RADIANT IMAGING

Imaging Sphere for Scatter and Appearance Measurement

IS-SA™

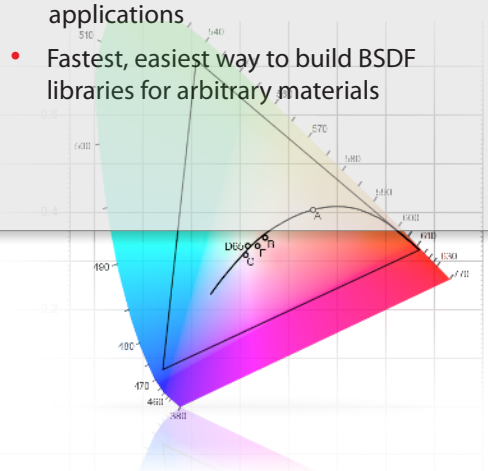
Fast, flexible system for comprehensive scatter and appearance measurement

Applications

- BRDF (bi-directional reflectance distribution function) measurement
- BTDF (bi-directional transmission distribution function measurement
- Scatter characterization for BEF, anti-reflection films and other display components
- Material characterization and classification based on scatter for metals, plastics, paper, textiles and more
- Surface treatment characterization and classification based on scatter for cleaners, polishes, paints, coatings, and more
- Quality control sampling
- Generation of accurate, complete appearance models for optical design and rendering applications

Benefits

- Complete BSDF and TIS measurement in seconds for many materials
- Cost effective solution for a broad range of related measurement applications
- Fastest, easiest way to build BSDF libraries for arbitrary materials



The IS-SA (Imaging Sphere for Scatter and Appearance measurement) provides **rapid, comprehensive measurement** of scatter distribution functions for almost any material, including films, metals, plastics, papers, textiles, and surface treatments such as cleaners, polishes, coatings and paints.

Designed for use in both R&D and production quality control applications for material characterization, quality assessment, and for generating libraries of BSDF (bi-directional scatter distribution function) measurements for computer **modeling and rendering.**

The IS-SA takes advantage of a novel optical configuration to measure 2π steradians (a full hemisphere) of scattered light at once, **dramatically reducing the time required to obtain a BSDF measurement**.

The IS-SA comes with Radiant's sophisticated **IS-SA control & analysis software** providing flexible measurement set-up and intuitive operation. Extensive **data analysis and display functions**, including isometric plots, cross-sectional graphs, radar plots, bit maps and color graphs, are also included with the IS-SA software.

With an **optional tunable light source**, the IS-SA can be used to measure BSDF as a function of wavelength. Additional options include a Transmission Arm attachment for BTDF (transmission) measurement, and a goniometric positioning stage to automatically move and rotate the material sample.

Optional software extensions allow the IS-SA user to perform view angle performance measurement for displays or luminous intensity distribution measurement for small light sources. A further option allows the IS-SA ProMetric imaging colorimeter to be used in **stand-alone mode** for direct measurement.

Radiant Imaging offers a **full line of Image Spheres** including the IS-LI TE for luminous intensity distribution measurement, IS-LI for luminous intensity measurement, and the IS-VA for display view angle performance measurement.

To see how much information is captured by an Imaging Sphere and how easy it is to use, visit www.radiantimaging.com and **download the demo** IS-SA software.

Radiant Imaging, Inc.
22908 NE Alder Crest Drive, Suite 100
Redmond, WA 98053, USA

T: +1 425 844-0152
F: +1 425 844-0153

Sales and marketing: sales@radiantimaging.com
Technical support: support@radiantimaging.com
Websites: www.radiantimaging.com
www.visionbyradiant.com

Imaging Sphere for Scatter and Appearance Measurement
IS-SA™

Key Features

- Support for photopic, colorimetric, and spectral scans
- Full, automated control over illumination angle of the light source
- Extensive configuration options for light source and sample control
- Easy to use control and analysis software interface
- Data can be exported for use in optical design and rendering tools

Specification*

Optical Specifications

CCD type	Full-frame, cooled and temperature stabilized CCD
CCD bit depth	16-bit (65,536:1) dynamic range
Resolution	Either 512x512 or 1024x1024 pixel CCD options
Field of view	Approximately 2π steradians
Color measurement	CIE 1931 matched XYZ filters
Neutral density filters	ND0, 1, and 2 standard
Standard illumination angle	Continuous to 80° (reflection) Continuous 110° to 180° (transmission option)
Illumination source	Metal Halide or Halogen
Sensitivity	Less then 5% reflectivity
System accuracy	BSDF: ±5% TIS (total integrated scatter): ±5%
Minimum measurement time (single measurement)	Photopic: 1 sec Color: 5 sec

Mechanical Specifications

Overall size	88 cm x 66 cm x 110 cm
Orientation	Rotatable to vertical, face-down or face-up positions
Angular resolution	0.5° for illuminator positioning
Weight	120 kg
Construction	Integrated imaging dome and imaging colorimeter
Maximum sample size	Unlimited for reflectance measurement
Illumination area	10 mm or 20 mm

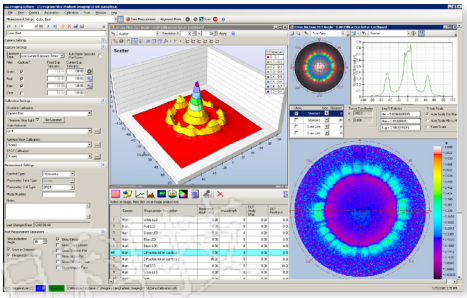
Control and Analysis Software Specifications

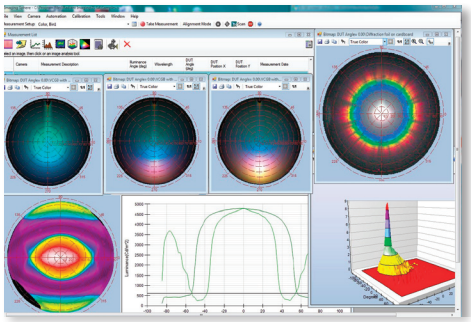
Measurement capability:	BRDF, CCBRDF, BTDF, CCBTDF TIR (Total Integrated Reflectance) TIS (Total Integrated Scatter), Gain Relative Color: CCT; CIE x,y; u',v'; ΔE
IS 1.x Software	Measurement set-up and image capture control Gray-scale and false color display Cross-Sections of scatter & relative color 3D surface plot of scatter & relative color Isometric plot of scatter & relative color Graph and image comparison for multiple captures Export BSDF data to optical design & rendering tools Reports of TIS, TIR, and color Process measurements (rotate, add, threshold, etc.)

Optional Equipment

Transmission arm for BTDF measurement
XYΦ Stage for automated sample positioning and rotating
Automated specular light removal
Calibration samples
Aperture mask calibration device
Monochromator for automated spectrally tunable illumination

** Specifications subject to change without notice*





System Requirements

- 2.0 GHz or faster processor
- 1GB or greater RAM
- Windows®, XP, Vista or 7 (32-bit)
- USB 2.0 interface

RADIANT IMAGING

Radiant Imaging, Inc.
22908 NE Alder Crest Drive, Suite 100
Redmond, WA 98053, USA

T: +1 425 844-0152
F: +1 425 844-0153

Sales and marketing: sales@radiantimaging.com
Technical support: support@radiantimaging.com
Websites: www.radiantimaging.com
www.visionbyradiant.com