FSSC—FLASH SOLAR SIMULATOR CONCENTRATOR

Features

- Class AAA Solar Simulator
- Intensity levels up to 4000 suns
- <2% Non-uniformity
- Compact Design
- Lamp life > 10,000 flashes

Applications

- Solar Simulation
- Concentrated photovoltaics
- Characterization of high power photovoltaics (triple junction cells)
- Accelerated exposure testing

SCIENCETECH

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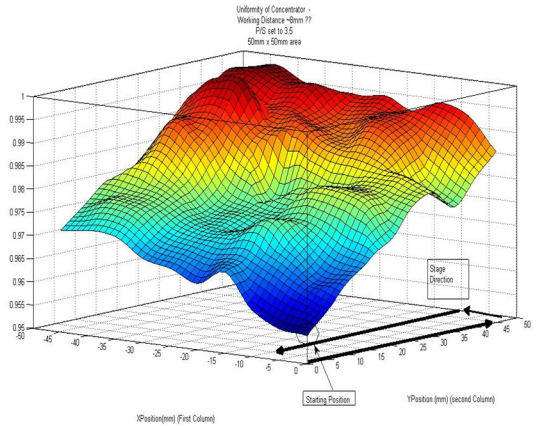
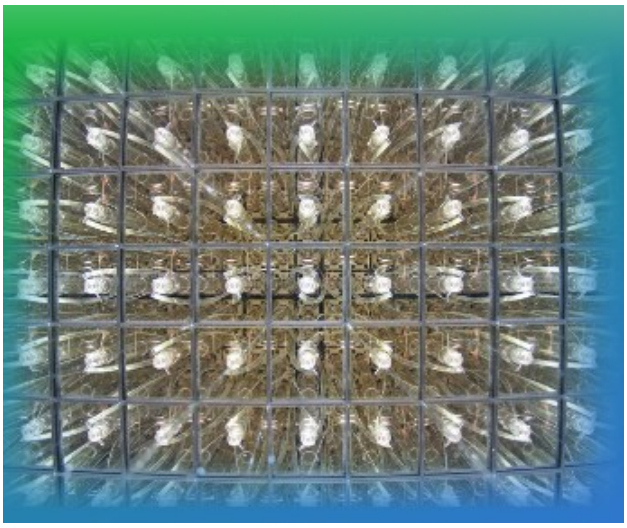


A typical Non-uniformity measurement. Graph is interpolated from 64 measurements over a 5c mx5cm area. The data indicates a non-uniformity of 1.87%

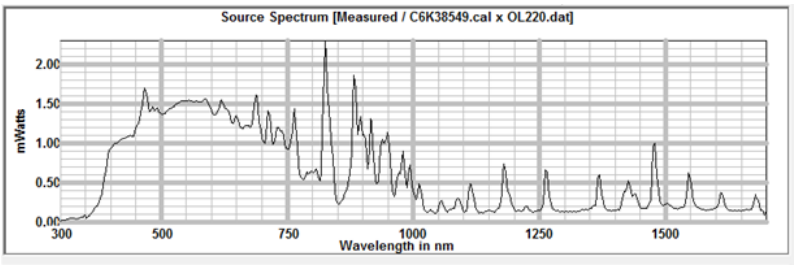


Sciencetech's solar simulator concentrator (FSSC) is a compact and robust source of very high intensity solar irradiance with a very small degree of non-uniformity. Sciencetech's proprietary homogenization technique allows the FSSC to achieve industry best uniformity and power levels.

The FSSC can be used to characterize solar cells and other devices up to 5cm x 5cm in size. Irradiance may be set by power control in 50 steps from 225 to 4000 suns

With a Sciencetech FSSC solar filter the unit matches class AM1.5D ASTM spectral standards

Wavelength Band (nm)	FSSC Measurement (%, with AM1.5D Filter)	Air Mass 1.5D ideal spectral match (%)
400-500	15.1	14.2
500-600	18.0	16.4
600-700	16.1	15.4
700-800	11.7	12.7
800-900	10.9	10.7
900-1100	11.5	13.9



Broad band spectral measurement of the FSSC

FSSC—FLASH SOLAR SIMULATOR CONCENTRATOR

SPECIFICATIONS

Model FSSC	
Illumination Intensity	From 225 to 4000 suns (lower concentration levels possible with ND filtering)
Illumination Intensity Reference	Built into homogenizer, 5.377uA/Sun 11.0mA typical @2000 Suns
Target Area	5cm x 5cm
Angle of Exit	50 % within 30 degrees, 47.5 degrees maximum angle
Non-Uniformity of Irradiance	<2% typical
Working Distance	From 1 to 7 mm (3mm typical)
Spectral Match	Class A AM1.5D typical
Spectral Adjustability	From AM1.0 to AM2.0 with different filters
Flash Duration	1mSec around peak (90% points), 2.2mSec at 50% points [t]
Minimum # of flashes per lamp	20,000 flashes typical @2000 suns , 100,000 flashes @ 400 suns *
Flash to Flash Repeatability	+/- 5%, +/- 3% typical **
Flash Interval	5 seconds typical , 2 seconds minimum
Energy Setting	75-2400 Joules (50 steps)
Dimensions (cm)	36 x 36 x 78
Dimensions including mounting frame (cm)	61 x 61 x 82

t Flash duration can be widened and profile flattened with appropriate power supply, peak power level will be reduced.
* Higher power settings can degrade lamp life more quickly
** flash to flash repeatability can be reduced below 2% with power supply modification

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