



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005
& ANSI/NCSL Z540-1-1994

ATLAS WEATHERING SERVICES GROUP
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CALIBRATION

Valid To: May 31, 2018

Certificate Number: 0717.04

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations^{1,3}:

I. Optical Quantities

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Direct Solar Irradiance – Measure			ASTM E816; ISO 9059
Secondary Pyrheliometers	(0.29 to 3.0) μm	0.40 %	Eppley AHF primary cavity pyrheliometer (SN 17142) Basis: 1000 W/m ² day
Field Pyrheliometers	(0.29 to 3.0) μm	0.63 %	Secondary pyrheliometer Basis: 1000 W/m ² day
Field Pyranometers	(0.29 to 3.0) μm		ASTM E824; ISO 9847
	Normal Incidence	0.59 %	Group of reference pyranometers (two or more)
	(0 to 15)° Tilt	1.4 %	Basis: 1000 W/m ² day
	(16 to 30)° Tilt	1.2 %	
	(31 to 45)° Tilt	1.4 %	

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Global Solar Irradiance – Measure			ASTM G167; ISO 9846
Reference Pyranometers:	(0.29 to 3.0) μm		Eppley AHF primary cavity pyrhelimeter (SN 17142)
	Normal Incidence	0.32 %	Basis: 1000 W/m ² day
	(0 to 15)° Tilt	1.2 %	
	(16 to 30)° Tilt	1.1 %	
	(31 to 45)° Tilt	1.3 %	
Spectral Irradiance – Measure			
Spectroradiometers (Normal Incidence to Source)	(0.280 to 0.315) μm	4.3 %	ASTM G138
	(0.280 to 0.385) μm	3.6 %	
	(0.280 to 0.400) μm	3.8 %	Standard of spectral irradiance (lamp), OL-752-10E
	(0.295 to 0.385) μm	3.8 %	
	(0.300 to 0.400) μm	3.7 %	
	(0.315 to 0.400) μm	3.6 %	
	(0.250 to 0.800) μm	3.6 %	
	(0.380 to 1.100) μm	2.8 %	
	(0.800 to 1.600) μm	2.4 %	
Solar Simulators, Incl, Classification	(0.250 to 0.800) μm	3.6 %	ASTM E927; IEC 60904-9
	(0.380 to 1.100) μm	2.8 %	OL 754 & OL 770 Spectroradiometers
	(0.800 to 1.600) μm	2.4 %	
Reference Ultra-Violet Radiometers			ASTM G 130
	0.280 to 0.315) μm	4.3 %	OL 754 Spectroradiometer
	(0.280 to 0.400) μm	3.8 %	Basis: 0.2 W/m ²
	(0.295 to 0.385) μm	3.8 %	Basis: 70 W/m ²
	(0.300 to 0.400) μm	3.7 %	Basis: 60 W/m ²
	(0.315 to 0.400) μm	3.6 %	Basis: 70 W/m ²

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Spectral Irradiance – Measure (cont)			
Field Ultra-Violet Radiometer –			ASTM E824; ISO 9847 (Kipp & Zonen UV-S-AB-T & UV-S-A-T (or other) reference UV radiometers
UV-B Ultra Violet Radiometers	(0.280 to 0.315) μm	4.3 %	Basis: 0.2 W/m ²
Total Ultra Violet Radiometers	(0.295 to 0.385) μm	3.8 %	Basis: 60 W/m ²
UV-A Ultra Violet Radiometers	(0.300 to 0.400) μm (0.315 to 0.400) μm	3.7 % 3.6 %	Basis: 70 W/m ² Basis: 70 W/m ²

¹ This laboratory offers commercial calibration service and field calibration service.

² Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMCs represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

³ Calibrations are performed under reasonably controlled conditions of clear skies to minimize atmospheric effects, high solar radiance approaching 1000 W/m² to preclude linearity effects and near-normal incidence for all calibrations unless stated otherwise to preclude cosine effects. It should be recognized that the uncertainties associated with the use of carefully calibrated radiometers under the diverse conditions of field use would be significantly higher.

⁴ In the statement of CMC, percentages are to be read as a percentage of the reading unless otherwise noted.



Accredited Laboratory

A2LA has accredited

ATLAS WEATHERING SERVICES GROUP

Phoenix, AZ

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of ANSI/NCSLI Z540-1-1994 and any additional program requirements in the field of calibration. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).



Presented this 23rd day of May 2016.

A handwritten signature in blue ink, appearing to read "J. C. Bunt".

Senior Director of Quality and Communications
For the Accreditation Council
Certificate Number 0717.04
Valid to May 31, 2018

For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.