Optical testing solutions for manufacturing and R&D

Smarter network in sight™

EXFO

About this brochure

Explore our industry-leading portfolio of optical testing solutions for manufacturing and laboratory applications.

This brochure provides an overview of our comprehensive range of optical testing solutions including component test platforms, optical testing solutions, light sources, benchtop tunable lasers, passive component testers, tunable filters with adjustable bandwidth, variable attenuators, switches and power meters.

Reach out to us to benefit from best-in-class products and from 40 years of expertise and dedicated customer service.

About EXFO

EXFO develops smarter test, monitoring and analytics solutions for the global communications industry. We are trusted advisers to fixed and mobile network operators, hyperscalers and leaders in the manufacturing, development and research sector. They count on us to deliver superior visibility and insights into network performance, service reliability and user experience. Building on our 40 years of innovation, EXFO's unique blend of equipment, software and services enable faster, more confident transformations related to 5G, cloud-native and fiber optic networks.

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Glossary

IL	insertion loss
RL	return loss
PDL	polarization-dependent loss
PMF	polarization-maintaining optical fiber
SMF	singlemode fiber

Benchtop tunable lasers

The T200S and T500S constitute the most advanced and cost-effective solution for all R&D and manufacturing environments.

These lasers can be used as part of a swept test system together with the CTP10 or CT440 component tester for swept IL, RL and PDL measurements. As an alternative, both lasers can be used as standalone lasers in stepped mode.

Models available

The T200S portfolio features 2 models

The /O and /CL lasers deliver 10 dBm of output power and are mainly dedicated to telecom applications.

The T500S portfolio features 5 models

The /O, /ES, /SCL, /CL and /CLU lasers can be adjusted from 10 dBm to maximum available optical power of 13 dBm across specific wavelength ranges.

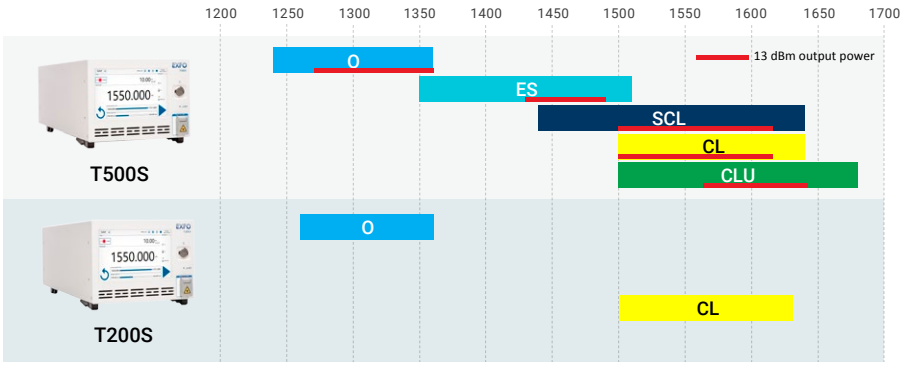


Figure 1. Spectral coverage of the various T200S-T500S models.

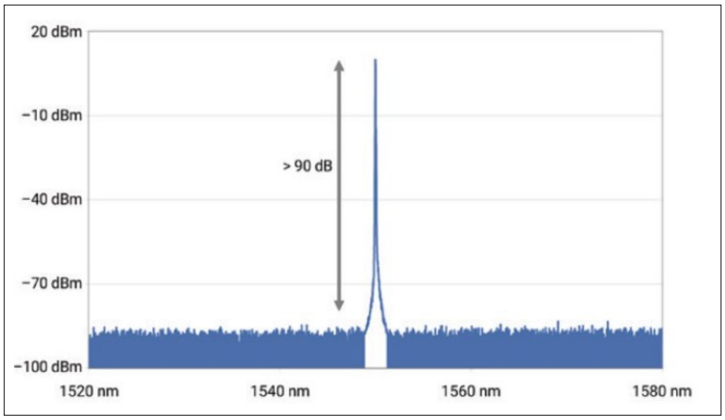


Figure 2. High power and high dynamic range.

Key features

- Power: T500S up to 14dBm, T200S nominal 10dBm
- Tuning range: up to 180 nm
- Tuning speed: 200 nm/s
- Bidirectional sweep (T500S)
- Wavelength accuracy: ±5 pm typical
- < 25 kHz typical linewidth
- Sweeping and stepping operation
- Full-band coverage with 3 lasers (T500S)
- Signal to noise ratio: > 90 dB
- Compatible with the CTP10 and CT440 component testers
- Ethernet port and SCPI commands

Component test platform

The CTP10 is a modular measurement platform for efficient testing of high port-count passive components in 24/7 operation. The CTP10 works with one or several of EXFO's sweeping tunable lasers to provide swept insertion loss (IL), polarization-dependent loss (PDL) and return loss (RL) measurements with unprecedented performance in the industry.

Highest specifications at full speed

The CTP10 maintains industry-leading specifications even when used with a laser at 200 nm/s. You no longer have to compromise between speed and measurement accuracy as the CTP10 provides a dynamic range of 70 dB in a single scan together with a sampling resolution of 0.1 pm even at 100 nm/s.

The CTP10 is the ideal instrument to characterize advanced WDM components with high port-count, such as wavelength selective switches (WSS). It is also particularly well suited for optical testing of photonic integrated circuit (PIC), thanks to its best-in-class 20-fm sampling resolution.

Key features

- Wavelength range:1240-1680 nm
- Dynamic range: 70 dB in a single sweep
- Fast averaging time 1 us
- Up to 50 detectors per platform
- Wavelength accuracy: ±5 pm
- Sampling resolution: 0.02 pm

Next-gen platform and modules

The following modules are available:

IL RL OPM2	Insertion loss and return loss module with two optical detectors
IL PDL OPM2	Insertion loss and polarization dependent loss module operating across CTP10 spectral range and with two optical detectors
SCAN SYNC	Optical sampling of swept wavelength lasers with optical sampling down to 20 fm
OPMx	Optical detector module with 2, 4 or 6 detectors
OPMLite	Entry-level optical detector module for electrical trigger spectral testing
FBC & FBC-M	Full-band combiner module for broadband swept measurements of IL & RL or IL & PDL, respectively
PCMx	Photo-current meter module with 2 or 6 inputs

Powerful intuitive GUI

The embedded software offers a powerful and intuitive GUI to graphically configure the test setup, perform measurement and analysis.

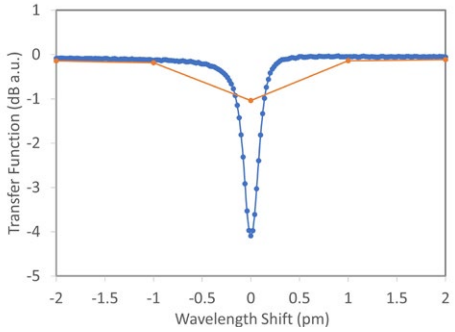


Figure 3. Ring resonator measurement at 20 fm resolution and 1 pm resolution.

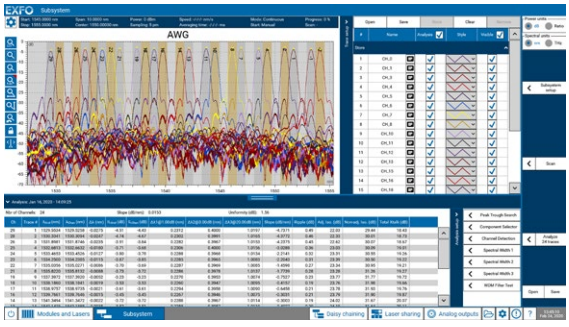


Figure 4. Measurement screen.

Passive component tester

The CT440 is a versatile instrument for performing swept IL-PDL measurements of passive optical components. It works together with EXFO's line of sweeping tunable lasers to provide a 65-dB dynamic range with a wavelength accuracy of ±5 pm. The CT440 is provided with a GUI software for direct operation from a PC.

Five CT440 models are available for various applications

Model	Wavelength range	Measurement	DUT type
CT440-SMF	1240-1680 nm	IL	SMF
CT440-PM13	1260-1360 nm	IL	PMF
CT440-PM15	1440-1640 nm	IL	PMF
CT440-PDL-PM13	1260-1360 nm	IL, PDL	SMF
CT440-PDL-PM15	1440-1640 nm	IL, PDL	SMF

Key features

- Wavelength range: 1240 - 1680 nm
- Dynamic range in a single sweep: 65 dB
- Sampling resolution: 1 pm (even at 100 nm/s)
- Wavelength accuracy: ±5 pm
- Up to 4 detectors

- The SMF model operates over the full band and performs IL measurements. Up to 4 lasers can be connected for seamless full-band swept measurements.
- The PM model offers a complete solution to characterize components with polarization-maintaining fiber.
- The PDL model is a turnkey solution for swept IL and PDL measurements.

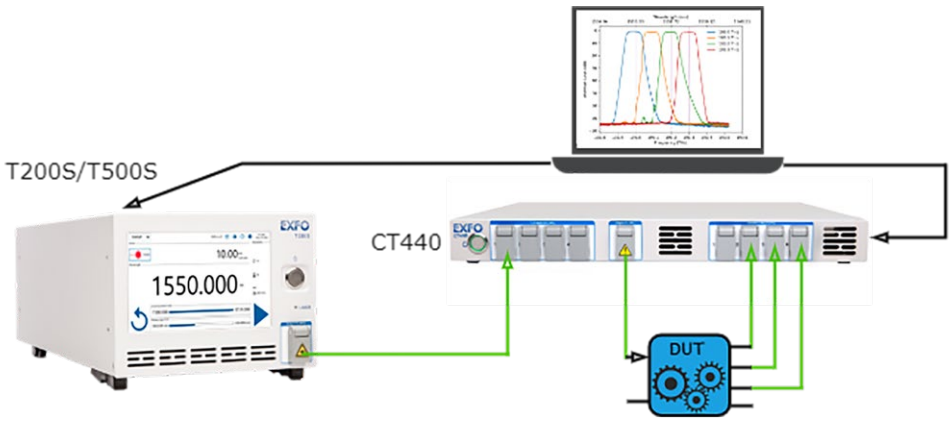


Figure 5. Typical measurement configuration using the CT440 component tester with a T200S/T500S tunable laser.

Tunable filters

The XTA-50 and XTM-50 are wavelength tunable and bandwidth adjustable filters. The use of bulk optics in combination with diffraction gratings leads to high selectivity, low insertion losses and dispersion. Thanks to the adjustable bandwidth and very steep edges, the XTx filters are a reference for precise filtering of a channel or even of a subdivision of a channel.

Models available

Model	Wavelength range	Bandwidth	Slope
Standard	1450–1650 nm	50–950 pm (6.25–120 GHz)	500 dB/nm
Ultrafine	1480–1620 nm	32–650 pm (4–80 GHz)	800 dB/nm
Wide	1525–1610 nm	50–5000 pm (6.25–625 GHz)	350-500 dB/nm
O-band	1260–1360 nm	50–900 pm (8–160 GHz)	500 dB/nm

Manual and automated versions

XTA-50 Automated wavelength tuning and bandwidth adjustment

XTM-50 Manual wavelength tuning and bandwidth adjustment

Key features

- Wavelength and bandwidth adjustable
- Manual (XTM-50) and automated (XTA-50) versions
- IL: < 5 dB
- Sharp roll-off and excellent crosstalk specifications
- SMF and PMF versions
- O-band model available

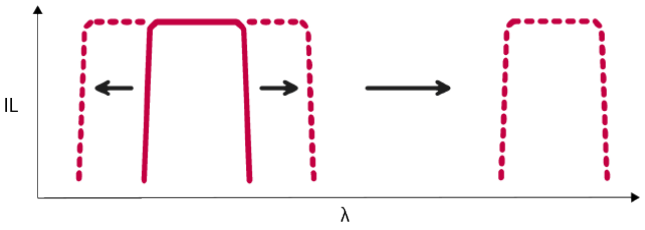


Figure 6. Bandwidth and wavelength tuning.

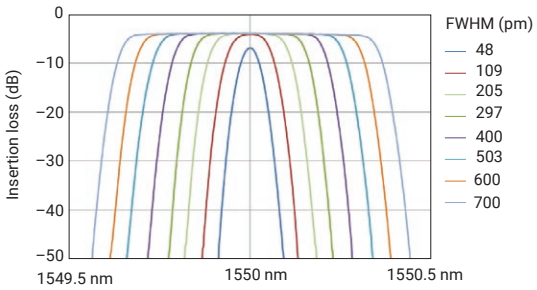


Figure 7. Bandwidth tuning.

Modular optical test solutions

Compatible with both rackmount and portable platforms, EXFO's modular optical test solutions were meticulously engineered to optimize the testing of a variety of technologies and ensure simplicity and efficiency in laboratory settings. Test solutions cover photonic integrated circuits (PIC), WSS, ROADM, passive optical components and more.

Rackmount platforms

LTB-2, LTB-8 and LTB-12

Rackmount modular test platforms with 2, 8 or 12 slots

Portable platforms

FTB-1v2, FTB-2 Pro and FTB-4 Pro

Portable modular test platforms with 1, 2 or 4 slots

Power meter

FTBx-1750

High performance power meter (1-slot module)

Light sources

FTBx-2250

Broadband light source (1-slot module)

FTBx-2850

µITLA tunable light source (1-slot module)

Variable attenuators

FTBx-3500

Variable attenuator (1-slot module)

MOA-3800

Variable optical attenuator (rackmount)

Switches

FTBx-9160

MEMS optical switch (1-slot module)

MXS-9100

MEMS matrix optical switch (rackmount)

Optical spectrum analyzers

FTBx-5245

Optical spectrum analyzer (2-slot module)

FTBx-5243-HWA

High wavelength accuracy OSA (3-slot module)

FTBx-5255

High-end OSA – (2-slot module)

Automated probe stations

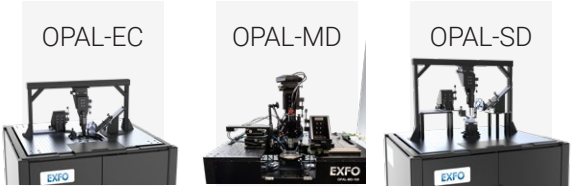
Introducing the OPAL series of automated probe stations—designed for industry-leading performance in testing wafers, multiple dies, or single dies in integrated photonics. With trench coupling capabilities and reconfigurable options, they ensure precise, repeatable, and fast measurements. Paired with the PILOT software suite, the OPAL series offer full test flow automation, integrating EXFO or third-party instruments seamlessly.

Flexible testing of photonic integrated circuits (PIC)

The OPAL series offers versatile solutions for PIC testing, with options designed for single-die, multi-die, and wafer-level edge-coupling applications.

OPAL-SD: An entry-level, semi-automated probe station for single-die testing. It offers flexible, cost-effective, and upgradeable performance, with automated optical alignment and traceable test results. Manual positioning of the die and electrical probes makes it a practical solution for precision testing.

OPAL-MD: A high-performance multi-die test station, delivering fast, accurate, and repeatable results. It's designed for advanced integrated photonics characterization and allows for flexible testing setups. Open to EXFO and third-party instruments, the OPAL-MD supports comprehensive, data-driven PIC testing.

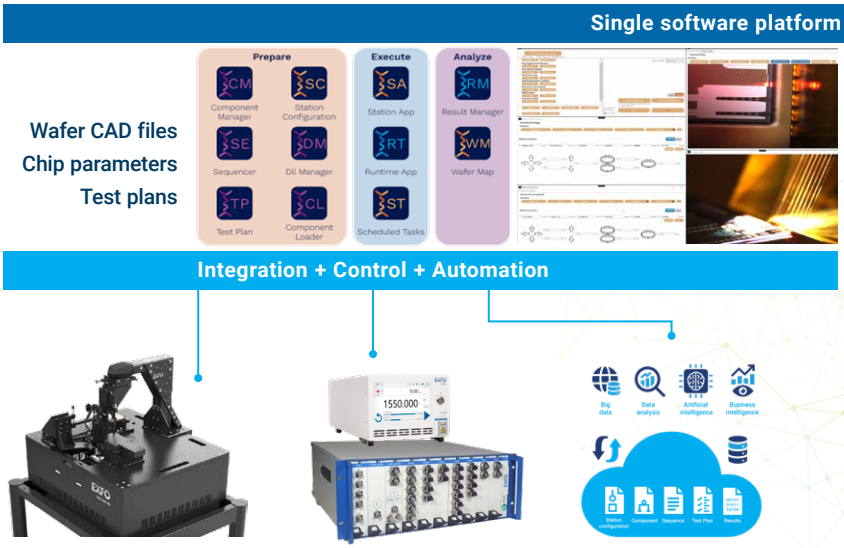


Applications

- From die to wafer testing integrated photonics
- From R&D, design verification and process development to pilot production
- Optical and electronic characterization of PIC
- Application-agnostic: telecom & datacom transceivers, quantum, LIDAR, sensors, AI, etc.

OPAL-EC: A leading-edge wafer-level test station optimized for edge-coupling. It provides industry-leading accuracy, speed, and flexibility for integrated photonics characterization. The OPAL-EC is ideal for precise wafer-level PIC testing, combining EXFO's optical measurement capabilities with compatibility for third-party instruments.

The **EXFO Pilot software suite** enhances all OPAL stations by automating the test flow from setup to results analysis, turning high-quality measurements into actionable data for efficient and data-driven decision-making.



- PIC focused software, multi-user single database
- Smart test plans, python script manager
- Automated from CAD file to analysis
- Flexible and scalable, EXFO or third-party
- Big data, AI / ML to reduce tests

Sales and customer service

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