

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

CARMEL-ENVIRONMENTAL TESTS LTD. 33 Alexander Yanai Street Petach Tikva, Israel 49277 Avi Saban Phone: 972-549932413

CALIBRATION

Valid To: May 31, 2024

Certificate Number: 2881.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations^{1, 6}:

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
DC Voltage – Measure	Up to 100 mV 100 mV to 1 V (1 to 10) V (10 to 100) V (100 to 1000) V	1.3 mV 0.24 mV 0.29 mV 6.0 mV 6.0 mV	6½ digit multi meter
DC Current – Measure	Up to 10 mA (10 to 100) mA (100 to 1000) mA (1000 to 3000) mA	0.92 mA 0.27 mA 3.8 mA 56 mA	6½ digit multi meter
Resistance – Measure, Fixed Points	Up to 100.0000 Ω 1000.000 000 Ω 10.000 00 kΩ 100.0000 kΩ 1.000 000 MΩ 10.000 00 MΩ 100.0000 MΩ	$ \begin{array}{c} 17 \text{ m}\Omega \\ 0.13 \Omega \\ 1.3 \Omega \\ 13 \Omega \\ 130 \Omega \\ 4900 \Omega \\ 190 000 \Omega \end{array} $	6½ digit multi meter

(A2LA Cert. No. 2881.02) Revised 03/28/2024

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Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Current – Measure			
Up to 1.0000 A	1 kHz	1.7 mA	6 ½ digit multi meter
(1.0 to 3.0) A	1 kHz	6.0 mA	
AC Voltage – Measure			
100.0000 mV	1 kHz	0.82 mV	6 ¹ / ₂ digit multi meter
100.0000 mV	50 kHz	1.3 mV	
1.000 000 V	1 kHz	1.1 mV	
1.000 000 V	50 kHz	7.9 mV	
10.000 00 V	1 kHz	11 mV	
10.000 00 V	50 kHz	79 mV	
100.0000 V	1 kHz	110 mV	
100.0000 V	50 kHz	200 mV	
700.000 V	1 kHz	730 mV	
220.000 V	50 kHz	1800 mV	

II. Mechanical

Parameter/Equipment	Range	$CMC^{2}(\pm)$	Comments
Accelerometers	(5 to 50) Hz (50 to 100) Hz (100 to 1000) Hz (1 to 4) kHz	2.1 % 1.9 % 1.9 % 2.8 %	"Back-to-back" comparison using Dytran accelerometer, amplifier and DAQ.

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Parameter/Equipment	Range	CMC ^{2, 5} (±)	Comments
Pressure ³ – Measuring Equipment			
Gauge Pressure	(0 to 200) bar	0.11 bar	AMETEK Crystal nVision
	(200 to 700) bar	0.24 bar	digital pressure recorder
Absolute Pressure	(1200 to 40) mbar	0.5 % of F.S.	VD85M vacuum meter
	(40 to 0.5) mbar	13 % of Reading	

III. Thermodynamics

Parameter/Equipment	Range	CMC ^{2, 5} (±)	Comments
Temperature – Environmental Chambers ³	(-80 to 180) °C	0.6 °C	Fluke 2635A Hydra data logger and thermocouple type T
Humidity – Environmental Chambers ³	(15 to 95) % RH	1.8 % RH	Rotronic HydroPalm HP32
Temperature – Measure	(-40 to 180) °C	0.49 °C	Fluke 2635A Hydra data logger and thermocouple type T
Thermocouples, Thermocouple with Data Loggers	(-40 to 140) °C	0.49 °C	ISOTECH Europa-6 temperature calibrator

¹ This laboratory offers commercial calibration service.

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- 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 Field calibration service is available for this calibration. 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 The stated measured values are determined using the indicated instrument (see Comments). This capability is suitable for the calibration of the devices intended to measure or generate the measured value in the ranges indicated. CMC's are expressed as either a specific value that covers the full range or as a percent or fraction of the reading plus a fixed floor specification.
- ⁵ The type of instrument or material being calibrated is defined by the parameter. This indicates the laboratory is capable of calibrating instruments that measure or generate the values in the ranges indicated for the listed measurement parameter.

⁶ This scope meets A2LA's *P112 Flexible Scope Policy*.

An





Accredited Laboratory

A2LA has accredited

CARMEL-ENVIRONMENTAL TESTS LTD.

Petach Tikva, ISRAEL

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This laboratory also meets R205 – Specific Requirements: Calibration Laboratory Accreditation Program. 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 April 2017).



Presented this 25TH day of October 2022.

Vice President, Accreditation Services For the Accreditation Council Certificate Number 2881.02 Valid to May 31, 2024 Revised March 28, 2024

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