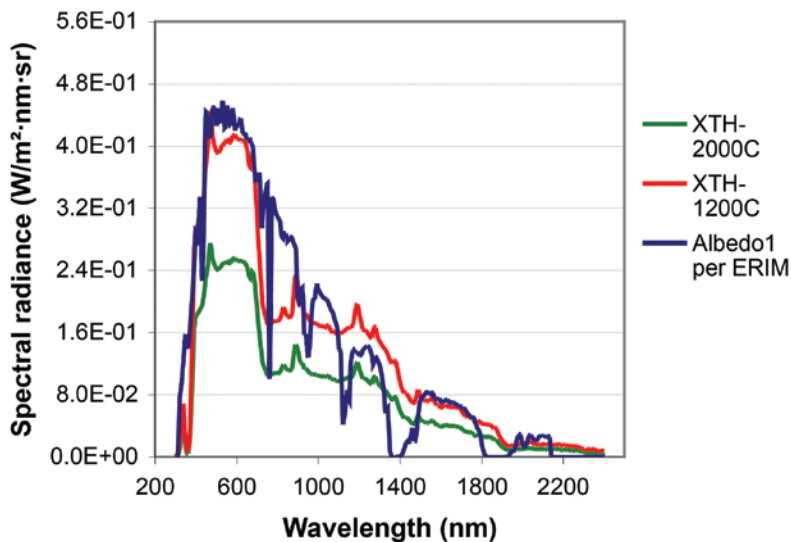


SOLAR SPECTRUM UNIFORM SOURCE SYSTEM

Ideal Lambertian radiance calibration sources

SPECTRAL RADIANCE PLOT



SPECTRAL SHAPE SIMULATION

Labsphere's Solar Spectrum Uniform Source System approximates the spectral radiance albedo1 (defined by ERIM) by combining xenon and tungsten halogen sources within an integrating sphere. The system is designed to duplicate the spectral shape of solar radiation while also approximating any spectrum with color temperature ranges from 3000 K to 6000 K. The complete system is available in two models depending upon the customer's output radiance and illumination area requirements.

FEATURES:

- Radiance uniformity >98%
- Approximates 100% albedo shape
- Approximates ASTM Standard D65
- Variable correlated color temperatures between 3000 K and 6000 K
- Two high-performance systems available
- Multiple detector options
- System calibration traceable to NIST
- CCD-based spectrometer monitoring from 350-1050nm
- Photopic detector for luminance monitoring

APPLICATIONS:

- Lambertian solar simulator
- Dynamic range, linearity and uniformity testing of focal plane arrays
- Characterization of spacebased imager systems
- Testing of speed video/film systems
- Single element broadband sensor testing
- Photovoltaic and quantum efficiency testing

OFF-THE-SHELF SYSTEM

Labsphere's XTH-1200C and XTH-2000C systems feature a 12-inch (30 cm) diameter uniform source integrating sphere with 4-inch (10 cm) diameter port, and a 20-inch (51 cm) diameter uniform source integrating sphere with an 8-inch (20 cm) diameter port, respectively. The spheres are coated with Spectrafect® white reflectance coating which offers near-Lambertian characteristics and provides exceptional uniform radiance. A spectrometer-based spectral irradiance monitor enables users to accurately monitor the spectral distribution of the sphere for any lamp configuration or variable attenuator position. A photopic detector is also included for luminance monitoring. The system includes spectrometer software and uniform source control system software.

AUTOMATED CONTROL

Users can automatically control and monitor the spectral radiance through the exit port from zero to maximum output levels with Labsphere's motorized variable attenuators (VA-200-SC) and motor controllers (MC-1000). A high-dynamic range, low-noise CCD-based spectrometer monitors the spectral irradiance from 350 to 1050 nm. Labsphere's highly sensitive SDA-050-P-RTA detector and SC 6000 radiometer are calibrated for luminance responsivity and enable users to independently monitor luminance through the exit port in units of cd/m² or fL. The combination of xenon and tungsten halogen sources allow users to obtain correlated color temperature spectrums from 3000 K to 6000 K.



XTH-1200C SYSTEM

Specifications

Model and Description

Continuous Xenon Tungsten Halogen
Uniform Source System

XTH-1200C

AA-00900-000

XTH-2000C

AA-00566-000

System Includes

12- or 20- inch Spectrafect Integrating Sphere	N/A	N/A
Light Source, EHLS-200-150	N/A	N/A
Halogen Lamp Power Supply, LPS-150-0625	AS-02656-625	AS-02656-625
Radiometer/Photometer, SC 6000	AS-02702-000	AS-02702-000
Detectors, SDA-050-P-RTA-CX	AS-02522-301	AS-02522-301
Variable Attenuators, (2) VA-200-SC	AS-02450-200	AS-02450-200
Motor Controller, (2) MC-1000	AS-02609-000	AS-02609-000
CCD-Based Spectrometer	OOI USB 2000+	OOI USB 2000+
Spectrometer Software	OOI SpectraSuite	OOI SpectraSuite
Labsphere USS control software	AS-02743-001	AS-02743-001
Calibration , Spectral Irradiance (350-1050nm)	N/A	N/A
SCC-LU, Luminance	SCC-LU	SCC-LU

Typical System Properties and Performance

Luminance range	0 - 20,500 cd/m ² @ 6000 K	0 - 7000 cd/m ² @ 6000 K
Luminance uniformity*	>98%	>98%
Correlated color temperature	3000 K - 6000 K (variable)	3200 K - 6000 K (variable)
Sphere coating	Spectrafect	Spectrafect
Sphere coating reflectance (nominal)	98%	98%

* Applies at maximum radiance, uniformity may vary at lower radiance levels.

Photopic Detector Assembly

Active area	SDA-050-P-RTA-CX 4.5 mm ²	SDA-050-P-RTA-CX 4.5 mm ²
Range	Visible	Visible
Connector	BNC	BNC

Radiometer/Photometer

Power requirements	SC 6000 110./220 VAC, 50/60 Hz	SC 6000 110./220 VAC, 50/60 Hz
Current dynamic range	1pA - 1 mA	1pA - 1 mA
Weight	4.1 lbs (1.86kg)	4.1 lbs (1.86kg)
Dimension W x D x H	1.75 x 8.25 x 10.5 in (4.4 x 20.9 x 26.4 cm)	1.75 x 8.25 x 10.5 in (4.4 x 20.9 x 26.4 cm)
Computer Interface	Ethernet	Ethernet

Spectrometer

Integration time	OOI USB 2000+ 10ms - >60sec	OOI USB 2000+ 10ms - >60sec
Dynamic range	2 x 10 ⁸	2 x 10 ⁸
Signal-to-Noise	250:1 single acquisition	250:1 single acquisition
Readout noise (single dark spectrum)	3.5 counts RMS, 20 counts peak-to-peak	3.5 counts RMS, 20 counts peak-to-peak
Stray light	<0.05% at 600 nm; <0.10% at 435 nm	<0.05% at 600 nm; <0.10% at 435 nm
Spectrometer channels	One	One
Interface	USB USB 2.0, 480 Mbps RS-232 2-wire RS-232	USB USB 2.0, 480 Mbps RS-232 2-wire RS-232

Optional Accessories/Calibrations

Uniformity mapping	USC-PM
Radiance calibration	SCC-RA

Recommended Computer Requirements

Operating System	Windows 98® 2 nd Edition, Windows 2000® PE or later
Drives	3 1/2" Disk Drive or 1 CD-ROM Drive