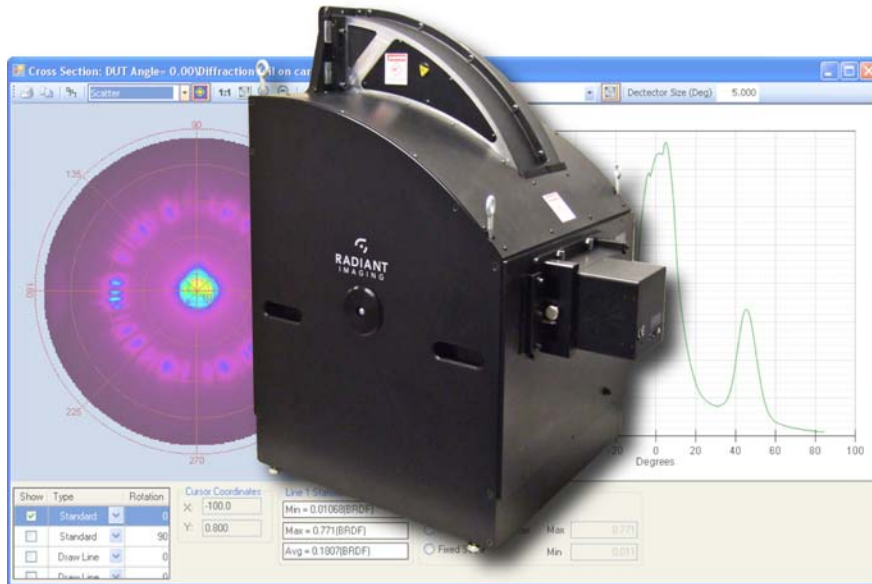


Imaging Sphere – Scatter and Appearance (IS-SA)

High speed, low cost, scatter and appearance measurement system for metal, paper, plastics and transmissive films



The Scatter & Appearance Imaging Sphere (IS-SA) utilizes scattered light measurement to accurately and rapidly characterize surface roughness, imperfections and diffusion properties in a wide range of reflective surfaces and transmissive films. System software then automatically converts raw scatter measurements into commonly used surface parameters such as TIS (Total Integrated Scatter), RA (average surface roughness), BRDF and BTDF.

Based on patented technology developed jointly with Royal Philips Electronics, the IS-SA acquires data over an entire 2π steradians in a single measurement, taking just seconds, which is a dramatic improvement over traditional scatter instruments.

The turnkey IS-SA system consists of a 20" (508 mm) diameter, hemispherical measurement dome, mated with our PM-1403F-1 Imaging Colorimeter (with a 512x512 CCD pixel detector). The IS-SA is equipped with a variable angle, collimated illumination system. The IS-SA includes a full software suite, which enables manual and fully automated control of all system hardware, as well as complete data analysis and display. Data can be displayed as isometric plots, cross-sectional graphs, radar plots, bit maps and color graphs.

For technical or sales support contact us at sales@radiantimaging.com or call us at 425-844-0152.

IS-SA Advantages

- Many times faster than BRDF goniometers.
- More economical than other BRDF instruments.
- Operates in ambient light conditions.
- Characterizes both scattered light and specular reflections.
- Operates in both transmission and reflection modes.

Performance Specifications

Maximum Sample Size	unlimited x unlimited (no edges)	
Standard Illumination Angle	Continuous to 80°	
Standard Illumination Source	Metal Halide	
Illumination Area	2 – 10 mm (2 mm step)	
Angular Resolution	0.5°	
Dynamic Range	up to 16 bits (65536 grey scale levels), depending on PM camera used	
Sensitivity	Minimum Reflectivity 5% @ 60 second exposure time, no ND filter used)	
System Accuracy		
	BRDF	±5%
	Chromaticity coordinates [x,y]	±0.005
Short term repeatability		
	BRDF	±1%
	Chromaticity coordinates [x,y]	±0.0006
Minimum measurement time		
	Photopic	1 sec
	Color	5 sec
Dimensions (LxWxH)	880 mm x 660 mm x 1100 mm	
Weight	120 kg	
Optional Equipment	BTDF transmission arm XYPhi sample stage Halogen illumination Holes in dome for specular light removal Calibration samples Aperture mask calibration device Heavy duty stand for 1 axis of rotation	

XYPhi sample stage

Dimensions (LxWxH)	660 mm x 330 mm x 680 mm	
Total travel:	X	102 mm
	Y	102 mm
Weight	28 kg	

* Specifications subject to change without notice.

Testing Capabilities

TIS (Total Integrated Scatter)
 RA (average surface roughness)
 BRDF/BTDF
 Materials

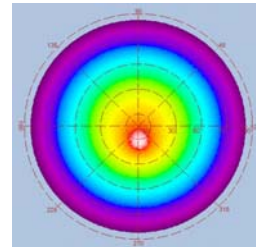
- Metal
- Paper
- Plastics
- Paints
- Films (BEF, Polarizer)
- Currency

Host Computer Requirements

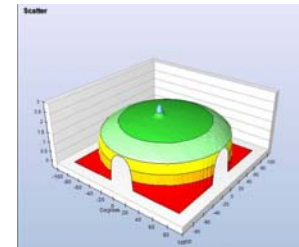
Pentium IV
 1 GB RAM
 Windows® 2000/XP
 USB 2.0 Interface
 On board 10/100/1000 Mbps Fast Ethernet
 Network card

Imaging System Compatibility

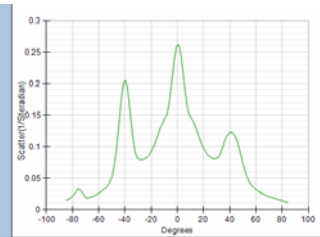
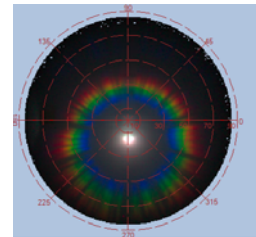
The Imaging Sphere is normally configured using a Radiant Imaging PM-1400F series Imaging Colorimeter with a 512x512 detector. However, other Radiant Imaging PM Series™ Imaging Photometers and Colorimeters are compatible with the Imaging Sphere, offering the user an expanded range of performance and cost options. Contact the Radiant Imaging Sales staff for camera recommendations specific to your application.



Color Radar Plot



3-D Iso-Plot



Cross Section of Diffraction Foil