

SpectrALL

Spectra-FT Fine Tunable SWIR Spectral Calibration Sources

Highly uniform sources of spectral radiance that can accurately reproduce almost any spectrum from 900 nm to 1650 nm

Trusted test data

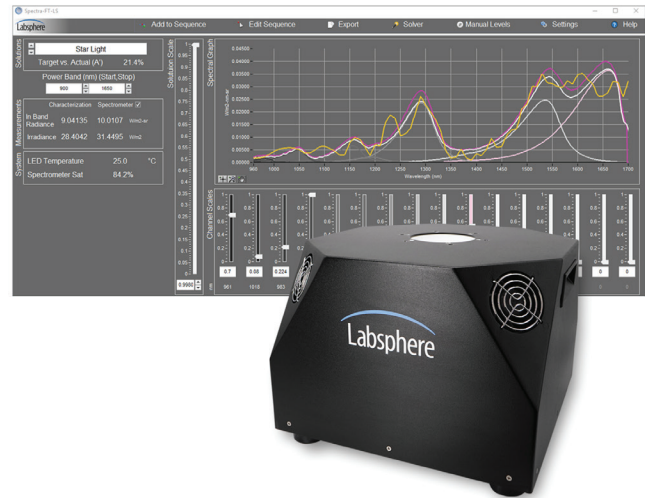
Labsphere is a recognized leader in image sensor calibration sources. Our Spectra-FT sources are engineered for the high performance requirements in image sensor research, development and production testing and calibration.

Save money, save space

One instrument produces unlimited spectrums. Large area uniform radiance field in a compact and robust instrument. The sources are designed to easily mount in a production test station with active spectral feedback and user recalibration features.

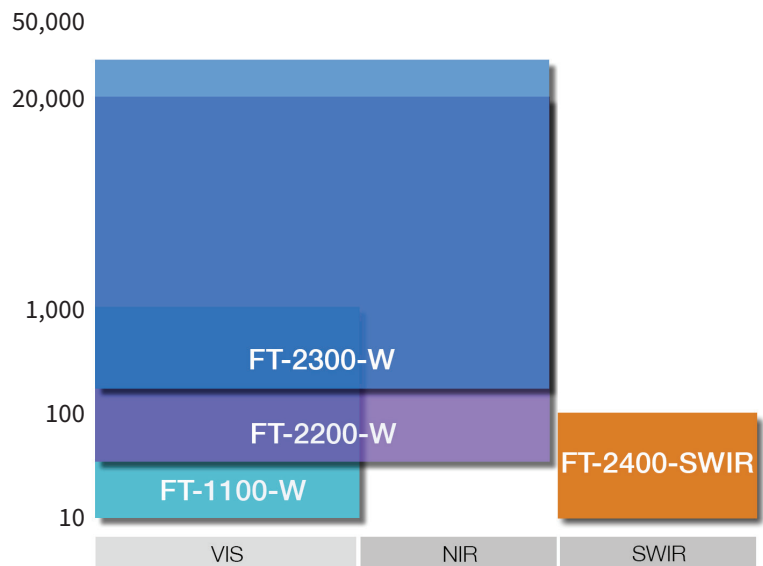
Repeatable, reproducible results

With Labsphere's diffuse reflectance material, Spectralon®, and thermal-controlled LED module, long term repeatability and reproducibility are ensured.



Value:

- Uniformly irradiate imagers and optical sensors with a flat field of light over 360° x 180° FOV
- SWIR output covering 0.1 W/m²-sr to 30 W/m²-sr
- Users have unlimited spectrum reproduction options and spectral weighting



Features and Applications

Measurement Applications:

- Distortion
- Dynamic range
- Flat fielding
- Linearity
- Pixel defects
- Pixel shading
- PRNU
- Saturation exposure
- Sensitivity
- Signal-to-noise
- Spatial and angular non-uniformity
- Vignetting correction

Applications:

- Night vision calibration
- Image sensor test
- Sensor calibration
- Lens testing
- Photodiode responsivity
- Nighttime sensor calibration
- Spectrum illumination simulation

Features:

- Resolution and accuracy – 10 channels in the SWIR
- User spectral optimization – quickly simulate any spectrum
- Create and match the combination of multiple spectrums
- Performance metrics – built-in spectral fidelity metric A' radiometric performance matching metrics of any simulated spectra
- Built-in spectrometer monitor and feedback loop to ensure accurate spectral output and correction for every wavelength channel
- Built-in user spectral radiance reference for user recalibration
- Convert between radiance and irradiance values and geometries
- DC constant current drivers and thermal control for continuous stable performance
- Viewing area – large area 75 mm uniform radiance port
- Exceptional uniformity from narrow to 180° field of view (FOV)
- Quick integration – compact and robust for tester and production line integration

Calibration*

The spectral radiance of the source is monitored with an embedded spectroradiometer. The systems include a stable quartz tungsten halogen reference source used to recalibrate the spectral radiance responsivity of the spectroradiometer at the discretion of the user. This ensures NIST traceable continuous accurate spectral monitoring of the performance of the systems.

Active Feedback Control*

Achieve reproducible results with the active feedback control feature enabled. The calibrated embedded spectroradiometer can be used to measure and correct for any spectral radiance changes due to ambient conditions, inter reflections during test or long term drift, ensuring stability and optimal performance over time. Unlike broadband monitors the spectral feedback measures the total spectral distribution and corrects for individual LED input to the total spectral output.

*applies to Labsphere's tunable calibration sources with the embedded spectroradiometer

Specifications and Ordering Information

Model Number:	FT-2400-SWIR
Order Number:	AA-01577-002
Source Geometry:	75 mm diameter uniform output with 180° FOV near Lambertian radiant source
Spectral Resolution A':	20 - 27%
Initial Warm-Up Time:	2 minutes
Spatial Uniformity:	≥97% over 180° FOV cov ≥99%
Optical Geometry:	Labsphere Integrating Sphere Technology
Typical Radiance Range:	SWIR range maximum of 30 W/m ² -sr SWIR range minimum of 0.1 W/m ² -sr (spectrum dependent)
Spectral Range:	900 nm to 1650 nm
Spectral Output:	10 channels
Spectral Bandwidth:	Typical: NIR 35 to 125 nm FWHM
LED Control:	DC constant current
Electrical Resolution:	16 bit DAC for channel current drivers
Software:	Includes full spectral calibration with spectral fitting, preset storage, real-time optical feedback, radiometric units supported, user optimization, and recalibration programs
Interface Connectors:	USB 2.0 type B
Interface Protocol:	TPC Command Sets
Supported Operating System:	Windows 10
Power and Input Voltage:	300 W, 110 to 240 VAC at 50 - 60 Hz
Operating Temp:	20 - 40°C, 0 - 70% RH
Dimensions:	Source: H 23 cm, W 30 cm, D 30 cm Power Module: H 14 cm, W 43 cm, D 31 cm
Weight:	Source: 6 kg Power Module: 10 kg

Spectra-FT Fine Tunable SWIR Spectral Calibration Sources are part of Labsphere's extensive line of SpectrALL tunable sources.

