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Ossila Solar Simulator

Indoor Light Data Sheet

Manufacturer	Ossila Limited
Model	G2009 - Solar Simulator
Simulator Type	Steady-State
Intended Use	Electrical Performance Measurements
Certificate Number	0255
Serial Number	255
Date of Calibration	2024-05-01
Classification Used	IEC TS 62607-7-2 (Edition 1.0)
Calibrated by	T Jaskiernia

Note: whilst the Solar Simulator has been calibrated in accordance with IEC TS 62607-7-2 (Edition 1.0), actual classification of the light source cannot be fully defined without the photovoltaic device being tested. The calibration is provided to simplify evaluation of indoor photovoltaic devices when using the methodology specified in IEC TS 62607-7-2 (Edition 1.0).

The measurement equipment used for calibration is traceable to national standards of the National Institute of Standards and Technology (NIST), Physikalisch-Technische Bundesanstalt (PTB), or other national or international standards which realise the units of measurements according to the International System of Units (SI).

Measurements were performed in accordance with international standard IEC TS 62607-7-2 (Edition 1.0).

Spectral coincidence calibration used a JETI Specbos 1211-UV-2 with serial number 2221542 and calibration mark 5764 WK-L 2022-05.

Classification

Spectral Coincidence

Light output was calibrated to match CIE LED-B4 at 1000 lx and 200 lx when used with a neutral density filter with an optical density of 2.

Table 1: Spectral coincidence classification for 1000 lx and 200 lx output.

Illuminance	Irradiance	Colour Temperature	Spectral Coincidence	Classification
1000 lx	3.56 W/m^2	4977 K	13.81%	A
200 lx	0.69 W/m^2	4930 K	9.94%	A

Spatial Non-Uniformity

Spatial non-uniformity classification was performed with the lamp set to 1000 lx output without any filters.

Table 2: Diameter, average irradiance, and standard deviation of irradiance of illumination area for each classification level.

Classification	Diameter (mm)	Non-Uniformity (%)	Average Irradiance (W/m^2)	Standard Deviation of Irradiance (W/m^2)
SA	11	2	3.72	0.04
A	11	2	3.72	0.04
B	21	5	3.60	0.11
C	32	10	3.40	0.19

Temporal Stability

Temporal stability classification was performed with the lamp set to 1000 lx output without any filters.

Table 3: Temporal stability classification. Sampling rate for temporal instability measurements was ~1.5 Hz.

Stability (%)	Uncertainty (±)	Classification
0.20	0.04	SA

Classification Data

Spectral irradiance, spectral irradiance uncertainty, and spatial irradiance data can be found on the USB drive provided with the Solar Simulator. This data can also be requested by emailing Ossila at **support@ossila.com**.

Verification of Classification

Verification of the classification of the Solar Simulator will be required if the lamp hours exceed the maximum hours stated in this data sheet.

Other Specifications

Lamp Output	
LED Temperature During Classification	29.41 °C
Warm Up Time	5 minutes 0 seconds
Maximum I-V Measurement Time	600 seconds
Lamp Hours	
Time on Lamp	2.67 hours
Maximum Lamp Time	10000 hours
Operating Conditions	
Working Distance	85 mm
Ambient Temperature Range	5°C to 40°C
Maximum Relative Humidity	80% at 31°C
Miscellaneous	
Power Requirements:	24 VDC / 1.8 A

Methodology

Spectral Coincidence

Spectral irradiance, total irradiance, and illuminance were measured using a JETI Specbos 1211-UV calibrated spectroradiometer. The Solar Simulator was positioned 85 mm above the spectroradiometer. Illuminance was calibrated to 100000 lx and 20000 lx, intended for use with an OD2 neutral density filter to bring illuminance down to 1000 lx and 200 lx respectively. To account for this, the CIE LED-B4 spectrum was scaled to give the above illuminance values when calculating spectral coincidence.

Spatial Non-Uniformity

Spatial non-uniformity was measured using a Broadcom AFBR-S20M2WV Qmini Spectrometer. The spectrometer was positioned 85 mm beneath the Solar Simulator and moved over a 40.0 x 40.0 mm area in steps of 2.5 mm. At each point, 1 spectral irradiance measurements were performed, and the average and standard deviation determined. The mean spectrum was integrated to obtain the total irradiance at each point. Once all points in the area had been measured the areas of different classification levels were determined in accordance with IEC TS 62607-7-2 (Edition 1.0).

Temporal Stability

Temporal stability was measured using a Broadcom AFBR-S20M2WV Qmini Spectrometer. The spectrometer was centred 85 mm beneath the Solar Simulator. Spectral irradiance measurements were performed at a rate of approximately 0.78 Hz for 10.0 minutes, and each measurement was integrated to obtain the irradiance. The instability value of each adjacent pair of data points was calculated, and the maximum of these was used to determine the classification according to IEC TS 62607-7-2 (Edition 1.0).