

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

INTERNATIONAL CERTIFICATION MEASUREMENTS, INC. (SUBSIDIARY OF LEADER CORPORATION) 51644 Filomena Dr. Shelby Township, MI 48315 Brenda Arcari Phone: 586 566 7114

CALIBRATION

Valid To: June 30, 2025

Certificate Number: 3692.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations^{1, 7}:

I. Acoustical

Parameter/Equipment	Frequency	$CMC^{2}(\pm)$	Comments
Sound Level Meters ³ – Fixed Points			
94 dB 114 dB	1000 Hz 125 Hz, 2 kHz	0.53 dB 0.53 dB	Sound calibrator

II. Dimensional

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Micrometers ³ –	Up to 12 in	(25 + 4.4 <i>L</i>) μin	Gage blocks, optical
	(12 to 24) in	(44 + 4 <i>L</i>) μin	flats

(A2LA Cert. No. 3692.02) 10/03/2023

5202 Presidents Court, Suite 220 | Frederick, MD 21703-8398 | Phone: 301 644 3248 | Fax: 240 454 9449 | www.A2LA.org

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Universal Length Machines (ULM), Universal Measuring Machines (UMM), & Bench Micrometer –			
Length	Up to 1 in	(7.8 + 1.6 <i>L</i>) μin	Gage blocks
Force	Up to 40 ozf	0.02 ozf	Load cell, force gage
Calipers ³	Up to 24 in (24 to 80) in	(290 + 0.65 <i>L</i>) μin (240 + 2.7 <i>L</i>) μin	Gage blocks
Bore Gages ³	(0.04 to 16) in	(39 + 9.8 <i>L</i>) µin	Ring gages
Length Indicators ³	Up to 2 in	(42 + 0.24 <i>L</i>) µin	Gage blocks
Bench Comparators –			
Length	Up to 0.01 in	$(6.9 + 0.07L) \mu in$	Gage blocks
Force	Up to 42 ozf	0.02 ozf	Force gage
Depth Micrometer ³	Up to 12 in	(110 + 1.2 <i>L</i>) µin	Gage blocks, depth master fixture
Optical Comparators & Vision/Video Measuring Systems ³ –			
Length	Up to 12 in	(150 + 0.8 <i>L</i>) μin	Line/Optical scale
Angle	Up to 90°	0.02°	Angle blocks
Magnification	(10 to 250) x	400 µin	Magnification scale
Gage Blocks	Up to 4 in (5 to 20) in	(2.9 + 2.5 <i>L</i>) μin (3.1 + 2.5 <i>L</i>) μin	Gage block comparator, master gage blocks

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
External Straight Thread Plug Gages ³ –			
Pitch Diameter	(0.05 to 4) in (4 to 16) in	(59 + 0.84 <i>D</i>) μin (61 + 2 <i>D</i>) μin	Bench micrometer, length indicator, gage blocks, thread wires
Major Diameter	(0.05 to 4) in	(28 + 1.9D) µin	Bench comparator, gage blocks
Angle	Up to 90°	2.6°	Optical comparator
External Tapered Thread ³ –			
Pitch Diameter	(0.05 to 4) in	(72 + 0.74 <i>D</i>) μin	Bench comparator, gage blocks, thread wires, sine block
Major Diameter	(0.05 to 4) in	(50 + 1.2 <i>D</i>) μin	Bench comparator, gage blocks, sine block
Angle	Up to 90°	2.6°	Optical comparator
External Tapered Plugs ³ –			
Major Diameter	(0.05 to 4) in	(51 + 1 <i>D</i>) μin	Bench comparator, gage blocks, sine block
Steps	(0.05 to 4) in	(61 + 0.05 <i>L</i>) μin	Gage blocks, test indicator
Internal Straight Thread ³ –			
Pitch Diameter	Up to 16 in	(190 + 1.3 <i>D</i>) µin	Master set plug
Minor Diameter	Up to 16 in	(85 + 15D) μin	Pin gages
Thread Ring – Tapered			
Pitch Diameter Minor Diameter	Up to 4 in (0.05 to 4) in	(98 + 1.4 <i>D</i>) μin (28 + 1.9 <i>D</i>) μin	Master setting thread plug - tapered
Steps	(0.05 to 4) in	(61 + 0.05 <i>L</i>) μin	Gage blocks, test indicator

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Length Standards End Measuring Rods ³	(0.5 to 40) in (0.5 to 12) in	(18 + 2.5 <i>L</i>) μin (12 + 3.2 <i>L</i>) μin	Gage blocks, length amplifier, LVDT
Angle Blocks	Up to 90°	14′	Vison/Video measurement system
Radius Gages	Up to 12 in	(45 + 0.05 <i>R</i>) μin	Vision/Video measurement system
Pin Gages Class ZZ	(0.011 to 1) in	(44 + 8.1 <i>D</i>) μin	Laser micrometer
Thread Measuring Wires	(0.004 to 0.3) in	(15 + 0.04 <i>D</i>) μin	Thread measuring wire calibrator, thread wires
Amplifiers ³	10 µin to 0.001 in	(16 + 0.05 <i>L</i>) μin	Gage blocks
Height Gages ³	Up to 40 in	(450 + 0.09 <i>L</i>) μin	Gage blocks, step gage
Height Master	Up to 18 in	(66 + 1.4 <i>L</i>) μin	Gage blocks, length amplifier & LVDT
PI Tapes	Up to 16 in	(290 + 1.9 <i>L</i>) μin	Plugs
Master Disc & Plug Gages ³	(0.01 to 14) in	(12 + 3.4 <i>D</i>) μin	Master blocks, comparison equipment, ULM/UMM
Dimension Over Rolls	Up to 6 in	(92 + 0.8 <i>L</i>) μin	Roll gage, gage blocks, rolls
Protractors ³	Up to 90°	1.1′	Angle blocks
Cylindrical Ring Gages	(0.1 to 14) in	(15 + 3.6 <i>D</i>) μin	Master rings, ULM/UMM

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Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Surface Plates ³ –			Comparison using:
Overall Flatness	Up to 14 ft <i>DL</i>	(27 + 0.17 <i>DL</i>) µin	Mahr Federal 832 differential level system
Flatness of Local Area (Repeat Reading)	Up to 0.002 in	15 µin	Repeat-O-Meter
Steel Rules	Up to 12 in	(120 + 2.5 <i>L</i>) µin	Video/Vision system
Tape Measure ³	6 in	(160 + 0.3 <i>L</i>) µin	Lixer tape measure calibration tool
Sine Plates ³	Up to 45° (Up to 5) in	(0.000 62° + 0.0043 <i>A</i>) in	Master gage blocks, <i>A</i> = angle
Sine Bars ³	Up to 45° (5 to 10) in	(0.000 19° + 0.014 <i>A</i>) in	Master angle blocks, surface plate, test indicator, $A = angle^{\circ}$
Spheres & Precision Balls –			
Diameter	Up to 6 in	13 μin + 11 μin/in	Bench micrometer, gage
Sphericity	Up to 6 in	8.2 µin + 13 µin/in	

III. Dimensional Testing/Calibration¹

Parameter/Equipment	Range	CMC ^{2, 4, 6} (±)	Comments
2D – Measure ⁸	Up to (12 x 8) in	(86 + 3.0 <i>L</i>) µin	Vision system, CMM
Angle	Up to 90°	14′	
Radius	Up to 8 in	(120 + 0.2 <i>L</i>) µin	

Parameter/Equipment	Range	CMC ^{2, 4, 6} (±)	Comments
3D – Measure ⁸ X, Y, Z Linear Volumetric	Up to (14 x 16 x 12) in Up to (14 x 16 x 12) in	(280 + 29 <i>L</i>) μin 450 μin	СММ

IV. Electrical – DC/Low Frequency

Parameter/Range	Frequency	CMC ^{2, 5} (±)	Comments
AC Voltage – Generate			
Up to 320 mV	10 Hz to 3 kHz (3 to 30) kHz (30 to 50) kHz (50 to 100) kHz	$\begin{array}{c} 1.1 \ mV + 46 \ \mu V/V \\ 1.1 \ mV + 400 \ \mu V/V \\ 1.1 \ mV + 2.6 \ mV/V \\ 1.1 \ mV + 3 \ mV/V \end{array}$	Fluke 9100
320 mV to 3.2 V	10 Hz to 3 kHz (3 to 10) kHz (10 to 30) kHz (30 to 50) kHz (50 to 100) kHz	$\begin{array}{l} 960 \ \mu V + 300 \ \mu V/V \\ 960 \ \mu V + 400 \ \mu V/V \\ 960 \ \mu V + 700 \ \mu V/V \\ 960 \ \mu V + 1.2 \ mV/V \\ 960 \ \mu V + 3.1 \ mV/V \end{array}$	
(3.2 to 32) V	10 Hz to 3 kHz (3 to 10) kHz (10 to 30) kHz (30 to 50) kHz (50 to 100) kHz	$\begin{array}{c} 33 \ mV + 0.27 \ \mu V/V \\ 33 \ mV + 0.13 \ \mu V/V \\ 33 \ mV + 0.13 \ \mu V/V \\ 33 \ mV + 11 \ mV/V \\ 33 \ mV + 42 \ mV/V \end{array}$	
(32 to 320) V	40 Hz to 3 kHz (3 to 10) kHz (10 to 20) kHz (20 to 30) kHz	11 mV + 700 µV/V 11 mV + 1 mV/V 11 mV + 1.6 mV/V 11 mV + 2.1 mV/V	
(320 to 1050) V	40 Hz to 3 kHz (3 to 10) kHz	$\begin{array}{c} 55 \ mV + 800 \ \mu V/V \\ 55 \ mV + 800 \ \mu V/V \end{array}$	

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Parameter/Range	Frequency	CMC ^{2, 5} (±)	Comments
AC Voltage – Measure			
Up to 200 mV	(20 to 100) Hz 100 Hz to 2 kHz (2 to 10) kHz (10 to 30) kHz (30 to 50) kHz (50 to 100) kHz (100 to 200) kHz	0.19 μV 93 μV 110 μV 93 μV 93 μV 93 μV 93 μV	Keithley 2002
200 mV to 2 V	(20 to 100) Hz 100 Hz to 2 kHz (2 to 10) kHz (10 to 30) kHz (30 to 50) kHz (50 to 100) kHz (100 to 200) kHz	1.9 mV 0.88 mV 0.88 mV 1 mV 6.9 mV 17 mV 46 mV	
(2 to 20) V	(20 to 100) Hz 100 Hz to 2 kHz (2 to 10) kHz (10 to 30) kHz (30 to 50) kHz (50 to 100) kHz (100 to 200) kHz	58 mV 10 mV 10 mV 15 mV 170 mV 920 mV 920 mV	
(20 to 200) V	(20 to 100) Hz 100 Hz to 2 Hz (2 to 10) kHz (10 to 30) kHz (30 to 50) kHz (50 to 100) kHz	200 mV 110 mV 130 mV 150 mV 700 mV 1.7 V	
(200 to 750) V	(20 to 100 Hz 100 Hz to 2 kHz (2 to 10) kHz (10 to 30) kHz	1.5 V 1.1 V 1.1 V 1.3 V	

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Parameter/Range	Frequency	CMC ^{2, 5} (±)	Comments
AC Current – Generate			
(0.032 to 0.32) mA	40 Hz to 3 kHz (3 to 10) kHz (10 to 20) kHz	4.7 nA + 0.3 μA/A 4.7 nA + 0.6 μA/A 4.7 nA + 5.4 μA/A	Fluke 9100
(0.32 to 3.2) mA	40 Hz to 3 kHz (3 to 10) kHz (10 to 30) kHz	4.7 nA + 0.3 μA/A 4.7 nA + 0.6 μA/A 4.7 nA + 5.4 μA/A	
(3.2 to 32) mA	40 Hz to 3 kHz (3 to 10) kHz (10 to 20) kHz	260 nA + 100 μA/A 260 nA + 1.3 μA/A 260 nA + 4.4 μA/A	
(32 to 320) mA	40 Hz to 3 kHz (3 to 10) kHz (10 to 20) kHz	37 nA + 1 mA/A 37 nA + 1.2 mA/A 37 nA + 2.5 mA/A	
320 mA to 3.2 A	10 Hz to 3 kHz (3.01 to 10) kHz	560 nA + 1.2 mA/A 560 nA + 14 mA/A	
(3.2 to 10.5) A	10 Hz to 3 kHz (3.01 to 10) kHz	19 mA + 1.7 mA/A 19 mA + 6.6 mA/A	
(10.5 to 20) A	10 Hz to 3 kHz (3.01 to 10) kHz	19 mA + 1.9 mA/A 19 mA + 6.2 mA/A	

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Parameter/Range	Frequency	CMC ^{2, 5} (±)	Comments
AC Current – Measure			
(0.1 to 200) μA	(20 to 50) Hz (50.1 to 100) Hz 100.1 Hz to 2.0 kHz (2.01 to 10) kHz	46 nA + 3.8 mA/A 46 nA + 2.4 mA/A 46 nA + 2.2 mA/A 46 nA + 5.6 mA/A	Keithley 2002
200 μA to 2 mA	(20 to 50) Hz (50.1 to 100) Hz 100.1 Hz to 2.0 kHz (2.01 to 10) kHz	1.2 μA + 0.2 mA/A 1.2 μA + 1.3 mA/A 1.2 μA + 0.9 mA/A 1.2 μA + 2.5 mA/A	
(2 to 20) mA	(20 to 50) Hz (50.1 to 100) Hz 100.1 Hz to 2.0 kHz (2.01 to 10) kHz	$\begin{array}{l} 4.3 \ \mu A + 0.4 \ m A/A \\ 4.3 \ \mu A + 1.6 \ m A/A \\ 4.3 \ \mu A + 1.3 \ m A/A \\ 4.3 \ \mu A + 1.7 \ m A/A \end{array}$	
(20 to 200) mA	(20 to 50) Hz (50.1 to 100) Hz 100.1 Hz to 2.0 kHz (2.01 to 10) kHz	64 μA + 3.7 mA/A 4.3 μA + 2.1 mA/A 4.3 μA + 4.2 mA/A 4.3 μA + 5.4 mA/A	
(0.2 to 2) A	(20 to 50) Hz (50.1 to 100) Hz 100.1 Hz to 2.0 kHz (2.01 to 10) kHz	820 μA + 3.6 mA/A 820 μA + 2 mA/A 820 μA + 4.7 mA/A 820 μA + 7.5 mA/A	
(2 to 20) A	60 Hz	0.12 A	Keithley 2002/ current shunt

Parameter/Equipment	Range	CMC ^{2, 5} (±)	Comments
DC Voltage – Generate ³	Up to 320 mV 321 mV to 3.2 V (3.21 to 32) V (32.1 to 320) V (321 to 1050) V	$\begin{array}{c} 10 \ \mu V + 69 \ \mu V/V \\ 88 \ \mu V + 61 \ \mu V/V \\ 820 \ \mu V + 69 \ \mu V/V \\ 8 \ m \ V + 69 \ \mu V/V \\ 46 \ m \ V + 50 \ \mu V/V \end{array}$	Fluke 9100

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Parameter/Equipment	Range	CMC ^{2, 5} (±)	Comments
DC Voltage – Measure ³	Up to 200 mV 201 mV to 2 V (2.01 to 20) V (20 to 200) V (200 to 1000) V	98 μV 32 μV 300 μV 6.0 m V 53 m V	Keithley 2002
Resistance – Generate	$\begin{array}{c} (0.01 \ \text{to} \ 40) \ \Omega \\ (40 \ \text{to} \ 400) \ \Omega \\ 400 \ \Omega \ \text{to} \ 4 \ \text{k}\Omega \\ (4 \ \text{to} \ 40) \ \text{k}\Omega \\ (40 \ \text{to} \ 400) \ \text{k}\Omega \\ (0.4 \ \text{to} \ 4.0) \ \text{M}\Omega \\ (4 \ \text{to} \ 400) \ \text{M}\Omega \\ (40 \ \text{to} \ 400) \ \text{M}\Omega \end{array}$	$\begin{array}{l} 1.5 \ m\Omega + 1.2 \ m\Omega/\Omega \\ 34 \ m\Omega + 0.34 \ m\Omega/\Omega \\ 94 \ m\Omega + 0.17 \ m\Omega/\Omega \\ 0.9 \ \Omega + 0.33 \ m\Omega/\Omega \\ 9.4 \ \Omega + 0.21 \ m\Omega/\Omega \\ 100 \ \Omega + 180 \ m\Omega/\Omega \\ 2.3 \ k\Omega + 580 \ m\Omega/\Omega \\ 1.9 \ k\Omega + 46 \ m\Omega/\Omega \end{array}$	Fluke 9100
Resistance – Measure	$\begin{array}{c} (0.0001 \ \text{to} \ 20) \ \Omega \\ (20 \ \text{to} \ 200) \ \Omega \\ 200 \ \Omega \ \text{to} \ 2 \ \text{k}\Omega \\ (2 \ \text{to} \ 20) \ \text{k}\Omega \\ (20 \ \text{to} \ 200) \ \text{k}\Omega \\ (200 \ \text{to} \ 2) \ \text{M}\Omega \\ (2 \ \text{to} \ 200) \ \text{M}\Omega \\ (20 \ \text{to} \ 200) \ \text{M}\Omega \end{array}$	$\begin{array}{c} 0.29 \ m\Omega + 77 \ m\Omega/\Omega \\ 1.9 \ m\Omega + 0.4 \ m\Omega/\Omega \\ 0.17 \ \Omega + 3.8 \ m\Omega/\Omega \\ 1.2 \ \Omega + 0.8 \ m\Omega/\Omega \\ 2.2 \ \Omega + 0.8 \ m\Omega/\Omega \\ 12 \ \Omega + 5.7 \ m\Omega/\Omega \\ 100 \ \Omega + 3.2 \ m\Omega/\Omega \\ 1400 \ \Omega + 3.5 \ m\Omega/\Omega \end{array}$	Keithley 2002
DC Current – Generate	Up to 320 µA 320 µA to 3.2 mA (3.2 to 32) mA (32 to 320) mA 320 mA to 3.2 A (3.2 to 10.5) A (10.5 to 20) A	$\begin{array}{c} 0.7 \ nA + 93 \ \mu A/A \\ 0.7 \ nA + 210 \ \mu A/A \\ 0.7 \ nA + 210 \ \mu A/A \\ 0.7 \ nA + 240 \ \mu A/A \\ 0.7 \ nA + 240 \ \mu A/A \\ 0.007 \ A \\ 0.007 \ A \\ 0.018 \ A \end{array}$	Fluke 9100
DC Current – Measure	Up to 200 μA 200 μA to 2 mA (2 to 20) mA (200 to 2) A (2 to 10) A	95 nA + 160 μA/A 95 nA + 370 μA/A 95 nA + 440 μA/A 95 nA + 920 μA/A 0.012 A	Keithley 2002 Fluke 87V

Parameter/Equipment	Range	$\mathrm{CMC}^{2}\left(\pm ight)$	Comments
Electrical Simulation of Thermocouples Indicating Systems ³ –			
Type J	(-210 to 0) °C (0 to 800) °C (800 to 1200) °C	0.4 °C 0.35 °C 0.38 °C	Fluke 9100
Туре К	(-250 to 0) °C (0 to 100) °C (100 to 1372) °C	0.69 °C 0.38 °C 0.38 °C	
Туре Т	(-250 to 0) °C (0 to 400) °C	0.38 °C 0.30 °C	
Electrical Simulation of Thermocouple Indicating Systems ³ –			
Type J	(-210 to 0) °C (0 to 800) °C (800 to 1200) °C	0.71 °C 0.38 °C 0.60 °C	Fluke 725
Туре К	(-250 to 0) °C (0 to 100) °C (100 to 1372) °C	0.83 °C 0.60 °C 0.83 °C	
Туре Т	(-250 to 0) °C (0 to 400) °C	0.72 °C 0.39 °C	

V. Mechanical

Parameter/Equipment	Range	$\mathrm{CMC}^{2}\left(\pm ight)$	Comments
Scales & Balances ³ –	(0.001 to 8) kg (0.1 to 8) kg (1 to 40) kg (1.005 to 10) lbs (1.001 to 10) lbs (10 to 600) lbs	0.002 g + 0.03 mg/g 0.58 g + 0.0006 mg/g 0.0018 kg + 0.0003 kg/kg 0.000 73 lbs + 0.0006 lbs/lbs 0.0014 lbs + 0.0005 lbs/lbs 0.08 lbs + 0.0002 lbs/lbs	Using ASTM Class 1, NIST Class F weights per NIST Handbook 44 section 2.20

Parameter/Equipment	Range	CMC ^{2, 6} (±)	Comments
Scales & Balances ³ – (cont)	Up to 2000 lb	0.028 lb + 0.0003 lb/lb	Using ASTM Class F weights, transferred weight per NIST Handbook 44 section 2.20
Pressure – Pneumatic ³ (Pressure Gages, Transducers, Switches)	Up to 30 PSIG (30 to 100) PSIG (100 to 500) PSIG (500 to 1000) PSIG (500 to 5000) PSIG	0.02 PSI 0.07 PSI 0.2 PSI 0.83 PSI 1.8 PSI	Heise pressure measurement system
Vacuum – Measuring Equipment	(0 to 30) inHg	0.011 inHg	Heise pressure measurement system
Force Gages ³ – Measure Tension & Compression	(5 to 10) lbf (10 to 500) lbf (500 to 2500) lbf (2500 to 20 000) lbf	0.011 lbf + 0.004 lbf/lbf 0.04 lbf + 0.0015 lbf/lbf 2.8 lbf 13 lbf	ASTM Class F weights, load cells & indicator
Torque Wrenches ³	(15 to 200) ozf·in (5 to 50) lbf·in (50 to 250) lbf·in (250 to 2000) lbf·in (50 to 250) lbf·ft (250 to 2000) lbf·ft	(0.033 + 0.003T) ozf·in (0.035 + 0.003T) lbf·in (0.067 + 0.003T) lbf·in (0.4 + 0.003T) lbf·in (0.09 + 0.003T) lbf·in (0.67 + 0.003T) lbf·in	Torque transducers & indicators T = Torque

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Parameter/Equipment	Range	$\mathrm{CMC}^{2}\left(\pm ight)$	Comments
Indirect Verification of Rockwell Hardness ³	HRBW Low Medium High	0.68 HRBW 0.72 HRBW 0.57 HRBW	ASTM E18
	HRC Low Medium High	0.44 HRC 0.39 HRC 0.36 HRC	
	HRBS Low Medium High	0.70 HRBS 0.60 HRBS 0.59 HRBS	
	HR15N Low Medium High	0.49 HR15N 0.58 HR15N 0.41 HR15N	
	HR30N Low Medium High	0.55 HR30N 0.50 HR30N 0.50 HR30N	
	HR30T Low Medium High	1.1 HR30TW 0.79 HR30TW 0.91 HR30TW	

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Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Durometer –			ASTM D2240 using:
Spring Calibration Force	Up to 8 N	0.15 N	Force gage
Types Shore A Types Shore D Types Shore M	Up to 100 Duro Up to 100 Duro Up to 100 Duro	0.5 Shore A units 0.5 Shore D units 0.5 Shore M units	
Indenter Extension & Shape			
Diameter	Up to 0.32 in	(120 + 0.02 <i>D</i>) µin	Vision measuring
Radius	Up to 0.252 in	(47 + 0.05 <i>R</i>) μin	system
Angle	Up to 90°	14′	
Extension	Up to 0.2 in	(61 + 0.008 <i>L</i>) µin	
Indenter Display	Up to 100 Duro	0.5 Duro units	Gage blocks

VI. Thermodynamic

Parameter/Equipment	Range	CMC ^{2, 6} (±)	Comments
Infrared Thermometer ³	(50 to 300) °F (75 to 600) °F	3.4 °F 6.7 °F	Infrared black body source
Temperature – Measure	(0 to 750) °C	1.8 °C	Thermocouple with indicator
Thermocouples ³	(25 to 600) °C	2.1 °C + 0.002 °C/°C	Dry block calibrator & Fluke 725 process calibrator
Relative Humidity – Measure ³	(30 to 70) % RH	3.8 % RH	Hygrometer

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VII. Time & Frequency

Parameter/Equipment	Range	CMC ^{2, 6} (±)	Comments
Frequency – Measuring Equipment (Frequency Counters)	1 Hz to 10 kHz	0.58 Hz	Signal generator

- ¹ This laboratory offers commercial calibration/dimensional testing service and field calibration/ dimensional testing 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 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 In the statement of CMC, L is the numerical value of the nominal length of the device measured in inches, D is the diagonal length in inches and R is the resolution of the unit under test.
- ⁵ 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.
- ⁶ 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.
- ⁷ This scope meets A2LA's P112 *Flexible Scope Policy*.
- ⁸ This laboratory meets R205 *Specific Requirements: Calibration Laboratory Accreditation Program* for the types of dimensional tests listed above and is considered equivalent to that of a calibration.

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Accredited Laboratory

A2LA has accredited

INTERNATIONAL CERTIFICATION MEASUREMENTS, INC. (SUBSIDIARY OF LEADER CORPORATION)

Shelby Township, 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 3rd day of October 2023.

Mr. Trace McInturff, Vice President, Accreditation Services For the Accreditation Council Certificate Number 3692.02 Valid to June 30, 2025

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