



FSSC—FLASH SOLAR SIMULATOR CONCENTRATOR



Features

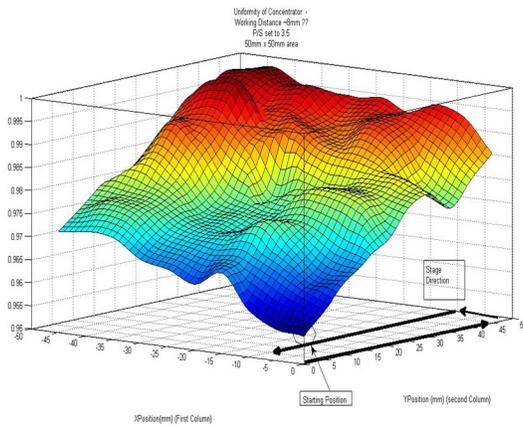
- Class AAA Solar Simulator
- Intensity levels up to 4000 suns
- <2% Non-uniformity
- Compact Design
- Lamp life > 10,000 flashes

Applications

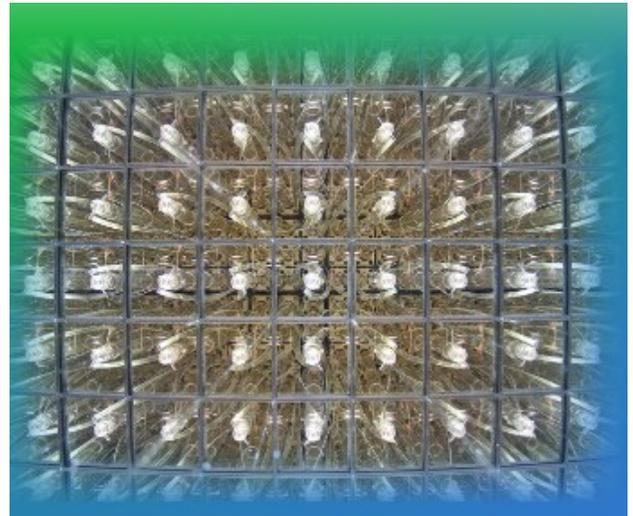
- Solar Simulation
- Concentrated photovoltaics
- Characterization of high power photovoltaics (triple junction cells)
- Accelerated exposure testing



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

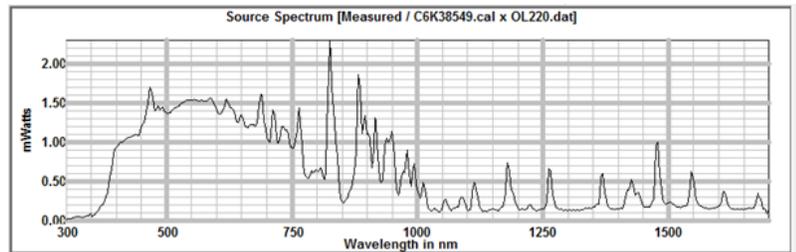


Sciencetech's solar simulator concentrator (FSSC) is a compact and robust source of very high intensity solar irradiance with a very small degree of non-uniformity. Sciencetech's proprietary homogenization technique allows the FSSC to achieve industry best uniformity and power levels.

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

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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 [†]
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

[†] 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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