



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

OHM-LABS, INC.
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CALIBRATION

Valid To: October 31, 2018

Certificate Number: 2481.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations¹

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range ³	CMC ² (±)	Comments
DC High Voltage Ratio, Applied Voltage (100 to 1 000 000):1	(0.1 to 150) kV	0.004 % of ratio	High voltage bridge - Ohm-Labs HV-B
DC Voltage – Measure	(0 to 100) V (100 to 1000) V (0.1 to 20) kV (20 to 150) kV	50 µV/V + 0.60 mV 50 µV/V + 10 mV 60 µV/V + 0.20 V 55 µV/V + 1.0 V	Measurement with multimeter Ohm-Labs HVS w/ DC meter
Resistance – Measure	0 Ω (0.9 to 11) µΩ (9 to 110) µΩ (90 to 1100) µΩ (0.9 to 11) mΩ (9 to 110) mΩ (90 to 1100) mΩ	5 nΩ 20 µΩ/Ω 9.0 µΩ/Ω 3.0 µΩ/Ω 1.9 µΩ/Ω 1.0 µΩ/Ω 0.50 µΩ/Ω	V-I method with null detector Comparison to 3000 A with current comparator bridge and range extenders

Parameter/Range	Frequency	CMC ² (±)	Comments
AC – DC Difference			
(0.1 to 1.0) A	50 Hz to 10 kHz 10 kHz to 100 kHz	30 μ A/A 45 μ A/A	Comparison with coaxial AC current shunts using thermal voltage converters
(1.0 to 10) A	50 Hz to 10 kHz 10 kHz to 100 kHz	40 μ A/A 50 μ A/A	
(10 to 100) A	50 Hz to 10 kHz 10 kHz to 100 kHz	60 μ A/A 90 μ A/A	
10 Ω to 5 k Ω	10 Hz to 10 kHz 10 kHz to 100 kHz 100 kHz to 1 MHz	25 $\mu\Omega/\Omega$ 30 $\mu\Omega/\Omega$ 70 $\mu\Omega/\Omega$	Comparison with coaxial AC resistors using thermal voltage converters
(5 to 20) k Ω	10 Hz to 10 kHz 10 kHz to 100 kHz 100 kHz to 1 MHz	25 $\mu\Omega/\Omega$ 35 $\mu\Omega/\Omega$ 90 $\mu\Omega/\Omega$	
(20 to 100) k Ω	10 Hz to 10 kHz 10 kHz to 100 kHz	35 $\mu\Omega/\Omega$ 50 $\mu\Omega/\Omega$	
(0.1 to 1) M Ω	10 Hz to 10 kHz 10 kHz to 100 kHz	50 $\mu\Omega/\Omega$ 70 $\mu\Omega/\Omega$	

II. Thermodynamic

Parameter/Equipment	Range	CMC ² (±)	Comments
Temperature – Measure	(18 to 30) °C (0 to 200) °C	0.020 °C 0.20 °C	Comparison with calibrated thermometer

¹ This laboratory offers commercial 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 Where ranges are not specified, the CMC stated is for the cardinal points only.



Accredited Laboratory

A2LA has accredited

OHM-LABS, INC.

Pittsburgh, PA

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 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 8 January 2009*).



Presented this day 7th of November 2016.

A handwritten signature in black ink, written over a horizontal line.

President and CEO
For the Accreditation Council
Certificate Number 2481.01
Valid to October 31, 2018

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