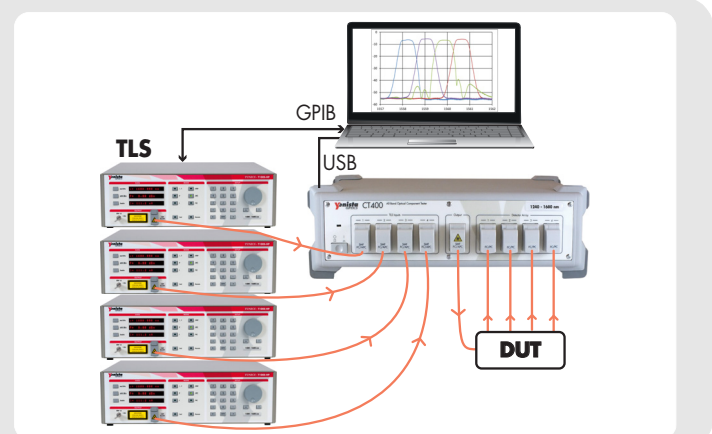
		SMF	PM13	PM15	
Wavelength	Operating wavelength range	1240–1680 nm	1260–1360 nm	1440–1640 nm	
	Wavelength accuracy	Absolute*1*2	±5 pm		
Relative*1		±1 pm			
Optical Ports (Front Panel)	TLS inputs & outputs	Number of input ports	1 to 4	1	
		Number of output ports	1		
		Connector type	FC/APC narrow key	FC/APC narrow key (slow axis aligned to connector key)	
		PER (Polarization Extinction Ratio)	n/a	≥20 dB	
	Detector array	Number of detector ports	1 to 4		
	Connector type	FC/PC wide key			
Electrical Ports (Rear Panel)	BNC A	Trigger Out (5 V TTL)	Swept measurement external synchronization (Pulse train generated @ Native Sampling Resolution)		
	BNC B	Trigger In (5 V TTL)	Wavelength measurement interval (Measurement is taken when TTL Level = High)		
	BNC C	Analog Voltage In (detector port EXT)	Voltage level sampling from an external device (Input range of 0 to 2.8 V; sampling resolution of 0.7 mV)		
Optical Power	Power range	On TLS input	0 to 10 dBm		
		On detector ports	-60 dBm to 7 dBm		
	Transfer function	Accuracy*3*4	±0.2 dB		
		Sampling resolution	0.02 dB		
	Dynamic range*4*5	65 dB typ. for models with 1 or 2 TLS input ports 60 dB typ. for models with 3 or 4 TLS input ports			
Sampling Characteristics	Resolution	1 to 250 pm			
	Native sampling resolution	$N \times 100 \pm 10$ MHz ($N=1$ to 250)			
	Sweep speed of TLS	From 10 to 100 nm/s			
Data Handling	Interface with PC / Data rate	USB-B 2.0 / 1 MBd			
	Maximum number of transfer function data points per TLS per detector as a function of number of activated detectors by software*6	260,000 for 1 detector 219,500 for 2 detectors 164,400 for 3 detectors 131,100 for 4 detectors 110,500 for 5 detectors			
Environment	Operating temperature range / Relative humidity	+15 °C to +30 °C / < 80% (non condensing)			
	Storage temperature range	-10 °C to +60 °C			
	Power supply	AC 100 to 240 V (50 to 60 Hz)			
	Dimensions (W x H x D)	335 x 110 x 320 mm			
	Weight	4 kg			

*1: For a TLS sweep > 5 nm at sampling resolution of 1 pm, excluding the acceleration and deceleration part of the TLS sweep.
 *2: After wavelength referencing.
 *3: For incident power on detectors > -30 dBm.
 Accuracy: +/- 0.5 dB for power between -30 dBm and -60 dBm.

*4: 1260-1640 nm.
 *5: If laser output power = 10 mW (dynamic range is proportional to laser output power).
 *6: Selected frequency range of the laser divided by the native sampling resolution.

Measurement Set-up

Tunable Laser Source (TLS)	
Remote Control	GPIB
Output Power	see CT400 Specifications above
Sweep Speed	
Mode Hops	No mode hop is best but the instrument is able to detect and still operates with a few mode hops
PC	
Operating System	From Windows XP to Windows 10
Interfaces	USB-B 2.0 port to CT400 and GPIB interface card to TLS



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