



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

ROSS ENGINEERING CORPORATION
 540 Westchester Dr.
 Campbell, CA 95008
 Cody Kulow Phone: 408 377 4621

CALIBRATION

Valid To: October 31, 2018

Certificate Number: 2746.01

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	CMC ^{2,3,4} (±)	Comments
DC Voltage – Generate and Measure	(0 to 100) mV 100 mV to 1 V (1 to 10) V (10 to 100) V (100 to 1000) V	11 $\mu\text{V/V} + 0.3 \mu\text{V}$ 9.4 $\mu\text{V/V} + 0.3 \mu\text{V}$ 9.4 $\mu\text{V/V} + 0.5 \mu\text{V}$ 12 $\mu\text{V/V} + 30 \mu\text{V}$ 12 $\mu\text{V/V} + 100 \mu\text{V}$	Agilent 3458A and DC voltage source
DC High Voltage – Measure (Metered)	(1 to 175) kV	0.0078 %	Ross VD240 and Agilent 3458A
DC High Voltage – Ratio (Bridged)	(1 to 175) kV	0.0077 %	Ross VD240 and Rubicon 3415 galvanometer
DC Current – Generate and Measure	(0 to 100) nA (0.1 to 1) μA (1 to 10) μA (10 to 100) μA (0.1 to 1) mA (1 to 10) mA (10 to 100) mA (0.1 to 1) A (1 to 3) A	38 $\mu\text{A/A} + 45 \text{ pA}$ 25 $\mu\text{A/A} + 45 \text{ pA}$ 25 $\mu\text{A/A} + 0.1 \text{ nA}$ 27 $\mu\text{A/A} + 0.9 \text{ nA}$ 27 $\mu\text{A/A} + 6 \text{ nA}$ 27 $\mu\text{A/A} + 60 \text{ nA}$ 46 $\mu\text{A/A} + 0.6 \mu\text{A}$ 0.013 % + 12 μA 0.14 % + 12 μA	Agilent 3458A and DC current source Agilent 34401A and DC current source

Parameter/Range	Frequency	CMC ^{2, 3, 4} (\pm)	Comments
AC Voltage – Measure (1 to 100) mV (0.1 to 1) V (1 to 10) V (10 to 100) V (100 to 700) V	(40 to 100) Hz	0.071 % + 10 μ V 0.071 % + 100 μ V 0.071 % + 1 mV 0.071 % + 10 mV 0.066 % + 140 mV	Agilent 3458A
AC High Voltage – Measure (1 to 170) kV RMS	60 Hz	0.094 %	Ross VD240 and Agilent 3458A
AC Current – Measure (0 to 100) μ A (0.1 to 1) mA (1 to 10) mA (10 to 100) mA (0.1 to 1) A (1 to 3) A	(45 to 100) Hz	0.07 % + 0.03 μ A 0.07 % + 0.2 μ A 0.07 % + 2 μ A 0.07 % + 20 μ A 0.096 % + 0.2 mA 0.19 % + 2 mA	Agilent 3458A Agilent 34401A

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 In the statement of CMC percent refers to percent of reading.

⁴ The measurands stated are measured using the indicated instrument (see Comments). This capability is suitable for the calibration of the devices intended to measure the measurand in the ranges indicated. CMC's are expressed as either a specific value that covers the full range or as a fraction/percentage of the reading plus a fixed floor specification.



Accredited Laboratory

A2LA has accredited

ROSS ENGINEERING CORPORATION

Campbell, CA

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 9th day of August, 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 2746.01
Valid to October 31, 2018

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