



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017  
& ANSI/NCSL Z540-1-1994

APPLIED CALIBRATION SERVICES, LLC  
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CALIBRATION

Valid To: February 28, 2025

Certificate Number: 3374.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations<sup>1,6</sup>:

I. Dimensional

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Calipers	Up to 12 in	160 µin	Gauge blocks
Micrometers	Up to 12 in	160 µin	Gauge blocks
Rulers	Up to 12 in	110 µin	Gauge blocks
Tape Measures	Up to 25 ft	0.11 in	Gauge blocks

II. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC <sup>2,5</sup> (±)	Comments
Resistance <sup>3</sup> – Generate	(0 to 10.9999) Ω (11 to 32.9999) Ω (33 to 109.9999) Ω (110 to 329.9999) Ω 330 Ω to 1.099 999 kΩ (1.1 to 3.299 999) kΩ (3.3 to 10.999 99) kΩ (11 to 32.999 99) kΩ (33 to 109.9999) kΩ (110 to 329.999 99) kΩ 330 kΩ to 1.099 999 MΩ (1.1 to 3.299 999) MΩ (3.3 to 10.999 99) MΩ (11 to 32.999 99) MΩ (33 to 109.9999) MΩ (110 to 329.9999) MΩ (320 to 1100) MΩ	40 μΩ/Ω + 0.001 Ω 30 μΩ/Ω + 0.0015 Ω 28 μΩ/Ω + 0.0014 Ω 28 μΩ/Ω + 0.002 Ω 28 μΩ/Ω + 0.002 Ω 28 μΩ/Ω + 0.02 Ω 28 μΩ/Ω + 0.02 Ω 28 μΩ/Ω + 0.2 Ω 28 μΩ/Ω + 0.2 Ω 32 μΩ/Ω + 2 Ω 32 μΩ/Ω + 7 Ω 60 μΩ/Ω + 50 Ω 130 μΩ/Ω + 70 Ω 250 μΩ/Ω + 2.7 kΩ 500 μΩ/Ω + 3.2 kΩ 3 mΩ/Ω + 100 kΩ 15 mΩ/Ω + 510 kΩ	Multifunction calibrator
DC Voltage <sup>3</sup> – Generate	(0 to 329.9999) mV 330 mV to 3.299 999 V (3.3 to 32.999 99) V (33 to 329.9999) V (330 to 1020) V	20 μV/V + 1 μV 11 μV/V + 2 μV 12 μV/V + 20 μV 18 μV/V + 150 μV 18 μV/V + 1.5 mV	Multifunction calibrator
DC Current <sup>3</sup> – Generate	(0 to 329.999) μA 330 μA to 3.299 99 mA (3.3 to 32.9999) mA (33 to 329.9999) mA 330 mA to 1.099 99 A (1.1 to 2.999 99) A (3 to 10.9999) A (11 to 20.5) A	150 μA/A + 0.02 μA 100 μA/A + 0.05 μA 100 μA/A + 0.25 μA 100 μA/A + 2.5 μA 200 μA/A + 40 μA 380 μA/A + 40 μA 500 μA/A + 500 μA 1 mA/A + 750 μA	Multifunction calibrator

Parameter/Equipment	Frequency	CMC <sup>2,5</sup> (±)	Comments
AC Voltage <sup>3</sup> – Generate			
(1 to 32.999) mV	(10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz	800 μV/V + 6 μV 150 μV/V + 6 μV 200 μV/V + 6 μV 1 mV/V + 6 μV 3.5 mV/V + 12 μV 8 mV/V + 50 μV	Multifunction calibrator
(33 to 329.999) mV	(10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz	300 μV/V + 8 μV 150 μV/V + 8 μV 160 μV/V + 8 μV 350 μV/V + 8 μV 800 μV/V + 32 μV 2 mV/V + 70 μV	
(0.33 to 3.299 99) V	(10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz	300 μV/V + 50 μV 150 μV/V + 60 μV 190 μV/V + 60 μV 300 μV/V + 50 μV 700 μV/V + 130 μV 2.4 mV/V + 600 μV	
(3.3 to 32.9999) V	(10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz	300 μV/V + 650 μV 150 μV/V + 600 μV 240 μV/V + 600 μV 350 μV/V + 600 μV 900 μV/V + 1.6 mV	
(33 to 329.999) V	45 Hz to 1 kHz (1 to 10) kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz	190 μV/V + 2 mV 200 μV/V + 6 mV 250 μV/V + 6 mV 300 μV/V + 6 mV 2 mV/V + 50 mV	
(330 to 1020) V	45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	300 μV/V + 10 mV 250 μV/V + 10 mV 300 μV/V + 10 mV	

Parameter/Range	Frequency	CMC <sup>2,5</sup> (±)	Comments
AC Current <sup>3</sup> – Generate			
(29 to 329.99) µA	(10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.2 % + 0.1 µA 0.15 % + 0.1 µA 0.13 % + 0.1 µA 0.3 % + 0.15 µA 0.8 % + 0.2 µA 1.6 % + 0.4 µA	Multifunction calibrator
(0.33 to 3.299 99) mA	(10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.2 % + 0.15 µA 0.15 % + 0.15 µA 0.1 % + 0.15 µA 0.2 % + 0.2 µA 0.5 % + 0.3 µA 1 % + 0.6 µA	
(3.3 to 32.9999) mA	(10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.18 % + 2 µA 0.09 % + 2 µA 0.04 % + 2 µA 0.08 % + 2 µA 0.2 % + 3 µA 0.4 % + 4 µA	
(33 to 329.999) mA	(10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.18 % + 20 µA 0.09 % + 20 µA 0.04 % + 20 µA 0.1 % + 50 µA 0.2 % + 100 µA 0.4 % + 200 µA	
(0.33 to 1.099 99) A	(10 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.18 % + 100 µA 0.05 % + 100 µA 0.6 % + 1 mA 2.5 % + 5 mA	
(1.1 to 2.999 999) A	(10 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.18 % + 100 µA 0.06 % + 100 µA 0.6 % + 1 mA 2.5 % + 5 mA	
(3 to 10.9999) A	(45 to 100) Hz (0.1 to 1) kHz (1 to 5) kHz	0.06 % + 2 mA 0.1 % + 2 mA 3 % + 2 mA	
(11 to 20.5) A	(45 to 100) Hz (0.1 to 1) kHz (1 to 5) kHz	0.12 % + 5 mA 0.15 % + 5 mA 3 % + 5 mA	

Parameter/Equipment	Range	CMC <sup>2, 5</sup> (±)	Comments
Capacitance <sup>3</sup> – Measure	(220 to 399.9) pF (0.4 to 1.099 99) nF (1.1 to 3.299 99) nF (3.3 to 10.9999) nF (11 to 32.999) nF (0.033 to 109.999) nF (110 to 329.999) nF (0.33 to 1.0999) μF (1.1 to 3.299 99) μF (3.3 to 10.9999) μF (11 to 32.9999) μF (33 to 109.9999) μF (110 to 329.999) μF (0.33 to 1.099 99) mF (1.1 to 3.299 99) mF (3.3 to 10.9999) mF (11 to 32.9999) mF (33 to 110) mF	0.5 % + 10 pF 0.5 % + 0.1 nF 0.5 % + 0.01 nF 0.25 % + 0.01 nF 0.25 % + 0.01 nF 0.25 % + 0.01 nF 0.25 % + 0.03 nF 0.25 % + 1 nF 0.25 % + 3 nF 0.25 % + 10 nF 0.40 % + 30 nF 0.45 % + 0.1 μF 0.45 % + 0.3 μF 0.45 % + 1 μF 0.45 % + 3 μF 0.45 % + 10 μF 0.75 % + 30 μF 1.1 % + 0.1 mF	Multifunction calibrator
Thermocouple <sup>3</sup> – Generate & Measure			
Type J	(-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1200) °C	0.27 °C 0.16 °C 0.14 °C 0.17 °C 0.23 °C	Multifunction calibrator
Type K	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1000) °C (1000 to 1372) °C	0.33 °C 0.18 °C 0.16 °C 0.26 °C 0.40 °C	
Type S	(0 to 250) °C (250 to 1000) °C (1000 to 1400) °C (1400 to 1767) °C	0.47 °C 0.36 °C 0.37 °C 0.46 °C	
Type T	(-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C	0.63 °C 0.24 °C 0.16 °C 0.14 °C	

Parameter/Equipment	Range	CMC <sup>2,5</sup> (±)	Comments
Resistance <sup>3</sup> – Measure	(0 to 12) Ω (12 to 120) Ω (120 to 1200) Ω (1.2 to 12) kΩ (12 to 120) kΩ 120 kΩ to 1.2 MΩ (1.2 to 12) MΩ (12 to 120) MΩ	20 μΩ/Ω + 120 μΩ 16 μΩ/Ω + 640 μΩ 14 μΩ/Ω + 21 mΩ 14 μΩ/Ω + 450 mΩ 14 μΩ/Ω + 230 Ω 19 μΩ/Ω + 2.7 Ω 58 μΩ/Ω + 140 Ω 580 μΩ/Ω + 1.2 kΩ	8.5-digit DMM
DC Voltage <sup>3</sup> – Measure	(0 to 120) mV 120 mV to 1.2 V (1.2 to 12) V (12 to 120) V (120 to 1050) V	13 μV/V + 2.2 mV 10 μV/V + 16 μV 10 μV/V + 180 μV 13 μV/V + 2.1 mV 20 μV/V + 24 mV	8.5-digit DMM
DC Current <sup>3</sup> – Measure	(0 to 120) nA (0.12 to 1.2) μA (1.2 to 12) μA (12 to 120) μA (0.12 to 1.2) mA (1.2 to 12) mA (12 to 120) mA (0.12 to 1.2) A	35 μA/A + 160 nA 23 μA/A + 78 pA 23 μA/A + 160 pA 23 μA/A + 0.95 nA 23 μA/A + 6 nA 23 μA/A + 60 nA 41 μA/A + 0.6 μA 130 μA/A + 12 μA	8.5-digit DMM

Parameter/Equipment	Frequency	CMC <sup>2,5</sup> (±)	Comments
AC Voltage <sup>3</sup> – Measure			
(0 to 12) mV	(1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	0.035 % + 5.3 μV 0.023 % + 4.2 μV 0.035 % + 4.3 μV 0.12 % + 9.5 μV 0.58 % + 9.5 μV 4.6 % + 66 μV	8.5-digit DMM
(12 to 120) mV	(1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	0.009 % + 7.3 μV 0.009 % + 8.1 μV 0.017 % + 8.1 μV 0.035 % + 37 μV 0.092 % + 37 μV 0.35 % + 70 μV	

Parameter/Range	Frequency	CMC <sup>2,5</sup> (±)	Comments
AC Voltage <sup>3</sup> – Measure (cont)			
(0.12 to 3.3) V	(1 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz	300 µV/V + 50 µV 150 µV/V + 60 µV 190 µV/V + 60 µV 300 µV/V + 50 µV 700 µV/V + 130 µV 2.4 mV/V + 600 µV	8.5-digit DMM
(1.2 to 33) V	(1 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz	300 µV/V + 650 µV 150 µV/V + 600 µV 240 µV/V + 600 µV 350 µV/V + 600 µV 900 µV/V + 50 µV	
(33 to 330) V	(1 Hz to 1) kHz (1 to 10) kHz	0.023 % + 8.4 mV 0.023 % + 12 mV	
(330 to 500) V	1 Hz to 5 kHz (5 to 10) kHz	0.05 % + 77 mV 0.07 % + 77 mV	
(500 to 1000) V	1 Hz to 10kHz	0.07 % + 77 mV	
AC Current <sup>3</sup> – Measure			
(0 to 120) µA	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz (0.1 to 1) kHz	4.7 % + 0.02 µA 0.17 % + 47 nA 0.07 % + 47 nA 0.07 % + 47 nA	8.5-digit DMM
(0.12 to 1.2) mA	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz (0.1 to 5) kHz (5 to 20) kHz	0.46 % + 260 nA 0.17 % + 260 nA 0.07 % + 260 nA 0.04 % + 260 nA 0.07 % + 260 nA	
(1.2 to 12) mA	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz (0.1 to 5) kHz (5 to 20) kHz (20 to 50) kHz (50 to 100) kHz	0.46 % + 3 µA 0.17 % + 3 µA 0.07 % + 3 µA 0.04 % + 3 µA 0.07 % + 3 µA 0.46 % + 5 µA 0.64 % + 17 µA	
(12 to 120) mA	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz (0.1 to 5) kHz (5 to 20) kHz (20 to 50) kHz (50 to 100) kHz	0.46 % + 30 µA 0.17 % + 30 µA 0.07 % + 30 µA 0.04 % + 30 µA 0.07 % + 30 µA 0.46 % + 50 µA 0.64 % + 170 µA	

Parameter/Range	Frequency	CMC <sup>2,5</sup> (±)	Comments
AC Current <sup>3</sup> – Measure (cont)  (0.12 to 1) A	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz (0.1 to 5) kHz (5 to 20) kHz (20 to 50) kHz	0.46 % + 2.1 mA 0.19 % + 2.1 mA 0.1 % + 2.1 mA 0.12 % + 2.1 mA 0.35 % + 2.1 mA 1.2 % + 2.2 mA	8.5 digit DMM

### III. Mechanical

Parameter/Equipment	Range	CMC <sup>2,4,5</sup> (±)	Comments
Pressure <sup>3</sup> – Measure  Pneumatic Absolute / Gauge Pressure	(0 to 30) psi (30 to 100) psi (0 to 300) psi (300 to 1000) psi	0.003 psi 0.002 % 0.002 psi 0.16 %	Pressure calibrator
Hydraulic Gage Pressure	(5 to 9100) psi	0.80 psi	Dead weight tester
Differential Pressure <sup>3</sup>	(0 to 0.5) in H <sub>2</sub> O (0.5 to 1) in H <sub>2</sub> O (1 to 10) in H <sub>2</sub> O (10 to 30) in H <sub>2</sub> O (30 to 45) in H <sub>2</sub> O (30 to 45) in H <sub>2</sub> O	0.002 in H <sub>2</sub> O 0.001 in H <sub>2</sub> O 0.011 % + 0.004 in H <sub>2</sub> O 0.011 % + 0.003 in H <sub>2</sub> O 0.011 % + 0.003 in H <sub>2</sub> O 0.011 % + 0.003 in H <sub>2</sub> O	Ruska 7250LP
Torque Tools	(5 to 50) lbf·in (40 to 400) lbf·in (100 to 1000) lbf·in (25 to 250) lbf·ft	0.20 lbf·in 0.69 lbf·in 1.5 lbf·in 0.56 lbf·ft	CDI transducer 2000-6-02 CDI transducer 2000-7-02 CDI transducer 2000-8-02 CDI transducer 2000-11-02



Parameter/Equipment	Range	CMC <sup>2,4</sup> (±)	Comments
Scales & Balances <sup>3</sup>	Up to 5 g Up to 200 g 200 g to 2 kg (2 to 14) kg	0.09 mg + 0.06 % 0.29 mg + 0.6 % 3.0 mg + 0.6 % 0.015 g + 0.6 %	ASTM Class 1 weights
	(0 to 400) kg	5.2 g + 0.6 %	Class F weights
Pipettes	(1 to 49) µL (50 to 200) µL 200 µL to 5 mL	0.0045 µl + 1.2 % 0.0041 µl + 0.30 % 0.0041 µl + 0.30 %	ISO 8655

#### IV. Thermodynamics

Parameter/Equipment	Range	CMC <sup>2,5</sup> (±)	Comments
Temperature – Measure <sup>3</sup>	(-80 to 0) °C 0.01 °C (TPW) (0 to 250) °C (250 to 450) °C	0.012 °C 0.007 °C 0.014 °C 0.033 °C	SPRT
	(500 to 1000) °C (> 1000 to 1450) °C	0.39 °C 2.4 °C	Type S thermocouple
Temperature – Measuring Equipment <sup>3</sup>	(-80 to 0) °C 0.01 °C (TPW) (0 to 250) °C (250 to 450) °C	0.012 °C 0.007 °C 0.014 °C 0.033 °C	SPRT
	(500 to 1000) °C (> 1000 to 1200) °C	0.39 °C 2.4 °C	Type S thermocouple
Humidity – Measuring Equipment	(10 to 95) % RH	0.58 % RH	Environmental chamber
Temperature – Measuring Equipment	(-10 to 70) °C	0.08 °C	Environmental chamber

## V. Time & Frequency

Parameter/Equipment	Range	CMC <sup>2,5</sup> ( $\pm$ )	Comments
Frequency <sup>3</sup> – Measure	1 Hz to 2 MHz	0.14 Hz	8.5 Digit DMM

<sup>1</sup> This laboratory offers commercial calibration service.

<sup>2</sup> 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.

<sup>3</sup> 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.

<sup>4</sup> In the statement of CMC, percentages are percentage of reading, unless otherwise indicated.

<sup>5</sup> 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. CMCs 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.

<sup>6</sup> This scope meets A2LA's *P112 Flexible Scope Policy*.



# Accredited Laboratory

A2LA has accredited

## APPLIED CALIBRATION SERVICES, LLC

Wilson, NC

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 the requirements of ANSI/NCCL 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 April 2017).



Presented this 5<sup>th</sup> day of July 2023.

A blue ink signature of Mr. Trace McInturff, written in a cursive style.

Mr. Trace McInturff, Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 3374.01  
Valid to February 28, 2025

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