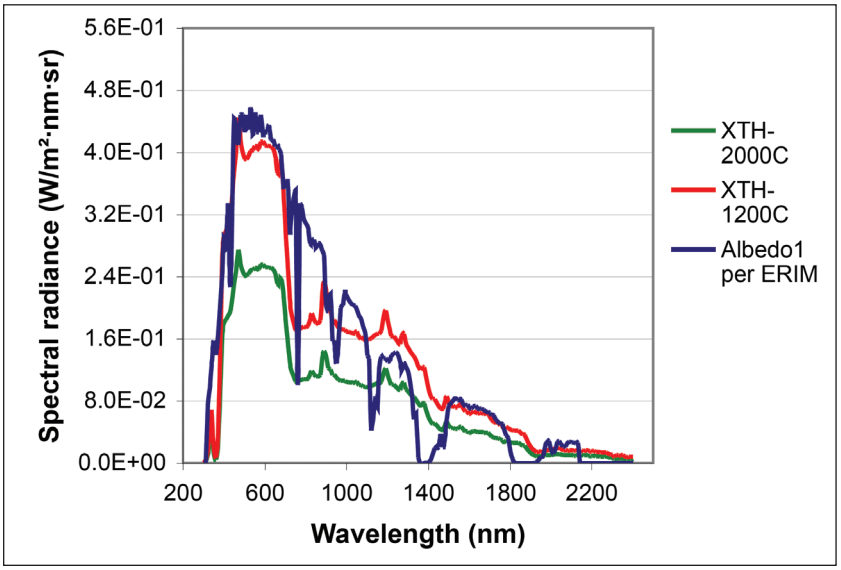
SOLAR SPECTRUM UNIFORM SOURCE SYSTEM

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.

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 Spectraflect® 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.

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 - 1050 nm

Photopic Detector for Luminance Monitoring

APPLICATIONS

Lambertian Solar Simulator

Dynamic Range, Linearity and Uniformity Testing of Focal Plane Arrays

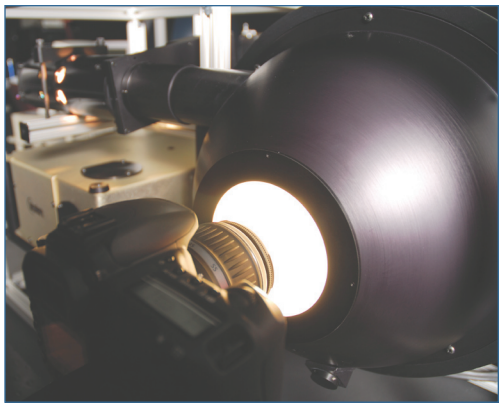
Characterization of Space-based Imager Systems

Testing of Speed Video/Film Systems

Single Element Broadband Sensor Testing

Photovoltaic and Quantum Efficiency Testing

XTH-1200C SYSTEM



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PB-13035-000 Rev 00

SPECIFICATIONS

Model and Description	**XTH-1200C**	**XTH-2000C**
Continuous Xenon Tungsten Halogen Uniform Source System	AA-00900-000	AA-00566-000
System Includes		
12 or 20 inch Spectraflect Integrating Sphere	N/A	N/A
Light Source, EHLS-200-150	N/A	N/A
Xenon Source Assembly	AS-02582-200	AS-02583-200
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 - 1050 nm)	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/m2 @ 6000 K
Luminance Uniformity*:	>98%	>98%
Correlated Color Temperature:	3000 K - 6000 K (variable)	3200 K - 6000 K (variable)
Sphere Coating:	Spectraflect	Spectraflect
Sphere Coating Reflectance: (nominal)	98%	98%

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

Photopic Detector Assembly	**SDA-050-P-RTA-CX**	**SDA-050-P-RTA-CX**
Active Area:	4.5 mm^2	4.5 mm^2
Range:	Visible	Visible
Connector:	BNC	BNC
Radiometer/Photometer	**SC 6000**	**SC 6000**
Power Requirements:	110./220 VAC, 50/60 Hz	110./220 VAC, 50/60 Hz
Current Dynamic Range:	1pA - 1 mA	1pA - 1 mA
Weight:	4.1 lbs. (1.86 kg.)	4.1 lbs. (1.86 kg.)
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	**OOI USB 2000+**	**OOI USB 2000+**
Integration Time:	10ms – >60sec	10ms – >60sec
Dynamic Range:	2 x 108	2 x 108
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® 2nd Edition, Windows 2000® PE or later
Drives:	3 1/2” Disk Drive or 1 CD-ROM Drive

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