



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

ATLAS WEATHERING SERVICES GROUP
 DSET LABORATORIES
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CALIBRATION

Valid To: May 31, 2012

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^{1,4}:

I. Optical Quantities

Parameter/Equipment	Range	CMC ^{2,5} (±)	Comments
Direct Solar Irradiance – Measure			ASTM E816-05
Primary Pyrheliometer as Reference for Secondary Pyrheliometers (e.g. NIP)	(0.29 to 3.0) μm	0.6 %	Eppley AHF pyrheliometer Basis: 1000 W/m ² day
Secondary Pyrheliometers as Reference for Field Pyrheliometers	(0.29 to 3.0) μm	0.9 %	Eppley NIP pyrheliometer Basis: 1000 W/m ² day

Parameter/Equipment	Range	CMC ^{2,5} (±)	Comments
<p>Global Solar Irradiance – Measure</p> <p>Primary Pyrheliometer as Reference for Reference Pyranometers –</p> <p>Normal Incidence 0/5° Tilt 34/45° Tilt</p> <p>Reference Pyranometer for Field Pyranometers –</p> <p>Normal Incidence 0/5° Tilt 34/4° Tilt</p>	<p>(0.29 to 3.0) μm</p> <p>(0.29 to 3.0) μm</p>	<p>1.4 % 5.2 % 5.1 %</p> <p>1.8 % 5.4 % 5.5 %</p>	<p>ASTM G167-using Eppley AHF (or) pyrheliometer</p> <p>Basis: 1000 W/m² day</p> <p>ASTM E824, Eppley PSP</p> <p>Basis: 1000 W/m² day</p>
<p>Global Solar Irradiance³ – Measure</p> <p>Reference Pyranometer for Field Pyranometers –</p> <p>Normal Incidence 0/5° Tilt 34/4° Tilt</p>	<p>(0.29 to 3.0) μm</p>	<p>1.8 % 5.4 % 5.5 %</p>	<p>ASTM E824, Eppley PSP</p> <p>Basis: 1000 W/m² day</p>
<p>Ultra-Violet Soar Irradiance³ – Measure</p> <p>UV-B Ultra Violet Radiometers</p> <p>Total Ultra Violet Radiometers</p> <p>UV-A Ultra Violet Radiometers</p>	<p>(0.280 to 0.315) μm</p> <p>(0.295 to 0.385) μm (0.295 to 0.400) μm</p> <p>(0.295 to 0.385) μm (0.315 to 0.400) μm</p>	<p>5.1%</p> <p>7.2 % 4.9 %</p> <p>5.8 % 5.3 %</p>	<p>ASTM E824</p> <p>EKO MS series and Kipp & Zonen UV-S-AB-T Basis: 0.2 W/m²</p> <p>Eppley TUVR Basis: 60 W/m² Basis: 70 W/m²</p> <p>Kipp & Zonen UV-S-AB-T & UV-S-A-T Basis: 60 W/m² Basis: 70 W/m²</p>

Parameter/Equipment	Range	CMC ^{2,5} (±)	Comments
Spectral Irradiance ³ – Measure (cont)			
Spectroradiometers (Normal Incidence to Source)	(0.280 to 0.315) μm (0.295 to 0.385) μm (0.315 to 0.400) μm (0.300 to 0.400) μm	3.1 % 2.8 % 2.8 % 2.8 %	ASTM G138 using spectral irradiance standard lamps
Light Sources	(0.380 to 1.100) μm (0.280 to 0.800) μm	1.8 % 2.1 %	IEC 60904-9 (OL 770) ASTM E927-05 (OL 754)
Spectroradiometers (Normal Incidence to Source) –			ASTM G130 using Optronic OL 754 spectroradiometer
UV-B Ultra Violet Radiometers	(0.280 to 0.315) μm	4.5 %	Basis: 0.2 W/m ²
Total Ultra Violet Radiometers	(0.295 to 0.385) μm (0.300 to 0.400) μm	4.8 % 4.4 %	Basis: 60 W/m ² Basis: 70 W/m ²
UV-A Ultra Violet Radiometers	(0.315 to 0.400) μm	4.3 %	Basis: 70 W/m ²

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

² Calibration and Measurement Capability (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. Calibration and Measurement Capabilities 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 Field calibration service is available for this calibration and this laboratory meets A2LA R104 – *General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these calibrations. Please note the actual measurement uncertainties achievable on a customer's site can normally be expected to be larger than the CMC found on the A2LA Scope. Allowance must be made for aspects such as the environment at the place of calibration and for other possible adverse effects such as those caused by transportation of the calibration equipment. The usual allowance for the actual uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the actual measurement uncertainty achievable on a customer's site being larger than the CMC.

⁴ Calibrations are performed under reasonably controlled conditions of clear skies to minimize atmospheric effects, high solar radiance approaching 1000 W/m^2 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.

⁵ In the statement of CMC, percentages are to be read as a percentage of the reading unless otherwise noted.



World Class Accreditation

The American Association for Laboratory Accreditation

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/NCSL 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 4th day of May 2010.





President & CEO

For the Accreditation Council
Certificate Number: 0717.04
Valid to: May 31, 2012

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