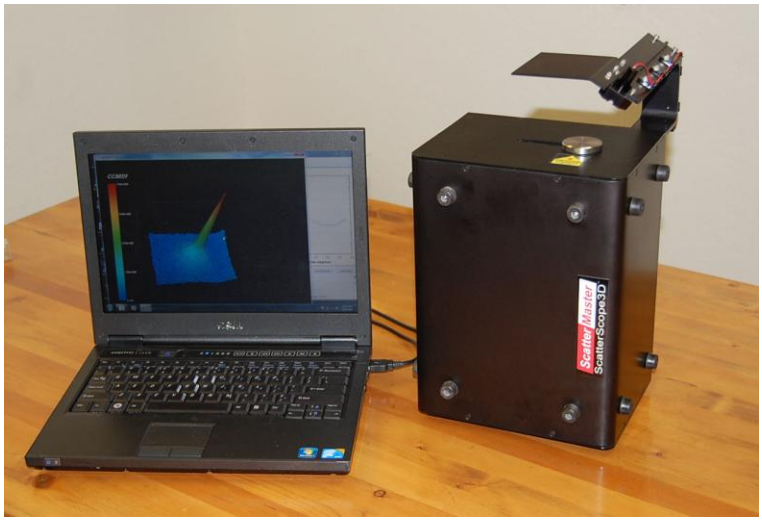
ScatterScope3D™ Overview

ScatterScope3D measures and records sample scatter in about a 40 degree area surrounding the reflected (or transmitted) specular beam. Results are displayed as user selectable profiles, color related intensity plots or as a three dimensional simulation in BSDF units as shown below on the computer screen. The system is compatible with forthcoming SEMI Standards. An increasing number of analysis tools are being developed to handle the data. The system is powered through the USB port of the provided laptop.



ScatterMaster3D™ Scatter Analysis Software:

The ScatterScope Systems includes a laptop computer preloaded with the ScatterMaster Scatter Analysis Software. The ScatterScope3D requires this software to function and this software will only function when a ScatterScope3D Scatterometer is connected to the computer.

Menu Commands

File>Open - Open a saved scatter analysis (.s3di) file
File>Save - Save the existing scatter analysis to a (.s3di) file
File->Exit - Terminate the program

Settings>Periodic Calibration - Guides the user through the periodic calibration procedure using a calibrated Lambertian diffuse material (such as Spectralon®)

Reports->Generate Report - Automatically export images of 2D, 2D slice, and 3D scatter profile as well as a summary html file to a specified directory. The results can be viewed in any web browser (Internet Explorer, Firefox, etc…).

Reports->Save Polar Data to CSV File - Save the scatter data in polar coordinates to a comma separated values (CSV) file. This file can be opened and processed by any text editor or spreadsheet (i.e. Excel). It is an open format that can be imported by a variety of 3rd party analysis software including TracePro's BSDF converter utility.

ScatterScope3D Specifications

Mechanical	
Weight	10 lbs
Dimensions w/o computer	11" L, 8.25" W, 6" H
Electrical Requirements	
Computer	120 to 240 VAC typical
System	USB port to computer
Optical	
Measurement Lasers	635 nm wavelength, less than 1.0 mW power
Viewing LED	Allows reflective sample area to be viewed.
Software	
ScatterMaster	Compatible with XP, Vista and Windows 7.
Measurement and Analysis	
Illuminated Area	4.5 mm diameter circle.
Measurement Time	16 to 28 seconds – depending on dark level setting
Dynamic Range	$10^6/1$
Noise	Varies from 10^{-2}/sr to 10^{-3}/sr by angle
Uncertainty	+/-10% for diffuse reflectors
Repeatability	+/-5% when 10X or more above the noise floor
Analysis	HTML reports are generated automatically.
Data Storage	
Numerical Results	Stored in CSV text files (compatible with Excel)
Pictures	Stored in jpg, tif format

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