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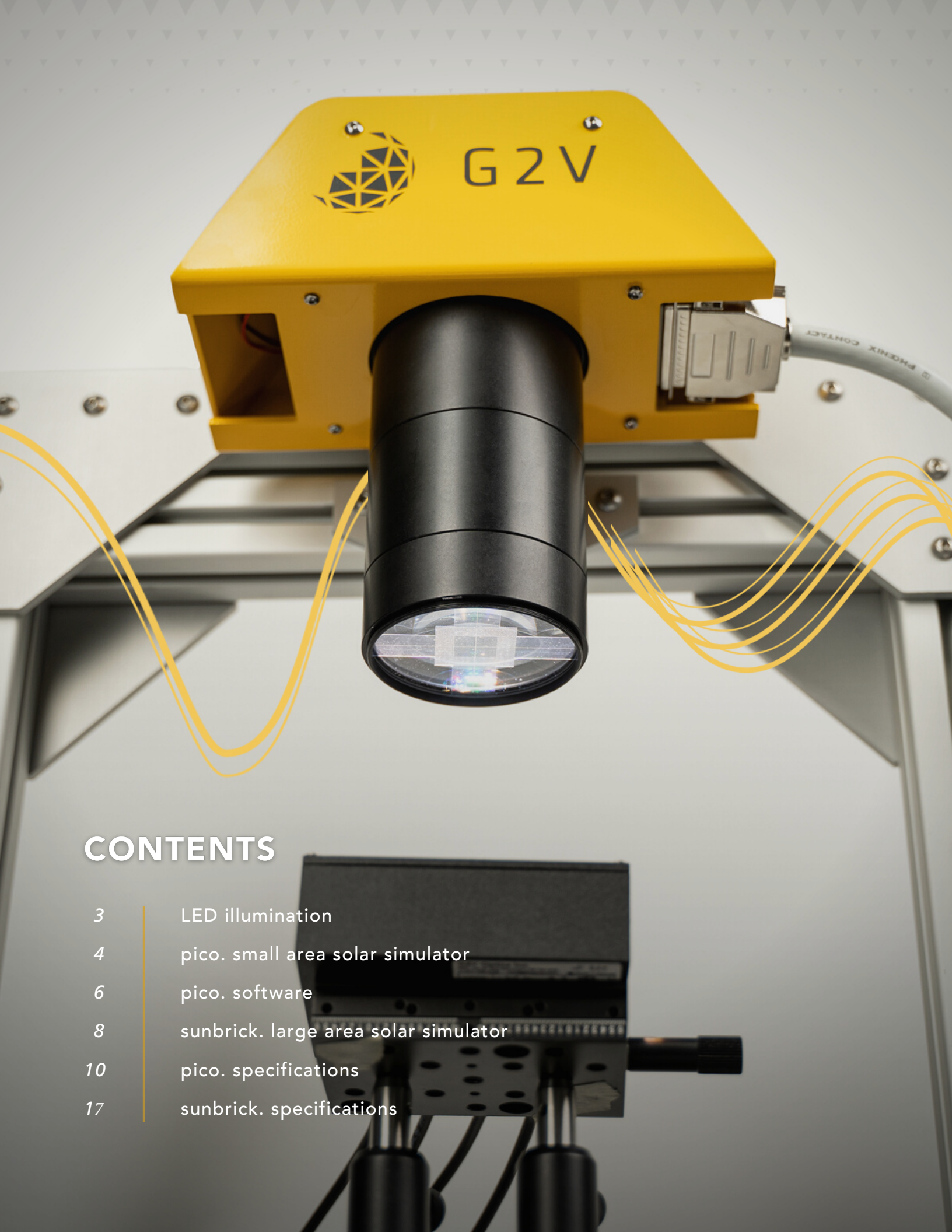
G2V

ENGINEER THE SUN

LED SOLAR SIMULATION

Class AAA Engineered Sunlight™

The World's Most Configurable Solar Replication



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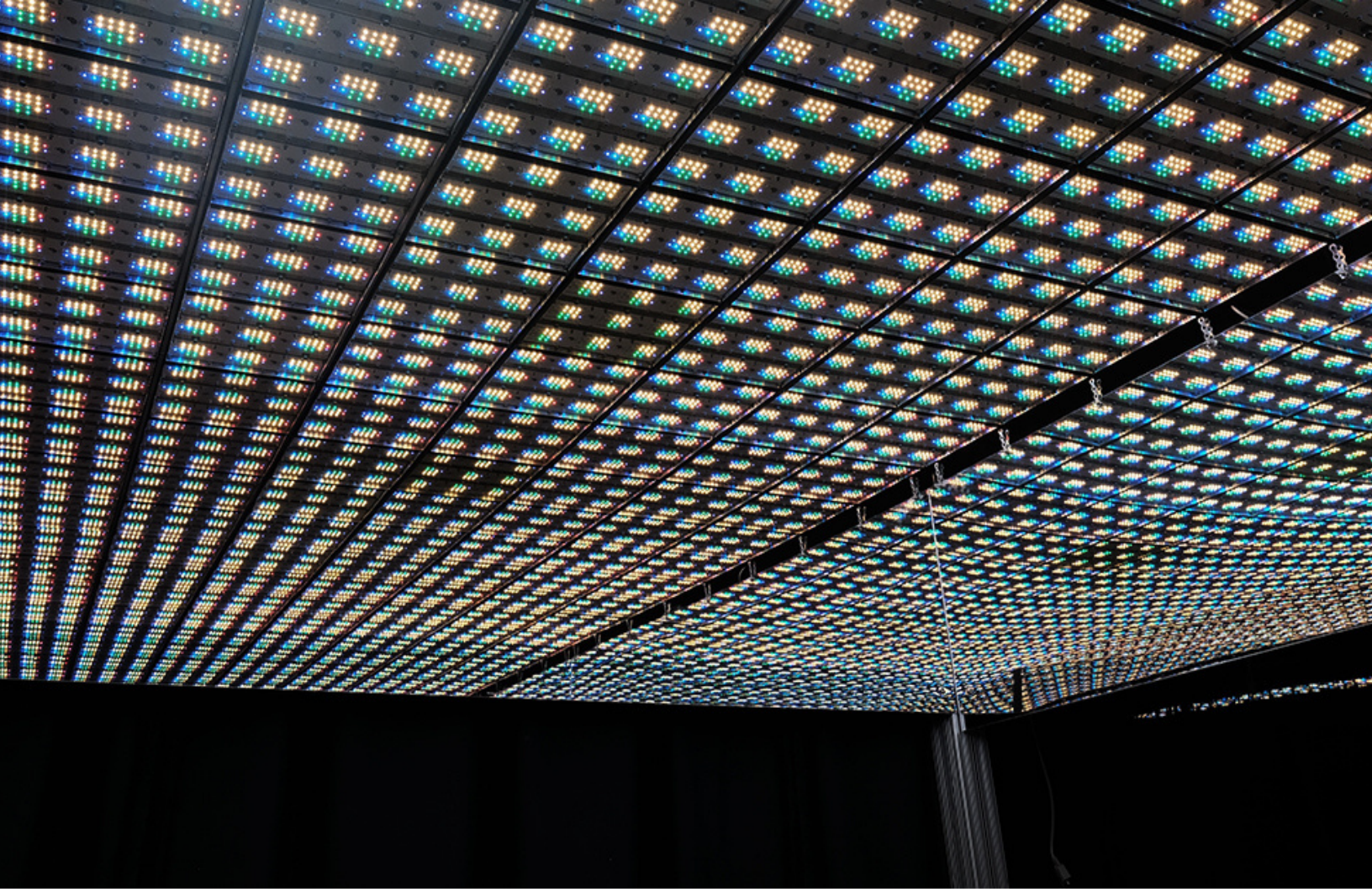


BENEFITS OF
LED ILLUMINATION

Minimal warm-up time

No bulb replacement

No explosive bulb failure

No manual calibration

LEDs are solid-state devices that require minimal maintenance, nor do they have the hazards related to pressurized gas lamps.

LED solar simulators provide enhanced functionality including dynamic output that enables a greater breadth of research capabilities in a wide variety of fields such as solar energy (photovoltaics), aerospace, photochemistry, material testing, wearables, and more.

SMALL AREA **SOLAR SIMULATION**

G2V has crafted the Pico to provide truly controllable illumination, complete with software-controlled spectra, traceable calibration, all with no bulbs, filters, or moving parts. Our Pico solar simulator can replicate any terrestrial or extraterrestrial solar spectrum including AM1.5G, and AM0 – AM40. It can also account for geography, season, and specific times of day with our One-Click Sun™ proprietary software.

Directed Optics

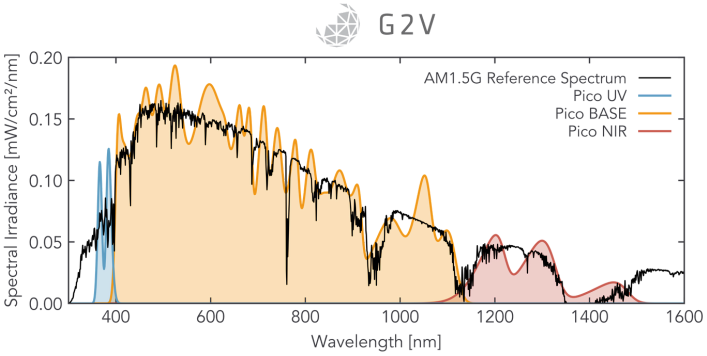
CLASS **AAA**

The standards that govern solar simulation are JIS C 8904-9, IEC 60904-9, and ASTM-E927, and are used to determine the quality and accuracy of a solar simulator's illumination.

Class A Spectral Match

The spectral match is a measure of accuracy between the output of a solar simulator and a target spectra. It is evaluated using the amount of light produced within specific wavelength bands compared to the standard spectra and reported as a "spectral mismatch".

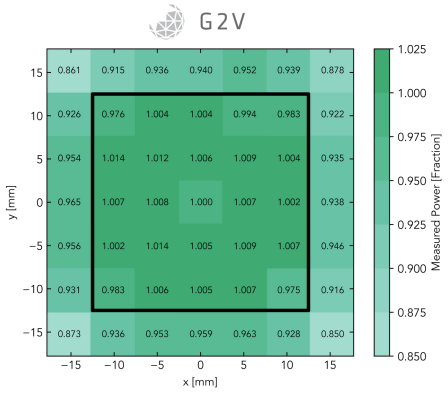
All G2V Pico models produce a AM1.5G spectral mismatch < 5%, exceeding the ASTM E927 Class A standard by a factor of 5x.



Class A Spatial Non-Uniformity

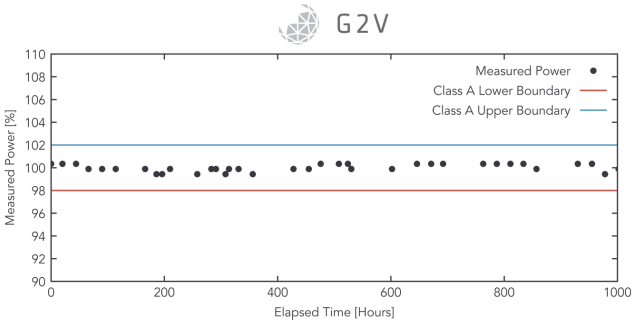
Spatial non-uniformity describes the distribution and consistency of irradiance over an area. It is calculated from the difference of the maximum and minimum irradiance values in an area.

With a Pico, you receive one sun-equivalent irradiance with a spatial non-uniformity < 2% in a 2.5 cm x 2.5 cm square area.



Class A Temporal Instability

Temporal instability measures the consistency of light output over a period of time. The Pico's short-term temporal instability (STI) (over 100 seconds) is < 0.1%, and its long-term temporal instability (LTI) (over 1000 hours) is < 2%, exceeding IEC 60904-9 Class A requirements for STI and LTI, as well as the general Class A temporal instability requirements of ASTM E927 and JIS C 8904-9.



SOFTWARE CONTROLLED
solar simulation for pico.

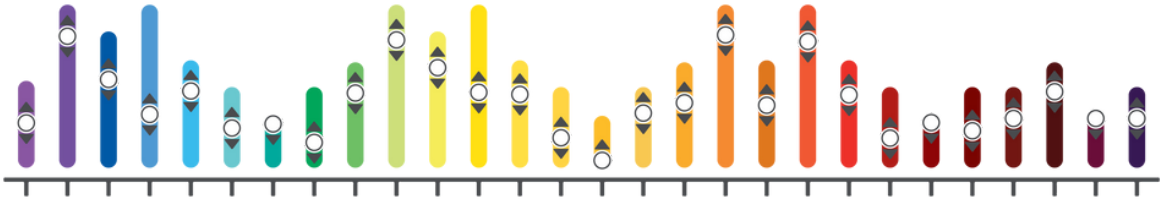
IV UPGRADE MODULE

Offering plug-and-play power conversion efficiency measurement and report generation for solar cell characterization, the IV Module includes software as well as an integrated source-meter unit (providing between -13 V and +13 V with 16 bit resolution, and between -30 mA and +30 mA with 4 µA resolution). The IV Module seeks measurement precision, as the module seeks your target voltage through an iterative process until converging and generating a high-accuracy IV pair. Automated analytical approximations fit the data and then report key solar cell parameters.

LOW-RESOLUTION EQE UPGRADE MODULE

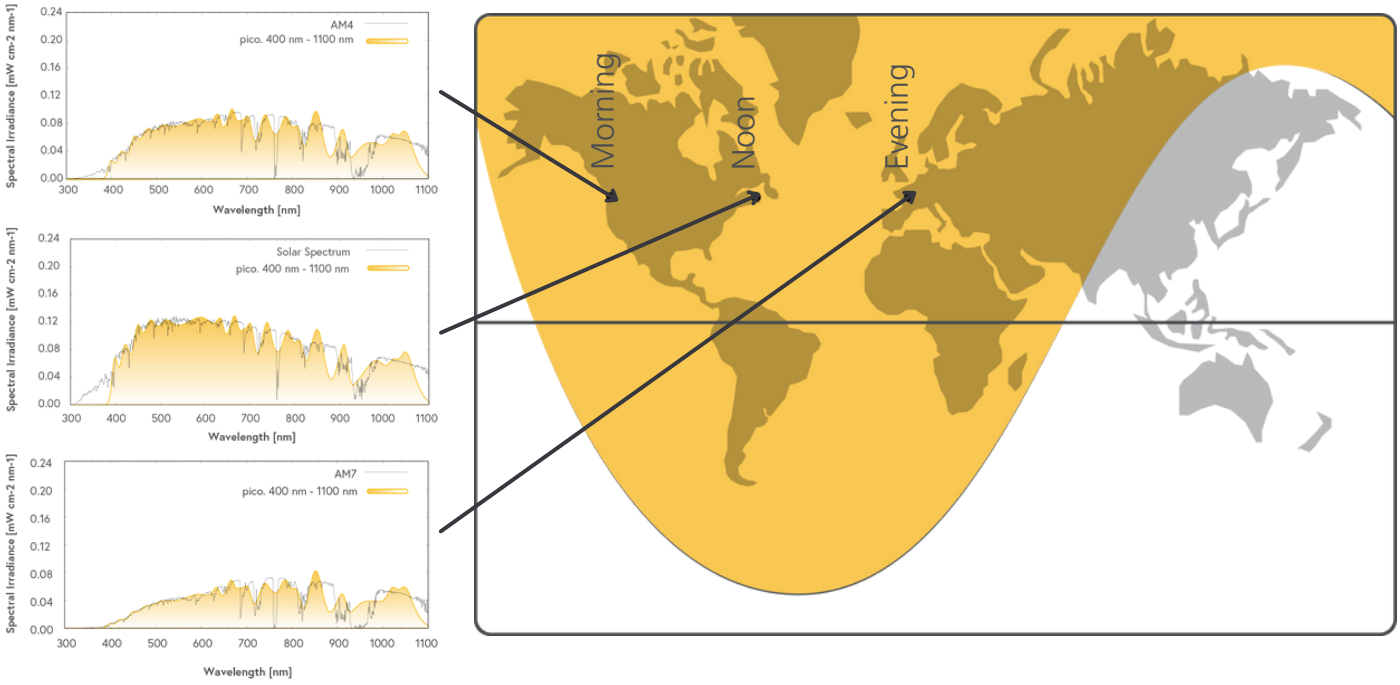
The low-resolution EQE provides wavelength-resolved measurements of your solar cell's performance under active conditions, with individual narrow-band LEDs providing arbitrary perturbation strength. Run with a low-noise variable-gain amplifier with variable integration time, the module can detect and amplify device currents over 16,000x.

VARIABLE UPGRADE MODULE

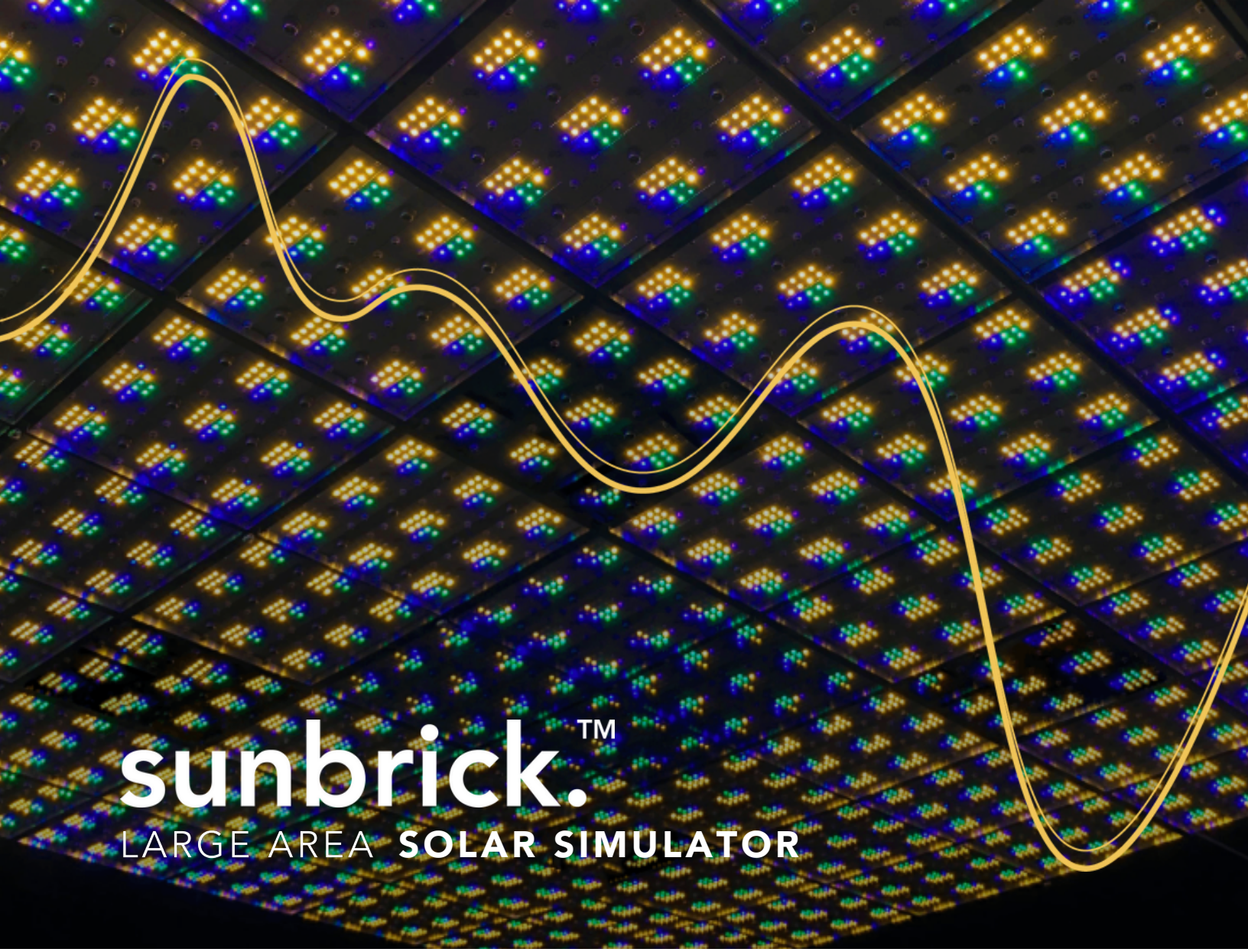


Enables complete programmable intensity control with up to 32 tunable channels for arbitrary spectral design. Load programmable spectral presets from AM0-AM10, and AM1.5G. Enjoy the freedom to save, download, and load your own spectral functions.

ONE-CLICK SUN



One-Click Sun™ software enables users to replicate irradiance and spectrum based on geography, season, and time of day. Our software was crafted to be simple, accurate, and easily configurable. Select any point in the world to within 1° Latitude/Longitude, and let our software simulate a realistic day-night cycle, at up to 500x regular speed.



sunbrick.™

LARGE AREA **SOLAR SIMULATOR**

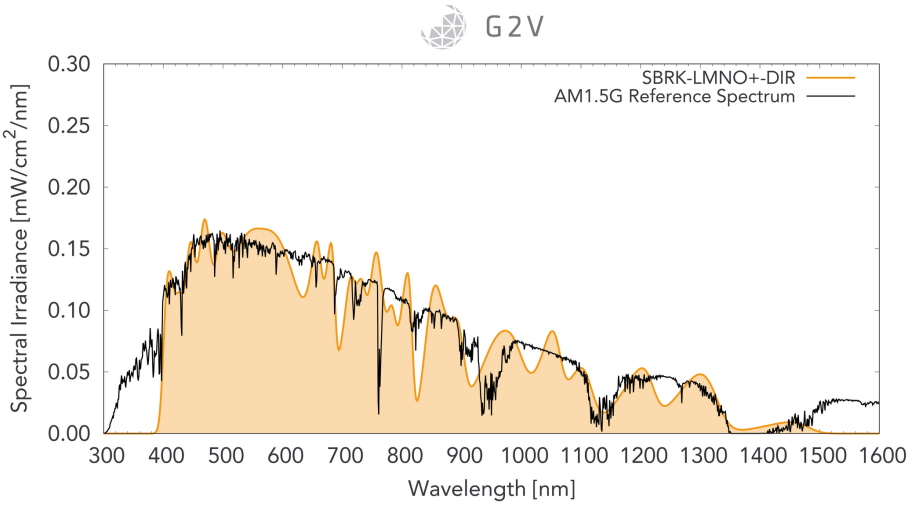
THE SUNBRICK MAKES LARGE-AREA SOLAR SIMULATION **QUICK & EASY**

With world-class controllable illumination, software-controlled spectra and traceable calibration—all with no bulbs or filters.

The Sunbrick can accommodate a wide range of applications with its modular design, allowing Sunbrick arrays to be mounted in a grid pattern to provide high-quality solar replication over very large areas.

The Sunbrick outshines the competition through its exceptional light quality, durability, ease of use, and ability to integrate into the most advanced research.

EXCEEDING **CLASS A**



Sunbrick offers users a high precision spectral mismatch of < 5%, exceeding the ASTM-E927 Class A standard by a factor of 5x.

MODULAR SCALABILITY

With its innovative tileable design, the Sunbrick is scalable to whatever illumination area you require. Each brick illuminates a Class A uniform 20 cm x 20 cm area at a 50 cm working distance.

Multiple Sunbricks are easily mounted and networked together in arrays to provide illumination as large as required.

A 4-brick array (2x2) provides a solution for a 40 cm x 40 cm Class A area, with even larger custom configurations available.

CUSTOM

Configurations available

The Class AAA Pico LED small-area solar simulator provides world-class sunlight replication with no fragile bulbs or moving parts. The Pico can replicate the standard AM1.5G solar spectrum with the click of a button. The Pico has excellent 2% Class A spatial non-uniformity, exceptionally low 5% spectral mismatch, and a short-term temporal instability of 0.1%, all in a 2.5 cm x 2.5 cm square illumination area. Minimal warm-up time and long LED lifetimes mean the Pico is both nimble and built to last. Its working distance of 7 cm provides you with ample volume to mount your samples and test equipment, while its small footprint allows it to be comfortably integrated into existing test setups.

The Fixed Pico ships with the AM1.5G spectrum, while the optional Variable Spectrum Module provides the ability to customize spectra through the individual adjustment of 32 LED channels. The Variable Spectrum Module also includes the One-Click-Sun™ (beta) Software which replicates sunlight based on geographic location, season, and time of day, and can simulate day-night cycles.

Additional modules provide the ability to measure photovoltaic IV characteristics and obtain low-resolution EQE measurements, removing the need to integrate separate measurement systems and instrumentation.

Features and Benefits

- Rated Class AAA according to IEC60904-9:2020, ASTM E927-19, JIS 8904-9:2017 standards
- Spectral Mismatch <5% in all spectral bins, exceeding Class A standard
- Temporal instability of <0.1%, exceeding Class A standard
- Class A spatial non-uniformity in 2.5 cm x 2.5 cm square area
- Fast turn on time, minimal warmup time
- Guaranteed 10,000-hour solar simulator lifetime (with LED lifetime ranging from 10,000 – 100,000 hours)

Optional Modules

- **Variable Module:** Enables variable output from 0% to 110% and individual control of up to 32 LED channels. Includes One-Click-Sun™ (beta) Software and Python API
- **IV Module:** Power conversion efficiency measurement and report generation for solar cell characterization
- **Low-Resolution EQE Module:** Provides wavelength-resolved measurements of your device's quantum efficiency under active conditions
- **Support Stand:** Strong aluminium structure that mounts your Pico with vertical alignment

Pico Solar Simulator

Parameter	Value	Units	Notes
Type of Solar Simulator	Steady-State	N/A	Uses Continuous-Wave light emitting diodes (LEDs)
Mounting Configuration	Two 1/4"-20-threaded holes separated by 4" (imperial model)	N/A	OR two M6-threaded holes separated by 100 mm (metric model). Arbitrary orientation possible.
Spectral Preset	AM1.5G	N/A	
Spectral Mismatch [1]	≤ 5	%	Exceeds Class A
Short-term Temporal Instability (STI) [2]	≤ 0.1	%	Exceeds Class A
Long-term Temporal Instability (LTI) [3]	≤ 2	%	Exceeds Class A
Spatial Non-Uniformity [4]	≤ 2	%	Class A in 2.5 cm x 2.5 cm square area centered in beam [4]
Warm-up Time	10	minutes	
Calibrated Operating Temperature	18 - 32	ºC	Range over which calibrated behaviour is expected
Safe Operating Temperature	15 – 40	ºC	Range beyond which the instrument may be damaged or lose calibration
Ambient % Relative Humidity	30 – 60	%	Humidity range beyond which the instrument may be damaged or lose calibration
Standard Compliance	Class AAA to IEC60904-9:2020 Class AAA to ASTM E927-19 Class AAA to JIS C 8904-9:2017	N/A	1.0 sun AM1.5G
Unit Lifetime	10,000	hours	LED lifetime ranges from 10,000 – 100,000 hours
Warranty	2	years	Optional extension available

Parameter	Product Model				Units	Notes
Product Name	DIR-BASE	DIR-BASE-UV	DIR-BASE-NIR	DIR-BASE-UV-NIR		
Product SKU	PICO-LMN-DIR	PICO-KLMN-DIR	PICO-LMNO-DIR	PICO-KLMNO-DIR		
Calibrated Irradiance [5]	75.9 ± 3.8	79.1 ± 4.0	84.7 ± 4.2	87.9 ± 4.4	mW/cm²	1.0 sun AM1.5G target irradiance
Spectral Range	400 – 1100	350 – 1100	400 – 1500	350 – 1500	nm	
Working Distance	7	7	7	7	cm	
Angle of Emission	≤ 30	≤ 30	≤ 30	≤ 30	º	Measured from surface normal
Wavelength Channels	26	28	30	32	N/A	Adjustable channels only available with Variable Module. Some LED types may be duplicated
Illumination Head Size	21.5 x 22.3 x 11.6	21.5 x 22.3 x 11.6	21.5 x 22.3 x 11.6	21.5 x 22.3 x 11.6	cm	

[1] Spectral Mismatch measured at 1.0 sun AM1.5G using calibrated spectroradiometer centered in illumination field, according to ASTM E927-19 spectral bins.

[2] STI measured at 25 ºC for 100 seconds at 1 Hz, at 1.0 sun AM1.5G using 22 mm x 7 mm monocrystalline silicon cell in single-device configuration, physically masked to a 6 mm x 6 mm square area, centered in illumination field. STI calculated using Equation (1) from ASTM E927-19 Section 7.1.7.

[3] LTI measured between 22.9 - 28.6 ºC for 3000 hours at 1 sample/day at 1.0 sun AM1.5G using same silicon cell as in STI measurement, centered in illumination field. LTI calculated using Equation (1) from ASTM E927-19 Section 7.1.7. Measurement fluctuations are primarily correlated with room temperature fluctuations.

[4] Spatial Non-uniformity measured at 1.0 sun AM1.5G using 22 mm x 7 mm monocrystalline silicon cell in single-device configuration, physically masked to a 6 mm x 6 mm square area. Detector is moved in 25 square-grid measurements across the illumination plane. Non-uniformity calculated using Equation (2) from ASTM E927-19 Section 7.2.9.

[5] These values are equivalent to the often-quoted 100 mW/cm² standard value for 1-sun solar simulators. For more information, see our article explaining calibrated spectral irradiance.

Head Weight	2.2	2.2	2.2	2.2	kg	

Pico Control Box

Parameter	Value	Units	Notes
Size	25.4 x 35.6 x 12.7	cm	
Weight	2.8	kg	6.2 lbs
Materials	Powder-coated aluminium	N/A	
Embedded Computer	Raspberry Pi running Linux-based Raspbian OS	N/A	
Video Out	HDMI	N/A	
I/O Connectors	4 x USB-2.0	N/A	
Software Compatibility	Browser-based	N/A	For initial setup, USB keyboard, USB mouse and HDMI-capable monitor are required (not included)
Network Connectivity	RJ45, WiFi	N/A	Can be disabled during order fulfilment or via software after installation
Power Connector	Female DIN 4 Pin with lock (KYCON KPJX-CM-4S equivalent)	N/A	

Pico Power Supply

Parameter	Value	Units	Notes
Input voltage (AC)	85 – 264	V	AC
Input current	2 – 4	A	Varies with input voltage
Inrush current (max.)	95 – 120	A	Cold start, varies with input voltage
AC Phase	1	N/A	
AC Frequency	47 – 63	Hz	
Input AC Plug Set	Matched to buyer's national standard	N/A	
Input AC Receptacle	IEC320-C14	N/A	
Output Power	220	W	
Output Voltage	24	V	
Output DC Receptacle	Male DIN 4 Pin with lock (KYCON KPPX – 4P equivalent)	N/A	
Ambient operating temperature	-30 to +70	ºC	
Case Flammability	UL94-V0	N/A	
Size	21.0 x 8.5 x 4.6	cm	
Weight	1.1	kg	

Optional Modules

Pico Variable Module

Parameter	Value	Units	Notes
Type of Solar Simulator	Spectrally-adjustable, steady-state	N/A	Uses Continuous-Wave light emitting diodes (LEDs)
Intensity Adjustment Range	0 - 110	%	0.1 to 1.1 suns AM1.5G irradiance levels along with full off
Available Spectral Presets	0.1 to 1.1 suns AM1.5G in 0.1 sun increments	N/A	AM0 and custom spectra available upon request
Automation Capability	Through included Python API	N/A	
Stabilization Time Between Adjustments	10	minutes	For changing from 1.0 to 0.1 suns. Stabilization time for other situations will depend on magnitude of step change.
Required External Hardware (not included)	USB Keyboard, USB Mouse, HDMI-capable monitor	N/A	Connecting a Pico to a network allows access via browser by any computer on the network

IV Module

Parameter	Value	Units	Notes
Voltage Range	-13 to +13	VDC	
Voltage Step	0.4	mV	Highest resolution at lowest gain setting
Current Range	-30 to +30	mA	
Included Hardware	Silicon reference solar cell + cables	N/A	22 mm x 7 mm monocrystalline silicon cell
Required External Hardware (not included)	USB Keyboard, USB Mouse, HDMI-capable monitor	N/A	Connecting a Pico to a network allows access via browser by any computer on the network

Low-Resolution EQE Module

Parameter	Value	Units	Notes
Bias Voltage Range	-13 to +13	VDC	
Current Range	-30 to +30	mA	
Gain Settings	0.5, 1, 2, 4, 8	V/V	
Wavelength Resolution	10 to 200	nm	One data point provided per available LED channel, so resolution steps vary across the spectral range. White LEDs are excluded.
Included Hardware	Silicon reference photodiode + cables	N/A	
Required External Hardware (not included)	USB Keyboard, USB Mouse, HDMI-capable monitor	N/A	Connecting a Pico to a network allows access via browser by any computer on the network
Required External Hardware (not included)	USB Keyboard, USB Mouse, HDMI-capable monitor	N/A	Connecting a Pico to a network allows access via browser by any computer on the network

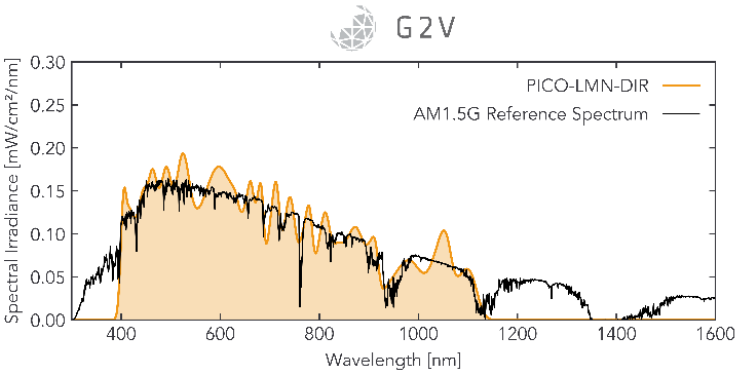
Support Stand

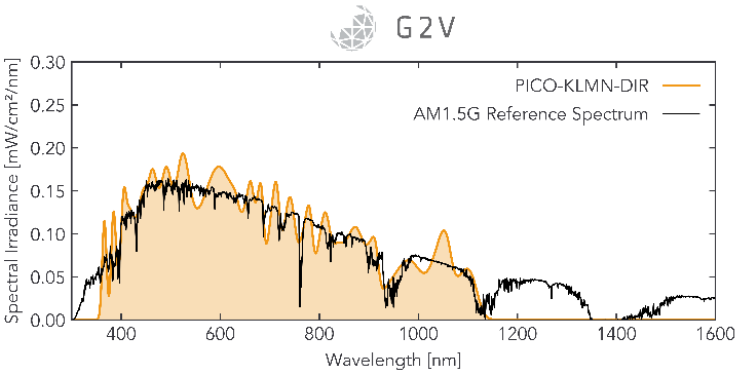
Parameter	Value	Units	Notes

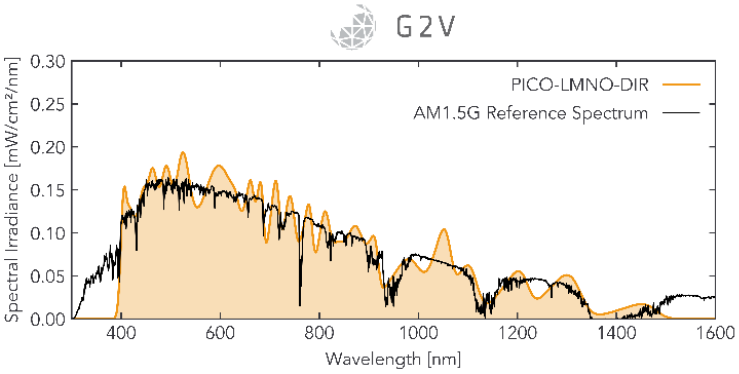
Size	44.5 x 44.5 x 49.0	cm	
Weight	22.5	kg	
Materials	Powder-coated aluminium, brushed aluminium	N/A	

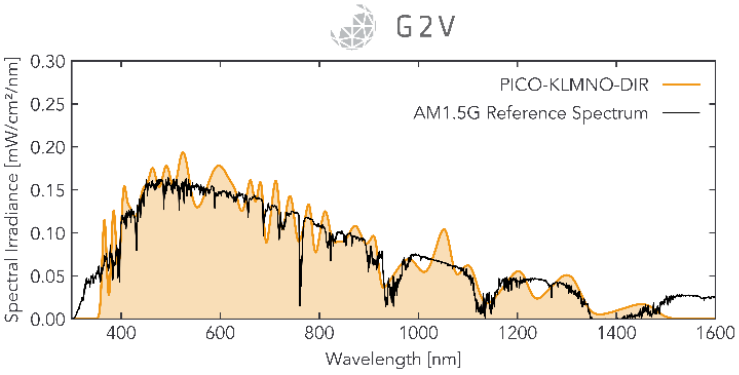
Spectra by Product Model

AM1.5G

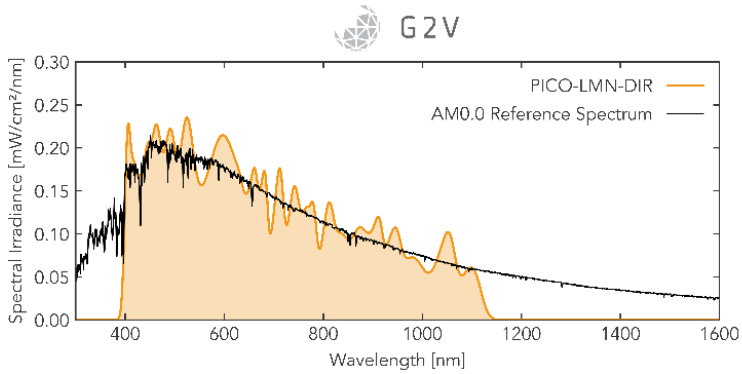


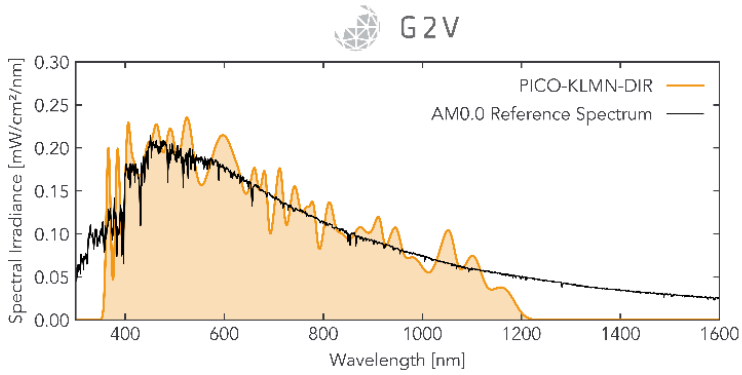


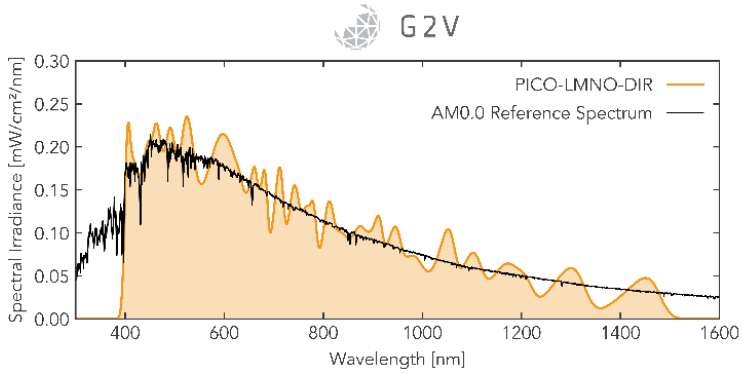


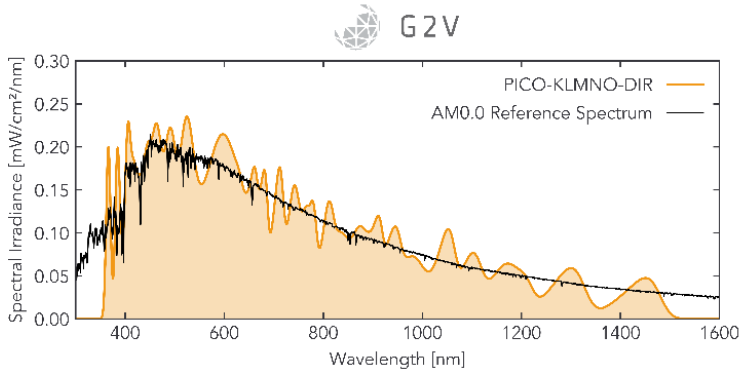


AM0

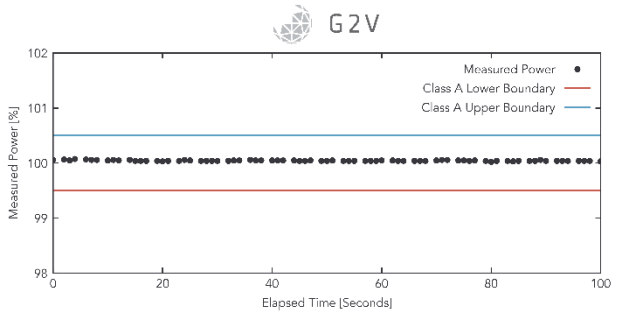






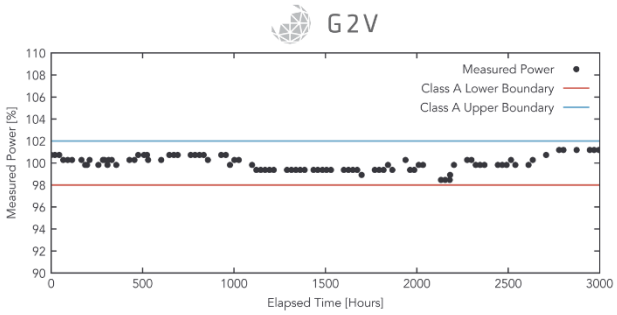


Short-Term Temporal Instability (STI)



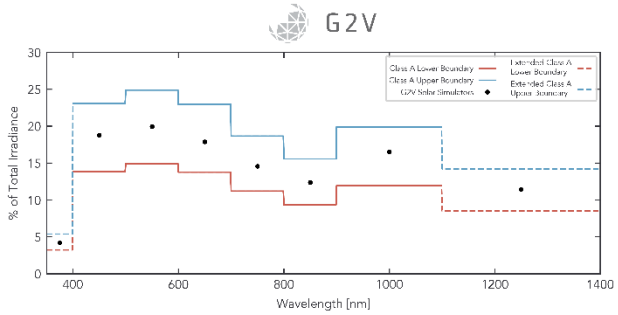
STI measured at 25 ºC for 100 seconds at ~1 Hz, at 1.0 sun AM1.5G using 22 mm x 7 mm monocrystalline silicon cell in single-device configuration, physically masked to a 6 mm x 6 mm square area, centered in illumination field. STI calculated using Equation (2) from IEC 60904-9:2020 Section 3.10.

Long-Term Temporal Instability (LTI)

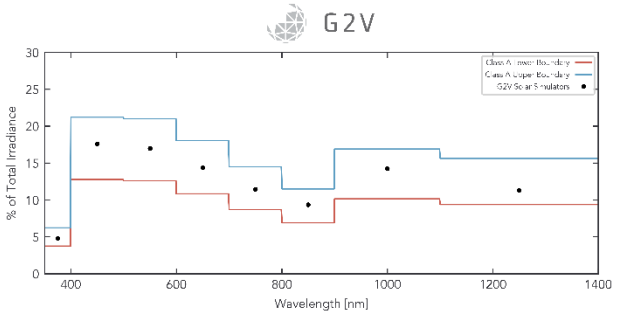


LTI measured between 22.9 - 28.6 ºC for 3000 hours at ~1 sample/day at 1.0 sun AM1.5G using 22 mm x 7 mm monocrystalline silicon cell in single-device configuration, physically masked to a 6 mm x 6 mm square area, centered in illumination field. LTI calculated using Equation (2) from IEC 60904-9:2020 Section 3.10. Measurement fluctuations are primarily correlated with room temperature fluctuations.

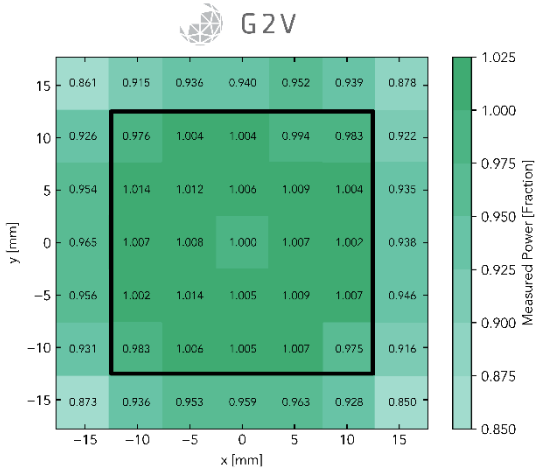
AM1.5G Spectral Mismatch



AM0 Spectral Mismatch



Spatial Non-Uniformity



Typical spatial non-uniformity measured at 1.0 sun AM1.5G using 22 mm x 7 mm monocrystalline silicon cell in single-device configuration, physically masked to a 6 mm x 6 mm square area. Detector is moved in 25 square-grid measurements across the illumination plane. Non-uniformity calculated using Equation (2) from ASTM E927-19 Section 7.2.9. Black box indicates area of Class A spatial non-uniformity (<2%).

The Class AAA Sunbrick LED large-area solar simulator provides world-class sunlight replication, complete with software-controlled spectra and traceable calibration—all with no fragile bulbs or moving parts.

The Sunbrick has a superior warm-up time compared to more common bulbs and can replicate the standard AM1.5G or AM0 solar spectra with the click of a button, allowing you to quickly start any experiment.

With its excellent 2% Class A spatial non-uniformity, low 5% spectral mismatch, and 0.1% short-term temporal instability, all certified within a 20 cm x 20 cm square illumination area, the Sunbrick can accommodate a wide range of applications.

And with its modular design, Sunbrick arrays can be mounted together in a grid pattern to provide its Class AAA quality solar replication over arbitrarily large areas.

Finally, Sunbrick provides the ability to customize spectra through the individual adjustment of up to 36 LED channels, allowing you to tune the spectrum as needed for your work.

Features and Benefits

- Rated Class AAA according to IEC60904-9:2020, ASTM E927-19, JIS 8904-9:2017 standards
- Spectral Mismatch <5% in all spectral bins, exceeding Class A standard
- Temporal instability of <0.5%, exceeding Class A standard
- Class A spatial non-uniformity in 20 cm x 20 cm square area for single unit and between tiled units
- Fast turn on time, minimal warmup time
- Guaranteed 10,000-hour solar simulator lifetime (with LED lifetime ranging from 10,000 – 100,000 hours)
- Variable output from 0% to 110% and individual control of up to 36 LED channels through software.
- Includes LabView DLL and Python API for automation and integration
- Modular design allows tiling up to arbitrary sizes (for example, a 4-Sunbrick array (2x2) provides a 40 cm x 40 cm Class A area)

Sunbrick Solar Simulator

Parameter	Value	Units	Notes
Type of Solar Simulator	Steady-State	N/A	Uses Continuous-Wave light emitting diodes (LEDs)
Mounting Configuration	Single or Tiled, mounted vertically in stand	N/A	
Spectral Mismatch [1]	≤ 5	%	Exceeds Class A
Short-term Temporal Instability (STI) [2]	≤ 0.5	%	Exceeds Class A
Long-term Temporal Instability (LTI) [3]	≤ 2	%	Exceeds Class A
Spatial Non-Uniformity [4]	≤ 2	%	Class A in 20 cm x 20 cm square centered in beam [4]
Angle of Emission	≤ 30	degrees	Measured from surface normal
Working Distance	50	cm	Co-planar with bottom edge of support stand mirrors
Intensity Adjustment Range	0 - 110	%	0.1 to 1.1 suns AM1.5G along with full off
Available Spectral Presets	0.1 to 1.1 suns AM1.5G in 0.1 sun increments	N/A	AM0 and custom spectra available upon request
Warm-up Time	10	Minutes	
Stabilization Time Between Adjustments	10	Minutes	For changing from 1.0 to 0.1 suns. Stabilization time depends on magnitude of step change.
Standard Compliance	Class AAA to IEC60904-9:2020, ASTM E927-19, JIS C 8904-9:2017	N/A	1.0 sun AM1.5G
Calibrated Operating Temperature	18 - 32	°C	Temperature range for calibrated behaviour
Safe Operating Temperature	15 – 40	°C	Temperature range beyond which the instrument may be damaged or lose calibration
Ambient % Relative Humidity	30 – 60	%	Humidity range beyond which the instrument may be damaged or lose calibration
Size	25 x 25 x 39	cm	Does not include support stand
Weight	10	kg	Does not include support stand
Unit Lifetime	10,000	Hours	LED lifetime ranges from 10,000 – 100,000 hours
Warranty	2	Years	Optional extension available
Automation Capability	Through included Python API and/or LabView DLL	N/A	
Software Compatibility	Windows 7 or later	N/A	
I/O Comm / Control Protocol	Serial	N/A	
I/O Comm Connector	Micro-USB B	N/A	
Network Connector	DB9, male	N/A	For forming Sunbrick arrays

[1] Spectral Mismatch measured at 1.0 sun AM1.5G using calibrated spectroradiometer centered in illumination field, according to ASTM E927-19 spectral bins.

[2] STI measured for 100 seconds at 1 Hz, at 1.0 sun AM1.5G using 22 mm x 7 mm monocrystalline silicon cell in single-device configuration centered in illumination field. Room temperature recorded for each measurement, and temperature coefficients are available. STI calculated using Equation (1) from ASTM E927-19 Section 7.1.7.

[3] LTI measured for 1000 hours at 1 sample/day at 1.0 sun AM1.5G using same silicon cell as in STI measurement, centered in illumination field. Room temperature recorded for each measurement, and temperature coefficients are available. LTI calculated using Equation (1) from ASTM E927-19 Section 7.1.7.

[4] Spatial Non-uniformity measured at 1.0 sun AM1.5G using a 12mm-aperture broadband thermopile with IR filter. Detector is moved in 64 square-grid measurements across the illumination plane, a 20 cm x 20 cm square area. Non-uniformity calculated using Equation (2) from ASTM E927-19 Section 7.2.9.

Included Hardware	Windows laptop with software, cabling and power supply	N/A	

Parameters that vary with Product Model

Parameter	Product Model				Units	Notes
Product Name	BASE	BASE-UV	BASE-NIR	BASE-NIR+		
Product SKU	SBRK-LMN	SBRK-KLMN+	SBRK-LMNO	SBRK-LMNO+		
Calibrated Output Irradiance [5]	75.9	82.3	84.7	84.7 ± 4.2	mW/cm²	1.0 sun AM1.5G target irradiance
Spectral Range	400 – 1100	350-1200	400 - 1500	400 – 1500	nm	
Irradiance Control Range	7.6 – 83.5	8.2 - 90.5	8.5 – 93.1	8.5 – 93.1	mW/cm²	0.1 – 1.1 suns AM1.5G
Wavelength Channels	34	35	29	36	N/A	

Sunbrick Power Supply

Parameter	Value	Units	Notes
Input voltage (AC)	90 – 250	V	AC
Input current	2.5 – 6.9	A	Varies with input voltage
Inrush current (max.)	70	A	Cold start, varies with input voltage
Input Power	625	W	
AC Phase	1	N/A	
AC Frequency	47 – 63	Hz	
Input AC Receptacle	IEC320-C14	N/A	UL 94-V2 or better
Output Power	600	W	
Output Voltage	48	V	
Output DC Receptacle	DB15	N/A	
Ambient operating temperature	0 – 40	°C	
Case Flammability	UL94-V0	N/A	
Size	36 x 20 x 17	cm	
Weight	2.5	kg	
Power Connector	DB15, male	N/A	

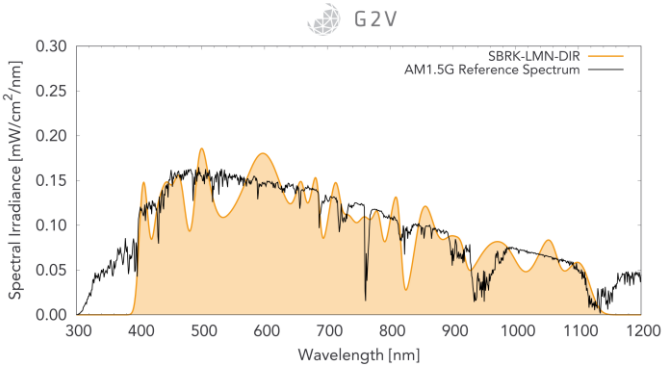
Single Sunbrick Support Stand

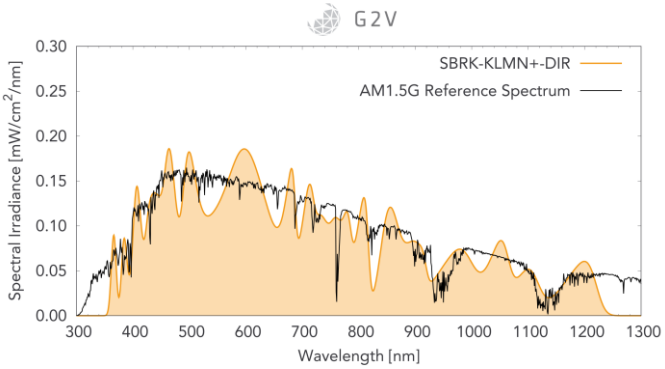
Parameter	Value		
Size	34 x 44 x 102	cm	
Weight	16.3	kg	
Materials	Powder-coated aluminium, brushed aluminium	N/A	

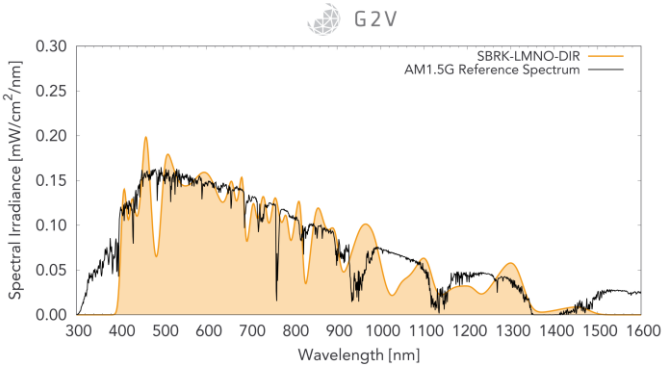
[5] These values are equivalent to the often-quoted 100 mW/cm² standard value for 1-sun solar simulators. For more information, see our article explaining calibrated spectral irradiance.

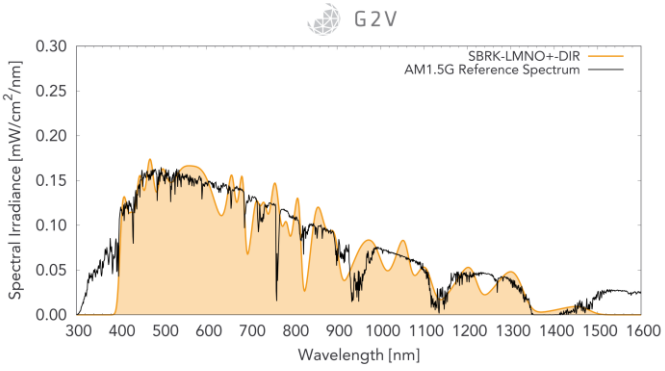
Spectra by Product Model

AM1.5G

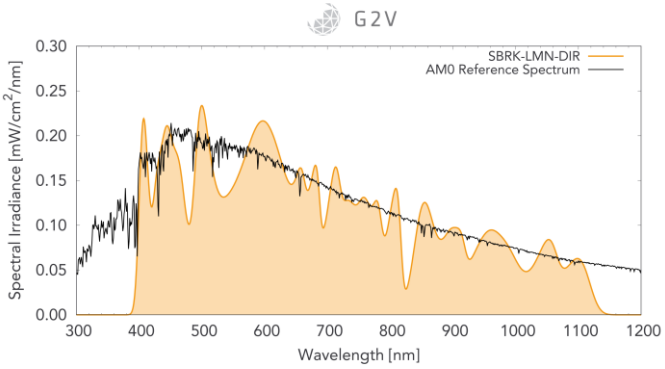


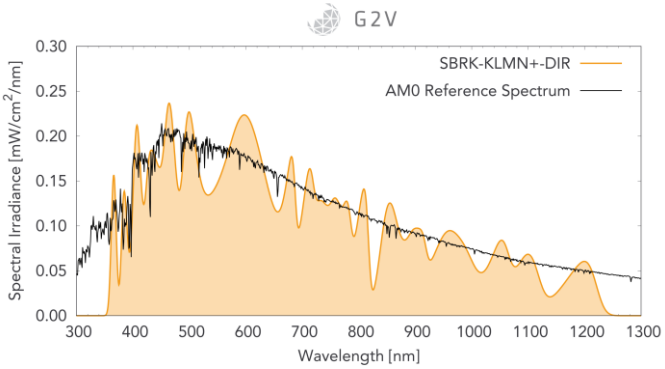


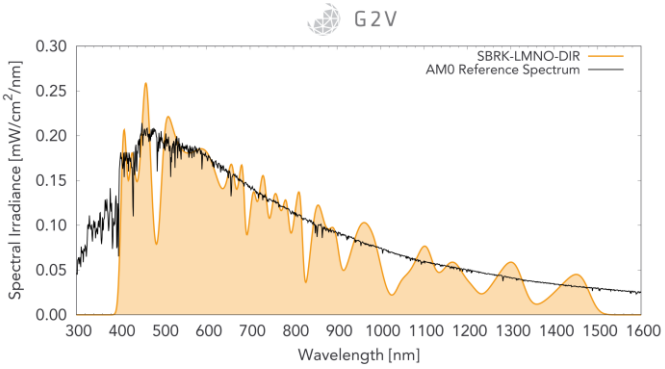


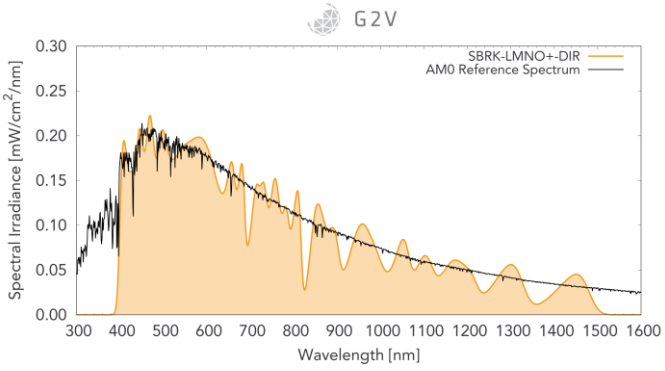


AM0

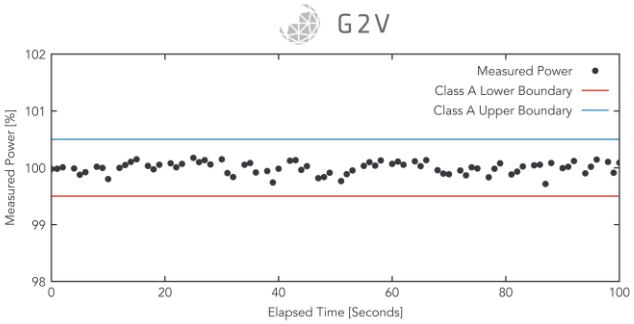






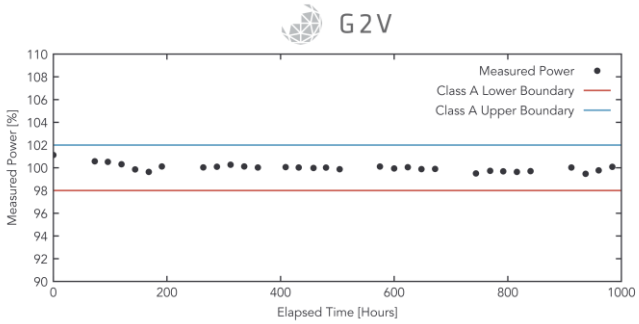


Short-Term Temporal Instability (STI)



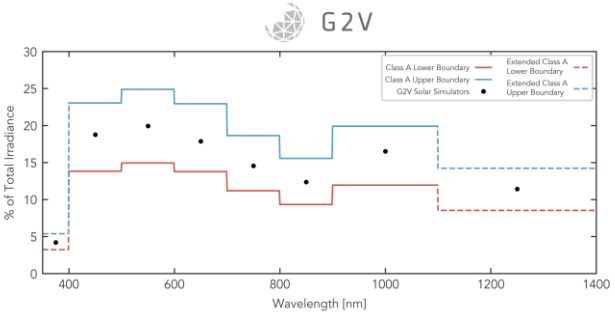
STI measured for 100 seconds at ~1 Hz, at 1.0 sun AM1.5G using 22 mm x 7 mm monocrystalline silicon cell in single-device configuration, centered in illumination field. Room temperature recorded for each measurement, and temperature coefficients are available. STI calculated using Equation (1) from ASTM E927-19 Section 7.1.7.

Long-Term Temporal Instability (LTI)

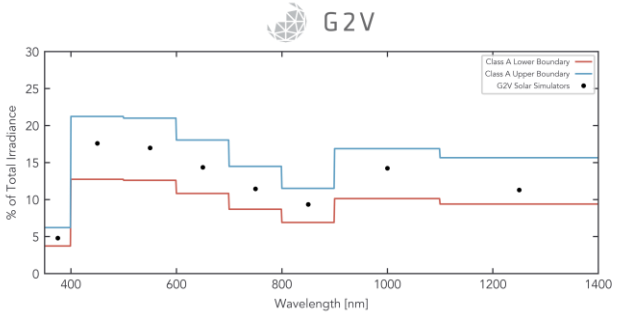


LTI measured for 1000 hours at ~1 sample/day at 1.0 sun AM1.5G using 22 mm x 7 mm monocrystalline silicon cell in single-device configuration, centered in illumination field. Room temperature recorded for each measurement, and temperature coefficients are available. LTI calculated using Equation (1) from ASTM E927-19 Section 7.1.7.

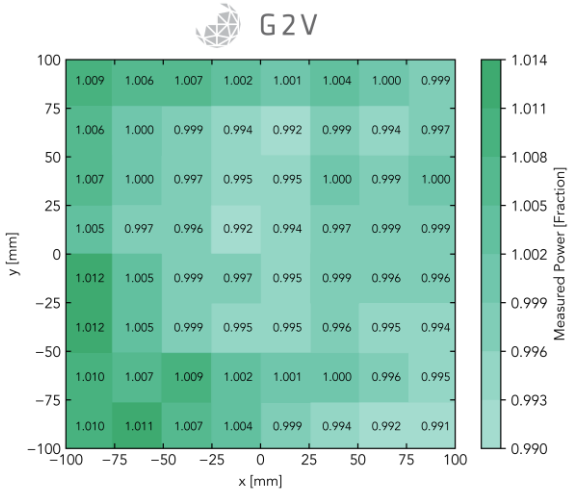
AM1.5G Spectral Mismatch



AM0 Spectral Mismatch

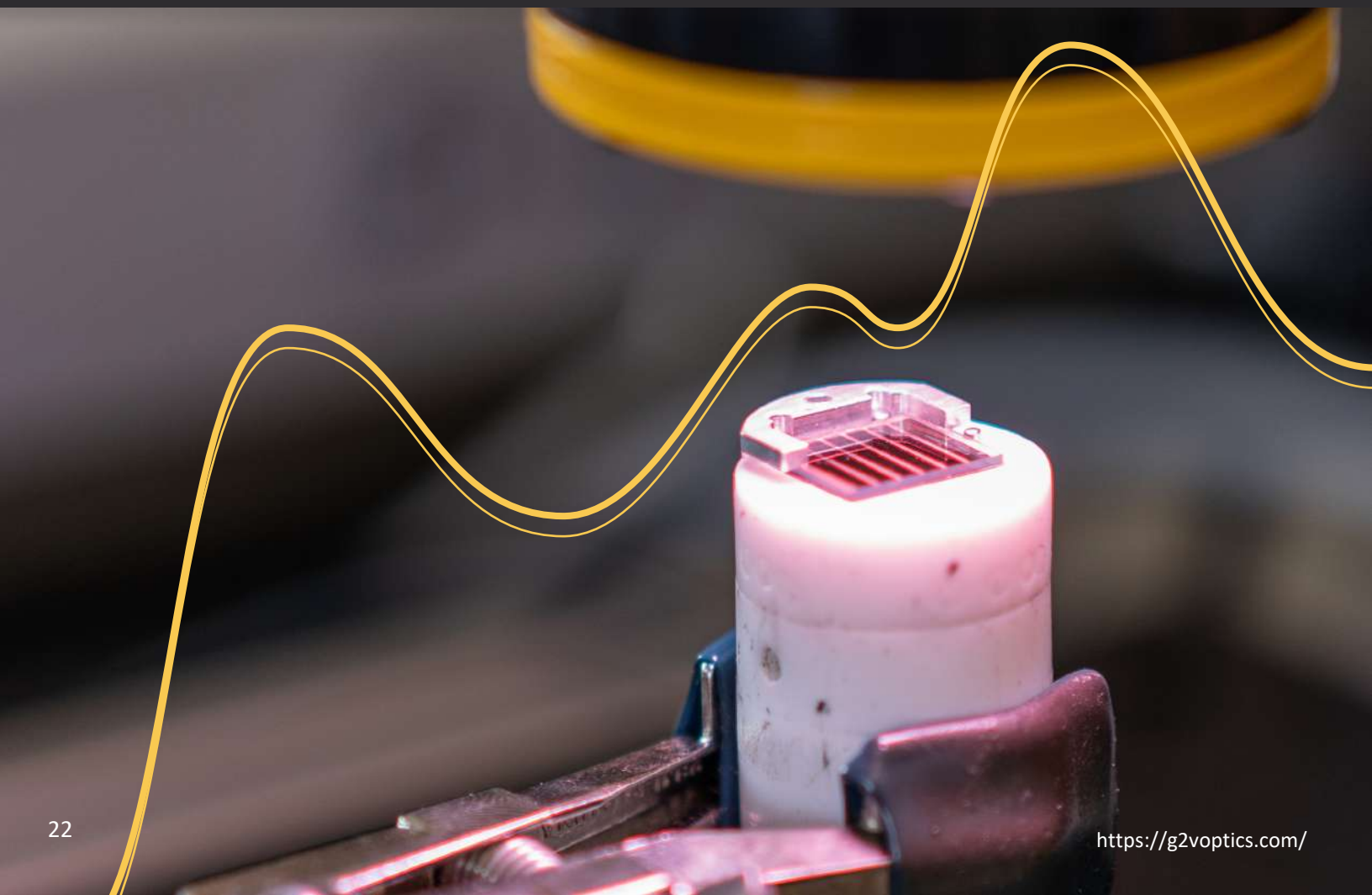


Spatial Non-Uniformity

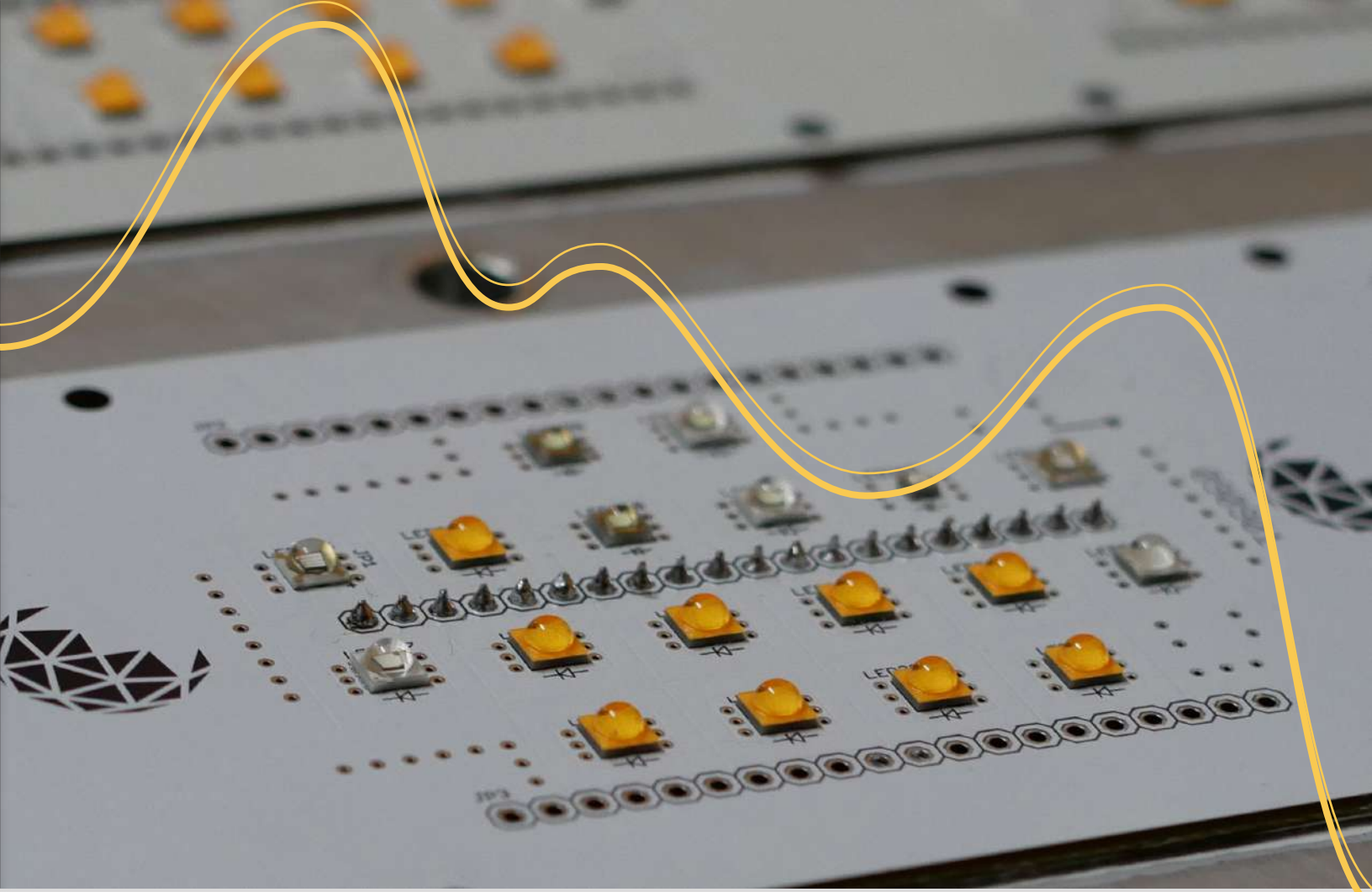


Typical spatial non-uniformity measured at 1.0 sun AM1.5G using a 12mm-aperture broadband thermopile with IR filter. Detector is moved in 64 square-grid measurements across the illumination plane, a 20 cm x 20 cm square area. Non-uniformity calculated using Equation (2) from ASTM E927-19 Section 7.2.9.

The sun powers all of the life on Earth. Engineering its energy and light to invent, test, and apply technology **for the betterment of humanity is crucial.**



https://g2voptics.com/



WHO WE ARE

G2V Optics (G2V) was founded to apply innovative technology and data-driven, collaborative-design toward solutions for this generation's global issues. Starting with **the highest precision spectral replication ever produced**, G2V now provides a suite of **advanced lighting, monitoring, and data science products** to push the boundaries of renewable energy research, material science, and modern horticulture.

Our software-controlled, adjustable-spectra LED solar simulators enable researchers to unlock the potential of tomorrow's solar powered devices. Our closed-loop horticulture systems maximize output and chemical content by replicating geographic conditions, monitoring, analyzing, and adjusting in real-time. **When spectral precision matters for your research, *let G2V Engineer the Sun™.***

UNE ÉQUIPE À VOTRE SERVICE

Jean-Claude SANUDO : *Président*
Vincent AUBERTIN : *Directeur Commercial - Optique Quantique*
Laurence DUCHARD : *Directrice - Infrarouge Moyen*
Sylvain MARTIN : *Responsable - Biophotonique & Microscopie*
Christelle ANCEAU : *Responsable - Lasers Pulsés & Opto-mécanique*
Elias AKIKI : *Responsable Spectroscopie, THz & Traitement du signal*
Catherine FARCY : *Responsable Communication & Marketing*
Fabien DELAGE : *Responsable - Services & Applications*
Laura RICHARD : *Ingénieure - Services & Applications*
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