

Component Test

The fastest and most complete characterization of silicon photonics and PICs

Complete Component Characterization with Single Instrument

Luna's Optical Vector Analyzer (OVA) measures a passive component's linear transfer function (Jones Matrix) with a single scan, yielding insertion loss (IL), group delay (GD), chromatic dispersion (CD), polarization mode dispersion (PMD), polarization dependent loss (PDL), and other critical parameters.

"See Inside" Components with 10 μm Resolution

Luna's ultra-high resolution reflectometers offer backscatter-level sensitivity for unprecedented analysis of passive components.

Fast and Comprehensive Polarization Analysis

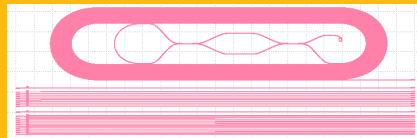
The standard OVA 5000 software scans across all polarization states. The polarization analysis software (PAS) option allows complete characterization of polarization without the need for external polarization alignment.

Applications

- Manufacturing test
- Quality control
- Diagnose production issues
- Characterize and analyze designs
- Validate models and improve simulations
- Passive optical components and modules - filters, PLCs, AWGs, MUX/DEMUX, splitters, gratings, WSS, ROADMs, etc.

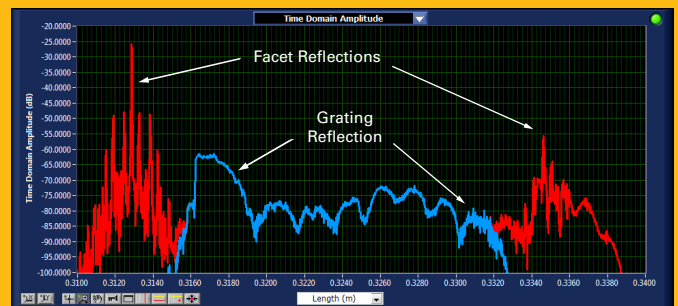
Example: Characterization of Planar Optical Waveguide

Planar optical waveguides, a key building block of silicon photonic platforms, present several unique measurement challenges. They exhibit greater losses per unit length due to higher absorption and scattering coefficients, and greater polarization dependency.

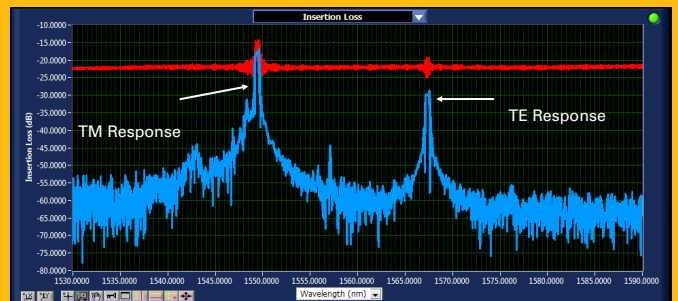


Luna's swept laser interferometric technology is able to scan the device and trace reflectivity along the length of the waveguide with sub-mm detail and fully characterize the optical path. For this example waveguide grating, the time domain trace allows easy identification of the facet and grating reflections.

Using the Luna analysis software, you can select only the grating reflection and easily observe the different TM and TE polarization effects in the spectral response. Otherwise, the overall spectral response (shown in red trace on bottom plot) is dominated by the large facet reflections.



The time domain response clearly shows the large facet reflections and grating reflection of the silicon photonic waveguide.



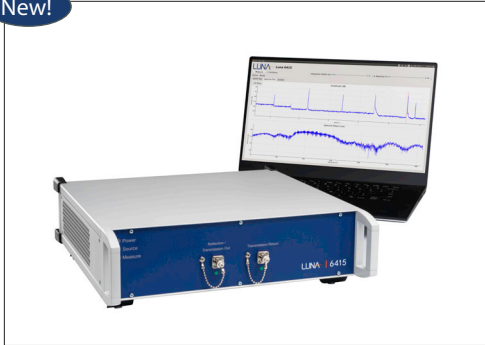
Spectral analysis of only the grating reflection (blue trace), selected via the time domain response, easily identifies the grating peaks. The overall response of the waveguide is shown by the red trace.



Advanced Test Suite for Silicon Photonics and PICs

Luna's family of advanced optical test and measurement products are based on optical frequency domain reflectometry (OFDR) and deliver industry leading dynamic range, resolution and speed.

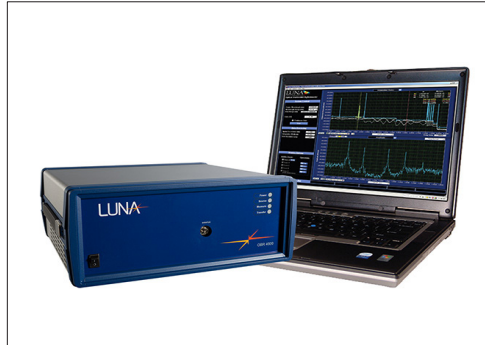
New!



Lightwave Component Analyzer Luna 6415

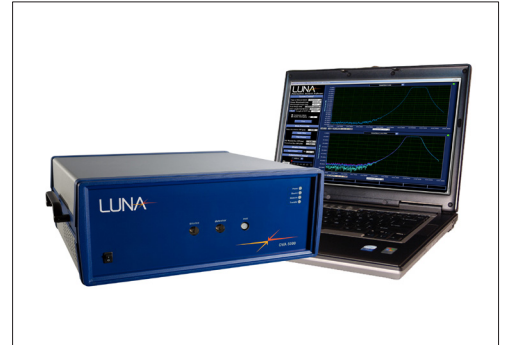
- **High speed analyzer** for production test and quality control
- **Reflectometer and transmission analyzer** combined in single instrument
- **Measure distributed loss** versus length with very high resolution
- **Spectral analysis** of transmission and reflection paths

Contact Luna for availability



Optical Backscatter Reflectometer OBR 4600

- **Unprecedented visibility** into the details of silicon photonics, PICs and fiber optic components
- **10 μm resolution; -140 dB sensitivity**
- **Waveguide scattering** and loss easily measured and analyzed
- **Skew measurements** with sub-picosecond resolution



Optical Vector Analyzer OVA 5000

- **Complete characterization** of waveguide devices
- **Full polarization analysis** without need for polarization controller or aligned PM fiber
- **Instantaneous measurement** of IL, RL, PDL, PMD, TE/TM states, waveguide scatter, and more in less than 3 seconds

	Luna 6415	OBR 4600	OVA 5000
Wavelength band	C	C & L, O	C & L, O
Max measurement length	20 m	2 km	75/150 m
Reflection mode measurements	✓	✓	✓
Transmission mode measurements	✓		✓
Insertion loss (IL), return loss (RL)	✓	✓	✓
Polarization (PDL, PMD)	*	Track polarization states	✓
Phase measurements	*	Group delay, Phase deriv.	✓
Distributed sensing option		✓	

* Available as an upgrade in future releases. Contact Luna for more information.