



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

TESTCAL PLUS  
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CALIBRATION

Valid To: September 30, 2026

Certificate Number: 4306.01

In recognition of the successful completion of the A2LA evaluation process, (including an assessment of the organization's compliance with A2LA's Calibration Program Requirements) accreditation is granted to this laboratory to perform the following calibrations<sup>1, 6</sup>:

I. Dimensional

Parameter/Equipment	Range	CMC <sup>2, 5</sup> (±)	Comments
Calipers, Micrometers <sup>3</sup>	Up to 200 mm (8 in)	0.025 mm + 0.6R	Gage blocks
Height Gages <sup>3</sup>	Up to 300 mm (11.8 in)	0.015 mm + 0.6R	Gage blocks
Angle Measurement <sup>3</sup>	(0 to 360)°	0.70°	Digital protractor
Gage Blocks	(0.1 to 4) in (4 to 20) in (0.5 to 2.5) mm (>2.5 to 100) mm	(6.0 + 2.5L) µin (5.0 + 2.1L) µin 0.20 µm (0.02 + 3.8L) µm	Master gage blocks & high-resolution comparator
Extensometers <sup>3</sup> – Gage Length	(10 to 200) mm	0.22 mm	ASTM E83, ISO 9513 using digital caliper

Parameter/Equipment	Range	CMC <sup>2,4</sup> (±)	Comments
Displacement Measuring Systems <sup>3</sup> – Travel	(0.1 to 100) mm	0.15 %	ASTM E2309 digital high accuracy length scale or gage blocks

## II. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC <sup>2,8</sup> (±)	Comments
DC Voltage <sup>3</sup> – Measure	(0 to 3.3) V (3.3 to 33) V (33 to 42) V	15 $\mu\text{V}/\text{V}$ + 3 $\mu\text{V}$ 15 $\mu\text{V}/\text{V}$ + 30 $\mu\text{V}$ 22 $\mu\text{V}/\text{V}$ + 200 $\mu\text{V}$	Master multimeter
Resistance <sup>3</sup> – Measure	(110 to 330) $\Omega$ (1.1 to 3.3) k $\Omega$ (11 to 33) k $\Omega$ (110 to 330) k $\Omega$ (1.1 to 3.3) M $\Omega$	35 $\mu\Omega/\Omega$ + 2.5 m $\Omega$ 35 $\mu\Omega/\Omega$ + 22 m $\Omega$ 35 $\mu\Omega/\Omega$ + 220 m $\Omega$ 40 $\mu\Omega/\Omega$ + 2.6 $\Omega$ 70 $\mu\Omega/\Omega$ + 37 $\Omega$	Master multimeter

Parameter/Range	Frequency	CMC <sup>2,8</sup> (±)	Comments
AC Voltage <sup>3</sup> – Measure 110 V 220 V	60 Hz 60 Hz	2.6 mV 13 mV	Master multimeter

## III. Mechanical

Parameter/Equipment	Range	CMC <sup>2,4,7</sup> (±)	Comments
Force <sup>3</sup> – Measuring Equipment	(0.01 to 45) lbf (0.04 to 200) N  (20 to 1000) lbf (0.089 to 4.5) kN	0.12 %  0.16 %	ASTM E4, ISO 7500-1 using load cells, dead weights

Parameter/Equipment	Range	CMC <sup>2, 4, 5, 7</sup> ( $\pm$ )	Comments
Force <sup>3</sup> – Measuring Equipment (cont)	(1000 to 25 000) lbf (4.5 to 110) kN	0.10 %	ASTM E4, ISO 7500-1 using load cells, dead weights
	(25 000 to 120 000) lbf (110 to 500) kN	0.10 %	
Extensometers <sup>3</sup>	(0.1 to 100) mm	0.10 %	ASTM E83, ISO 9513 using digital high accuracy length scale
Scales & Balances <sup>3</sup>	(0.01 to 1000) lbf 4.5 g to 454 kg	0.01 % + 0.6R	Master dead weights ASTM E898
Torque <sup>3</sup> – Measuring Equipment	(0.1 to 150) lbf·ft (0.136 to 203) N·m	0.10 %	ASTM E2624, lever arm, dead weights
Torque <sup>3</sup> – Measuring Tools	(0 to 10) N·m	0.030 N·m + 0.3 %	High accuracy transducer

#### IV. Thermodynamics

Parameter/Equipment	Range	CMC <sup>2, 7</sup> ( $\pm$ )	Comments
Temperature <sup>3</sup> – Measurement Equipment, Ovens, Thermocouples, Probes	(-100 to 1300) °C	0.87 °C	ASTM E220, temperature indicator, thermocouples
Temperature <sup>3</sup> – Measure	(-30 to 650) °C	0.87 °C	ASTM E220 IR thermometer
Humidity <sup>3</sup> – Measurement Equipment, Climate Chambers, Probes	(15 to 95) % RH	1.2 % RH	Humidity indicator, probes

## V. Time & Frequency

Parameter/Equipment	Range	CMC <sup>2,4,7</sup> (±)	Comments
Timers & Stopwatches <sup>3</sup> – Measuring Equipment	30 s to 5 min	50 ms	High accuracy stopwatch
Cross Head Speed <sup>3</sup> – Measuring Equipment	Up to 1000 mm/min (40 in/min)	0.2 %	ASTM E2658 high accuracy length scale, or encoder travel sensor, high accuracy stopwatch
Speed / RPM <sup>3</sup> – Tachometer	(5 to 99 999) RPM	0.007 %	High accuracy tachometer

<sup>1</sup> This laboratory offers commercial and field 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 to be read as percent of reading, unless otherwise noted.

<sup>5</sup> In the statement of CMC,  $R$  is the resolution of the unit under test;  $L$  is the length in inches or meters

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

<sup>7</sup> 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.

<sup>8</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 fraction/percentage of the reading plus a fixed floor specification.



# Accredited Laboratory

A2LA has accredited

## TESTCAL PLUS

*Riverview, MI*

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/NCSL 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 9<sup>th</sup> day of August 2024.

A handwritten signature in blue ink, appearing to read "Trace McInturff".

Mr. Trace McInturff, Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 4306.01  
Valid to September 30, 2026

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