



## UHE-15/16 ULTRA HIGH EFFICIENCY SOLAR SIMULATOR



### Features

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- **Industry's highest efficiency!**
- Inexpensive 150W light source
- Large working distance
- Compact design
- Adjustable target size

### Applications

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- Photovoltaic Testing
- Cosmetics Research and Evaluation
- Sunscreen Research and Testing
- Display Inspection



# ULTRA HIGH EFFICIENCY SOLAR SIMULATORS

Sciencetech is proud to offer our new line of :

## Ultra-High Efficiency solar simulators

Building on our existing Fully Reflective design, but optimized for greater illumination sizes and more power on target.

Our UHE solar simulators use a completely new design for the beam homogenizer, the UHE systems are capable of maintaining Sciencetech's proprietary "Fully Reflective" design maximizing ultraviolet light

Due to the low power draw, compact size, and light weight design, the UHE are perfect for almost every application requiring small to medium size illumination targets. The compact nature of the system allows Sciencetech to provide top quality performance for a fraction of the cost of our competition.

The UHE comes standard with a downward facing stand. Each UHE Includes an internal power supply.



# SCIENCETECH



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# ULTRA HIGH EFFICIENCY SOLAR SIMULATORS

## UHE-15/16 SYSTEM CONFIGURATION

### UHE-15 SOLAR SIMULATORS

The UHE-15 can be configured for different working distances and target sizes depending on the level of non-uniformity and quality of spectral match that is required. See the table at right to choose a system configuration.

Model	UHE-15-A	UHE-15-I	UHE-15-II	UHE-15-III	UHE-15-IV
Spectral Match	A	A	A	C	C
Non-Uniformity	A	B	B	B	B
Target Size	7.6x7.6	12.7cm x 12.7cm	10cm x 10cm	16cmx16cm	12.7cmx12.7cm
Typical Working Distance	55cm	55cm	45cm	60cm	60cm
Air Mass Filter	AM1.5G/ AM1/AM2/ AM1.5D	AM1.5G/ AM1/AM2/ AM1.5D	AM0	AM1.5G/ AM1/AM2/ AM1.5D	AM0

### UHE-16 SOLAR SIMULATORS

The UHE-16 is Sciencetechs state of the art solar simulator. The UHE-16 is capable of achieving an industry best AAA classification and illuminate a 15.2x15.2cm target size (6"x6") using only a 150W Xenon short arc lamp. If AM0 light is required the target size is reduced to 12.7x12.7cm (5"x5").



Model	UHE-16-A	UHE-16-A-0
Spectral Match	A	A
Non-Uniformity	A	A
Target Size	15.2cmx15.2cm	12.7cmx12.7cm
Typical Working Distance	58cm	55cm
Air Mass Filter	AM1.5G/AM1/AM2/AM1.5D	AM0



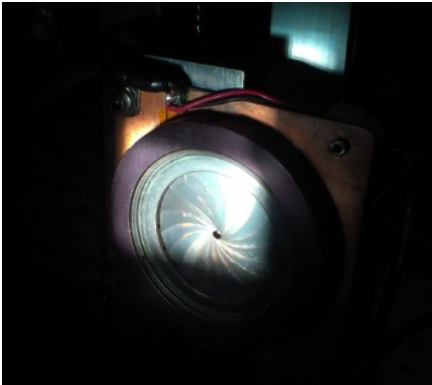
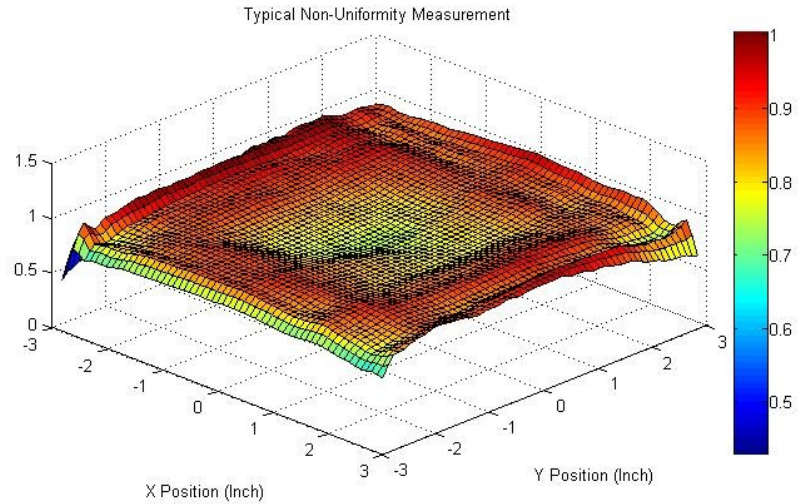
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## SOLAR SIMULATOR VALIDATION

### NON UNIFORMITY MEASUREMENT

Non-Uniformity is measured using a 2-axis motorized stage. A labview program instructs the stage to move a silicon detector (with adjustable aperture) over a 36 point grid in either a circular or square pattern as required. The detector is a monocrystalline silicon cell loaded with a high precision 1ohm resistor. The effective short circuit current of the cell is measured at each position by measuring the produced voltage across the high precision resistor. To compensate for small temporal variations in signal level measurements at any one position are averaged for up to 10 seconds before moving to the next position.



### INSTRUMENT VALIDATION

To measure non-uniformity a two-axis stage with silicon detector and adjustable iris is used. Each axis of the stage has sub mm precision allowing for precise position control during measurements. The two axis stage removes human error associated with detector positioning.

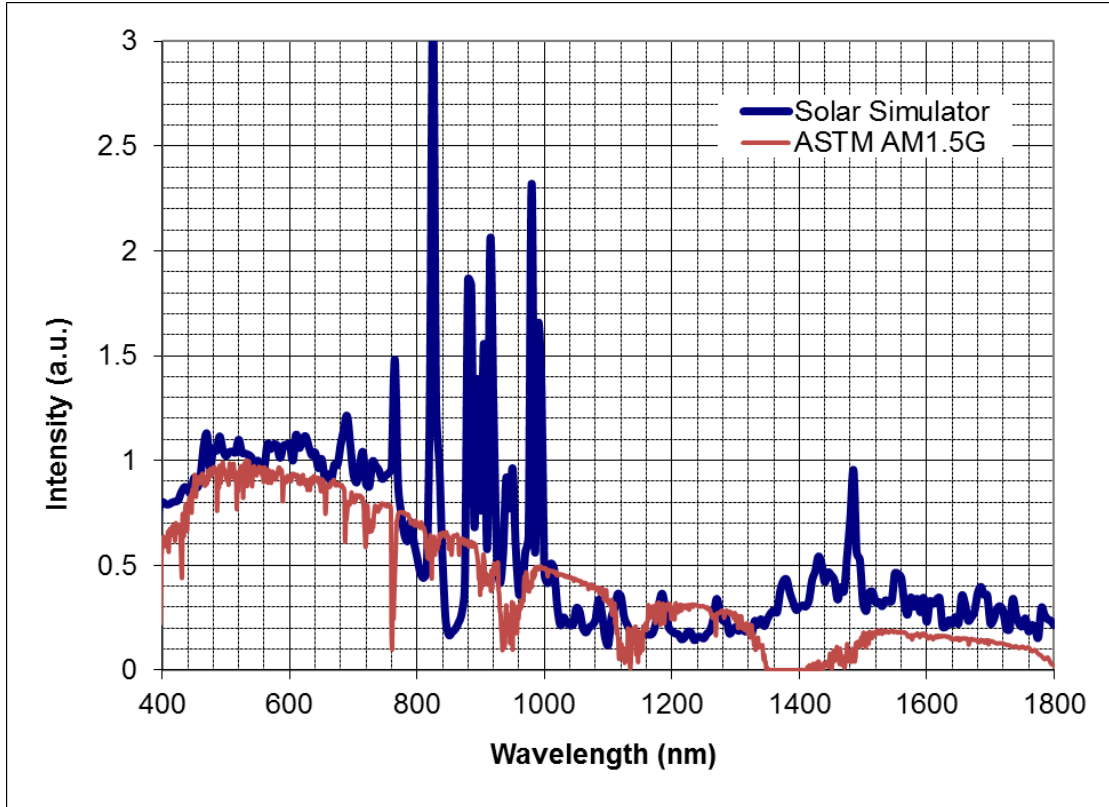
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## SPECTRAL MATCH



### CLASS A SPECTRAL MATCH

Sciencetech UHE solar simulators can match class A ASTM, IEC and JIS solar simulator standards. A number of air mass filters are available for UHE solar simulators giving you the capability to customize the instrument for your requirements. In addition to spectral match filters you can also add intensity filters and other spectral filters like UV and IR blocking filters.

Range (nm)	ASTM AM 1.5G	UHE—15/16 with AM1.5G
400-500	18.40%	15.6%
500-600	19.90%	17.7%
600-700	18.40%	17.4%
700-800	14.90%	15.6%
800-900	12.50%	15.1%
900-1100	15.90%	18.5%

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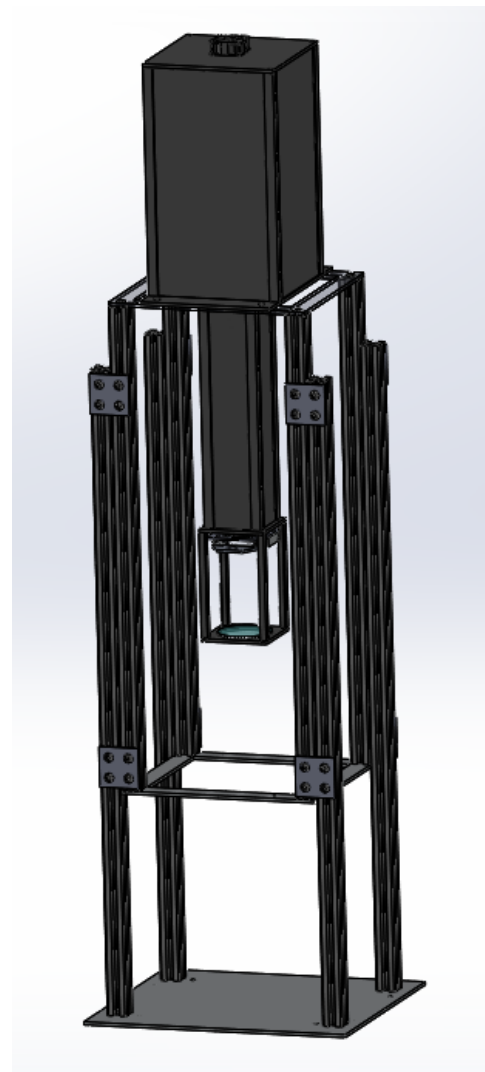
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# ULTRA HIGH EFFICIENCY SOLAR SIMULATORS

## SPECIFICATIONS

Model	UHE-15/16
Spectral Match*	Up to Class A available
Non-Uniformity*	Up to Class A available
Temporal Stability*	Up to Class A available
Air Mass Filters Available	AM0, AM1.5G, AM1.5D, AM1, AM2
Working Distance**, <sup>t</sup>	See product confirmation
Collimation Angle**, <sup>t</sup>	5 deg, half angle
Target Size**, <sup>t</sup>	See product configuration
Lamp Type	150W Xenon
Lamp Life	1000 hours (average)
Lamp Typical Voltage, Current	17-21V, 7.5A
Lamp Cooling	Forced Air
Input Voltage / Current	110-220V / 3 A
Recommended environment	Temperature 10-35 C , Humidity 20-80% * Avoid Condensation
Dimensions (hxwxd) <sup>t</sup>	105cm x 36cm x 26cm
Dimensions with stand (hxwxd) <sup>t</sup>	160cm x 46cm x 51cm
Weight	15kg
Weight (with stand)	35kg



UHE-15/16 with stand

\* Classification based on ASTM E927-05 standard. Matches to IEC and JIS standards available upon request.

\*\* Larger or smaller target sizes are configurable with changes to working distance and intensity level

<sup>t</sup> Specifications reported are typical values and may vary from system to system

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