



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

TRESCAL, INC.
1047 Serpentine Lane, STE 500
Pleasanton, CA 94566
Ben Slaughter Phone: 414 716 0344

CALIBRATION

Valid To: August 31, 2024

Certificate Number: 2220.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations^{1, 6}:

I. Dimensional

Parameter/Equipment	Range	CMC ² (±)	Comments
Micrometers			
Linearity	Up to 20 in	9.4 µin + 5 µin/in	Gage blocks
Flatness	50 µin	5.8 µin	Optical flats w/ monochromatic light
Parallelism	50 µin	5.8 µin	
Calipers			
Outside Diameter	Up to 20 in	11 µin + 5.2 µin/in	Gage blocks
Step and Depth	Up to 20 in	12 µin + 5.1 µin/in	
Pin Gages	(0.005 to 1.0) in	16 µin + 1.6 µin/in	Laser micrometer w/ master pin gages

II. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ^{2,4} ($\pm$)	Comments
DC Voltage ³ – Generate	(0 to 329.9999) μ V 330 μ V to 3.299 999 V (3.3 to 32.999 99) V (33 to 329.9999) V (330 to 1000) V	0.84 μ V + 16 nV/mV 17 μ V + 6 μ V/V 88 μ V + 7 μ V/V 0.55 mV + 14 μ V/V 2.6 mV + 14 μ V/V	Fluke 5522A
DC Voltage ³ – Measure	(0 to 100) mV (0.1 to 1) V (1 to 10) V (10 to 100) V (100 to 1000) V	0.33 μ V + 17 μ V/V 0.52 μ V + 8 μ V/V 8.8 μ V + 8.1 μ V/V 35 μ V + 10 μ V/V 1.2 mV + 11 μ V/V	Agilent 3458A
DC Current ³ – Generate	(0 to 329.999) μ A 330 μ A to 3.299 99 mA (3.3 to 32.9999) mA (33 to 329.999) 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	16 nA + 0.12 nA/ μ A 40 nA + 78 nA/mA 0.2 μ A + 78 nA/mA 2 μ A + 78 nA/mA 33 μ A + 0.16 mA/A 0.36 mA + 0.3 mA/A 0.48 mA + 0.38 mA/A 9.1 mA + 0.78 mA/A	Fluke 5522A
DC Current ³ – Measure	(0 to 100) nA (0.1 to 1) μ A (1 to 10) μ A (10 to 100) μ A (0.1 to 1) mA (1 to 10) mA (10 to 100) mA (0.1 to 1) A	41 pA + 89 μ A/A 70 pA + 21 μ A/A 0.7 nA + 18 μ A/A 5.8 nA + 9.2 μ A/A 58 nA + 9.7 μ A/A 0.58 μ A + 8 μ A/A 5.8 μ A + 17 μ A/A 59 μ A + 81 μ A/A	Agilent 3458A

Parameter/Equipment	Range	CMC ^{2, 4} ($\pm$)	Comments
Resistance ³ – Generate	(0 to 10.9999) Ω (11 to 32.9999) Ω (33 to 109.9999) Ω (110 to 329.9999) Ω (330 to 1099.999) Ω (1.1 to 3.299 999) $k\Omega$ (3.3 to 10.999 99) $k\Omega$ (11 to 32.999 99) $k\Omega$ (33 to 109.9999) $k\Omega$ (110 to 329.9999) $k\Omega$ (330 to 1099.999) $k\Omega$ (1.1 to 3.299 999) $M\Omega$ (3.3 to 10.999 99) $M\Omega$ (11 to 32.999 99) $M\Omega$ (33 to 109.9999) $M\Omega$ (110 to 329.9999) $M\Omega$ (330 to 1100) $M\Omega$	1.1 $m\Omega + 25 \mu\Omega/\Omega$ 1.4 $m\Omega + 31 \mu\Omega/\Omega$ 2.6 $m\Omega + 18 \mu\Omega/\Omega$ 4.4 $m\Omega + 23 \mu\Omega/\Omega$ 9.7 $m\Omega + 24 \mu\Omega/\Omega$ 42 $m\Omega + 24 \mu\Omega/\Omega$ 98 $m\Omega + 24 \mu\Omega/\Omega$ 0.42 $\Omega + 24 \mu\Omega/\Omega$ 0.97 $\Omega + 24 \mu\Omega/\Omega$ 8.3 $\Omega + 25 \mu\Omega/\Omega$ 14 $\Omega + 25 \mu\Omega/\Omega$ 90 $\Omega + 47 \mu\Omega/\Omega$ 0.39 $k\Omega + 0.1 m\Omega/\Omega$ 4.2 $k\Omega + 0.19 m\Omega/\Omega$ 15 $k\Omega + 0.39 m\Omega/\Omega$ 0.34 $M\Omega + 2.3 m\Omega/\Omega$ 4.2 $M\Omega + 12 m\Omega/\Omega$	Fluke 5522A
Resistance ³ – Generate, Fixed Point, Calibrate Thermometer DRO	25 Ω 75 Ω 100 Ω 200 Ω 400 Ω	40 $\mu\Omega$ 0.11 $m\Omega$ 0.14 $m\Omega$ 0.39 $m\Omega$ 0.61 $m\Omega$	Hart 5420-25 MI 9331-75 Hart 5420-100 Hart 5420-200 Hart 5420-400
Resistance ³ – Measure	(0 to 10) Ω (10 to 100) Ω (0.1 to 1) $k\Omega$ (1 to 10) $k\Omega$ (10 to 100) $k\Omega$ (0.1 to 1) $M\Omega$ (1 to 10) $M\Omega$ (10 to 100) $M\Omega$ (0.1 to 1) $G\Omega$	55 $\mu\Omega + 15 \mu\Omega/\Omega$ 0.52 $m\Omega + 13 \mu\Omega/\Omega$ 0.53 $m\Omega + 10 \mu\Omega/\Omega$ 5.3 $m\Omega + 10 \mu\Omega/\Omega$ 53 $m\Omega + 11 \mu\Omega/\Omega$ 2.3 $\Omega + 17 \mu\Omega/\Omega$ 0.1 $k\Omega + 55 \mu\Omega/\Omega$ 1 $k\Omega + 0.52 m\Omega/\Omega$ 10 $k\Omega + 5.1 m\Omega/\Omega$	Agilent 3458A

Parameter/Range	Frequency	CMC ^{2, 4} ($\pm$)	Comments
AC Voltage – Generate ³			
(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 200) kHz (200 to 500) kHz	5.7 μ V + 0.62 μ V/mV 6.1 μ V + 0.1 μ V/mV 6.1 μ V + 0.14 μ V/mV 8.1 μ V + 0.71 μ V/mV 16 μ V + 2.6 μ V/mV 46 μ V + 6.2 μ V/mV 53 μ V + 6 μ V/mV	Fluke 5520A
(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 200) kHz (200 to 500) kHz	20 μ V + 0.22 μ V/mV 27 μ V + 77 nV/mV 17 μ V + 0.11 μ V/mV 37 μ V + 0.27 μ V/mV 50 μ V + .061 μ V/mV 0.11 mV + 1.5 μ V/mV 0.15 mV + 1.4 μ V/mV	
330 mV 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 200) kHz (200 to 500) kHz	0.15 mV + 0.22 mV/V 0.13 mV + 0.11 mV/V 0.13 mV + 0.14 mV/V 0.21 mV + 0.21 mV/V 0.39 mV + 0.51 mV/V 1.1 mV + 1.9 mV/V 1.8 mV + 1.7 mV/V	
(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	1.8 mV + 0.22 mV/V 1.6 mV + 99 μ V/V 2 mV + 0.16 mV/V 2.4 mV + 0.24 mV/V 5 mV + 0.66 mV/V	
(33 to 329.999) V	(10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz	16 mV + 0.12 mV/V 18 mV + 0.14 mV/V 19 mV + 0.17 mV/V 48 mV + 0.16 mV/V 93 mV + 1.5 mV/V	
(330 to 1020) V	45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	96 mV + 0.22 mV/V 85 mV + 0.18 mV/V 96 mV + 0.22 mV/V	

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Voltage – Measure ³			Agilent 3458A
(0.1 to 10) mV	(1 to 40) Hz	0.0061 mV + 0.0003 mV/mV	
	40 Hz to 1 kHz	0.0041 mV + 0.0002 mV/mV	
	(1 to 20) kHz	0.0042 mV + 0.0003 mV/mV	
	(20 to 50) kHz	0.0049 mV + 0.001 mV/mV	
	(50 to 100) kHz	0.009 mV + 0.005 mV/mV	
	(100 to 300) kHz	0.045 mV + 0.04 mV/mV	
(10 to 100) mV	(1 to 40) Hz	0.012 mV + 0.000 07 mV/mV	
	40 Hz to 1 kHz	0.0027 mV + 0.000 07 mV/mV	
	(1 to 20) kHz	0.011 mV + 0.000 14 mV/mV	
	(20 to 50) kHz	0.012 mV + 0.0003 mV/mV	
	(50 to 100) kHz	0.017 mV + 0.0008 mV/mV	
	(100 to 300) kHz	0.047 mV + 0.003 mV/mV	
	(0.3 to 1) MHz	0.12 mV + 0.01 mV/mV	
	(1 to 2) MHz	3.8 mV + 0.01 mV/mV	
100 mV to 1 V	(1 to 40) Hz	0.000 12 V + 0.000 07 V/V	
	40 Hz to 1 kHz	0.0001 V + 0.000 07 V/V	
	(1 to 20) kHz	0.000 11 V + 0.000 14 V/V	
	(20 to 50) kHz	0.000 12 V + 0.0003 V/V	
	(50 to 100) kHz	0.000 17 V + 0.0008 V/V	
	(100 to 300) kHz	0.000 47 V + 0.003 V/V	
	(0.3 to 1) MHz	0.0012 V + 0.010 V/V	
	(1 to 2) MHz	0.038 V + 0.015 V/V	
(1 to 10) V	(1 to 40) Hz	0.0012 V + 0.000 07 V/V	
	40 Hz to 1 kHz	0.001 V + 0.000 07 V/V	
	(1 to 20) kHz	0.001 V + 0.000 14 V/V	
	(20 to 50) kHz	0.0012 V + 0.0003 V/V	
	(50 to 100) kHz	0.0017 V + 0.0008 V/V	
	(100 to 300) kHz	0.0047 V + 0.003 V/V	
	(0.3 to 1) MHz	0.012 V + 0.01 V/V	
	(1 to 2) MHz	0.38 V + 0.015 V/V	
(10 to 100) V	(1 to 40) Hz	0.013 V + 0.0002 V/V	
	40 Hz to 1 kHz	0.011 V + 0.0002 V/V	
	(1 to 20) kHz	0.011 V + 0.0002 V/V	
	(20 to 50) kHz	0.013 V + 0.000 35 V/V	
	(50 to 100) kHz	0.021 V + 0.0012 V/V	
	(100 to 300) kHz	0.057 V + 0.004 V/V	
	(0.3 to 1) MHz	0.17 V + 0.015 V/V	
(100 to 1000) V	(1 to 40) Hz	0.098 V + 0.0004 V/V	
	40 Hz to 1 kHz	0.084 V + 0.0004 V/V	
	(1 to 20) kHz	0.098 V + 0.0006 V/V	
	(20 to 50) kHz	0.14 V + 0.0012 V/V	
	(50 to 100) kHz	0.27 V + 0.003 V/V	

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Current – Generate ³			
(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	0.14 µA + 1.5 nA/µA 0.13 µA + 1.1 nA/µA 0.13 µA + 0.92 nA/µA 0.2 µA + 2.3 nA/µA 0.34 µA + 6.2 nA/µA 0.68 µA + 1.2 nA/µA	Fluke 5520A
330 µA to 3.2999 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	0.77 µA + 1.5 µA/mA 0.59 µA + 0.93 µA/mA 0.55 µA + 0.73 µA/mA 0.78 µA + 1.5 µA/mA 2.9 µA + 1.5 µA/mA 3.3 µA + 7.7 µA/mA	
(3.3 to 32.999) 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	7.5 µA + 1.4 µA/mA 5.3 µA + 0.66 µA/mA 4.5 µA + 0.27 µA/mA 5.2 µA + 0.58 µA/mA 8.3 µA + 1.5 µA/mA 14 µA + 3.1 µA/mA	
(33 to 329.99) 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	75 µA + 1.4 µA/mA 55 µA + 0.66 µA/mA 47 µA + 0.26 µA/mA 75 µA + 0.75 µA/mA 0.13 mA + 1.5 µA/mA 0.26 mA + 3.1 µA/mA	
330 mA to 1.099 99 A	(10 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.6 mA + 1.3 mA/A 0.33 mA + 0.31 mA/A 2.3 mA + 4.6 mA/A 10 mA + 19 mA/A	
(1.1 to 2.999 99) A	(10 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	1.6 mA + 1.5 mA/A 0.65 mA + 0.66 mA/A 5.9 mA + 4.7 mA/A 25 mA + 19 mA/A	
(3 to 10.9999) A	(45 to 100) Hz 100 Hz to 1 kHz (1 to 5) kHz	3.3 mA + 0.72 mA/A 4.1 mA + 0.95 mA/A 71 mA + 23 mA/A	
(11 to 20.5) A	(45 to 100) Hz 100 Hz to 1 kHz (1 to 5) kHz	15 mA + 1.7 mA/A 18 mA + 1.8 mA/A 0.26 A + 23 mA/A	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Current ³ – Measure			
(5 to 100) µA	(10 to 20) Hz (20 to 45) Hz 45 Hz to 5 kHz	57 nA + 4 mA/A 45 nA + 1.5 mA/A 40 nA + 0.64 mA/A	Agilent 3458A
(0.1 to 1) 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	0.000 43 mA + 0.0041 mA/mA 0.000 31 mA + 0.0016 mA/mA 0.000 26 mA + 0.000 67 mA/mA 0.000 25 mA + 0.000 37 mA/mA 0.000 26 mA + 0.000 67 mA/mA 0.000 63 mA + 0.0042 mA/mA 0.0018 mA + 0.0056 mA/mA	
(1 to 10) 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	0.0024 mA + 0.0041 mA/mA 0.0023 mA + 0.0016 mA/mA 0.0023 mA + 0.000 67 mA/mA 0.0023 mA + 0.000 37 mA/mA 0.0023 mA + 0.000 67 mA/mA 0.0045 mA + 0.0041 mA/mA 0.016 mA + 0.0056 mA/mA	
(10 to 100) 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	0.042 mA + 0.004 mA/mA 0.03 mA + 0.0015 mA/mA 0.025 mA + 0.0006 mA/mA 0.024 mA + 0.0003 mA/mA 0.025 mA + 0.0006 mA/mA 0.062 mA + 0.004 mA/mA 0.18 mA + 0.0055 mA/mA	
(0.1 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	0.00042 A + 0.0041 A/A 0.0003 A + 0.0017 A/A 0.000 26 A + 0.0009 A/A 0.000 27 A + 0.0011 A/A 0.000 37 A + 0.0031 A/A 0.000 92 A + 0.01 A/A	

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
Capacitance – Generate ³			Fluke 5520A
(0.19 to 0.3999) nF	10 Hz to 10 kHz	8.5 pF + 3.8 pF/nF	
0.4 to 1.0999) nF	10 Hz to 10 kHz	9.4 pF + 3.9 pF/nF	
(1.1 to 3.299) nF	10 Hz to 3 kHz	12 pF + 3.9 pF/nF	
(3.3 to 10.999) nF	(10 to 1000) Hz	15 pF + 2 pF/nF	
(11 to 32.9999) nF	(10 to 1000) Hz	0.1 nF + 1.9 pF/nF	
(33 to 109.999) nF	(10 to 1000) Hz	0.14 nF + 1.9 pF/nF	
(110 to 329.99) nF	(10 to 1000) Hz	0.45 nF + 1.9 pF/nF	
(0.33 to 1.0999) µF	(10 to 600) Hz	1.4 nF + 1.9 nF/µF	
(1.1 to 3.2999) µF	(10 to 300) Hz	4.4 nF + 1.9 nF/µF	
(3.3 to 10.999) µF	(10 to 150) Hz	14 nF + 1.9 nF/µF	
(11 to 32.999) µF	(10 to 120) Hz	58 nF + 3.1 nF/µF	
(33 to 109.99) µF	(10 to 80) Hz	0.19 µF + 3.5 nF/µF	
(110 to 329.99) µF	Up to 50 Hz	0.62 µF + 3.5 nF/µF	
(0.33 to 1.0999) mF	Up to 20 Hz	1.9 µF + 3.5 µF/mF	
(1.1 to 3.2999) mF	Up to 6 Hz	6.8 µF + 3.4 µF/mF	
(3.3 to 10.999) mF	Up to 2 Hz	38 µF + 2.4 µF/mF	
(11 to 32.999) mF	Up to 0.6 Hz	87 µF + 5.8 µF/mF	
(33 to 110) mF	Up to 0.2 Hz	0.36 mF + 8.5 µF/mF	

Parameter/Equipment	Range	CMC ² (±)	Comments
Electrical Calibration of Thermocouple Indicating Devices ³ – Measure and Generate			Fluke 5522A
Type J	(-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1200) °C	0.21 °C 0.13 °C 0.12 °C 0.14 °C 0.18 °C	
Type K	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1000) °C (1000 to 1372) °C	0.26 °C 0.15 °C 0.13 °C 0.21 °C 0.31 °C	
Type S	(0 to 250) °C (250 to 1000) °C (1000 to 1400) °C (1400 to 1767) °C	0.37 °C 0.28 °C 0.29 °C 0.36 °C	
Type T	(-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C	0.49 °C 0.21 °C 0.15 °C 0.14 °C	

III. Fluid Quantities

Parameter/Equipment	Range	CMC ^{2, 5} ($\pm$)	Comments
Air Flow Rate – Measure	(10 to 100) sccm (0.1 to 1) slm (1 to 10) slm (10 to 100) slm (40 to 400) slm	0.41 % of rdg 0.41 % of rdg 0.41 % of rdg 0.41 % of rdg 0.41 % of rdg	DHI Molbloc
Air Flow Rate – Measure ³	(5 to 500) sccm 500 sccm to 50 slm	0.52 % of rdg 0.57 % of rdg	Sierra Instruments primary gas flow calibrator

IV. Mechanical

Parameter/Equipment	Range	CMC ^{2, 5} ($\pm$)	Comments
Torque Wrenches	4 ozf-in to 250 lbf-ft	0.37 % of rdg	Torque transducers
Pressure – Measure ³	$\pm$ (0 to 7.5) inH ₂ O $\pm$ (7.5 to 30) inH ₂ O Up to 15 psia (-14.5 to 0) psig (0 to 40) psig (40 to 100) psig (100 to 200) psig (200 to 500) psig	0.0004 inH ₂ O 0.0064 % of rdg 0.002 psi 0.002 psi 0.002 psi 0.0055 % of rdg 0.01 psi 0.005 % of rdg	Ruska 7250LP Ruska 7252i
Scales ³ –	Up to 1200 lbs	0.82R	NIST F Class weights <i>R = Unit under test resolution</i>

Parameter/Equipment	Range	CMC ² (±)	Comments
Balances ³ –			
0.000 01 g Resolution	Up to 500 mg 500 mg to 5 g (5 to 10) g (10 to 20) g (20 to 50) g (50 to 100) g (100 to 200) g	1.4R 4.0R 5.9R 8.6R 14R 29R 58R	ASTM Class 1 weights <i>R = Unit under test resolution</i>
0.0001 g Resolution	Up to 500 mg 500 mg to 5 g (5 to 10) g (10 to 20) g (20 to 50) g (50 to 100) g (100 to 200) g	0.82R 0.91R 1.0R 1.2R 1.6R 3.0R 5.8R	
0.001 g Resolution	(0 to 50) g (50 to 100) g (100 to 200) g (200 to 500) g 500 g to 1 kg	0.83R 0.87R 1.0R 1.6R 3.0R	
0.01 g Resolution	(0 to 200) g (200 to 500) g 500 g to 1 kg (1 to 2) kg (2 to 5) kg	0.82R 0.83R 0.87R 1.0R 1.6R	
0.1 g Resolution	(0 to 2) kg (2 to 45) kg	0.82R 1.0R	
1 g Resolution	(0 to 45) kg	0.82R	

V. Thermodynamics

Parameter/Equipment	Range	CMC ^{2, 5} (±)	Comments
Relative Humidity – Measuring Equipment	(10 to 95) % RH (0 to 70) °C	0.63 % RH 0.076 °C	Thunder Scientific 2500 generator
Relative Humidity – Measure ³	(11 to 90) % RH	1.4 % RH	Vaisala MI70 w/ HMP76B

Parameter/Equipment	Range	CMC ^{2, 5} (±)	Comments
Temperature ³ – Measure	(-197 to 660) °C	0.013 °C	1595A thermometer, 5699 PRT
	(660 to 960) °C	0.53 °C	Type “S” thermocouple
Temperature ³ – Measuring Equipment	-195.7 °C (-80 to -20) °C (-20 to 40) °C (40 to 300) °C (300 to 550) °C (550 to 660) °C (660 to 770) °C (770 to 1100) °C	0.0051 °C 0.021 °C 0.017 °C 0.018 °C 0.028 °C 0.47 °C 0.71 °C 0.73 °C	1595A thermometer, 5699 PRT, type S thermocouple probe, LN2 comparator, calibration wells/baths

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 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 The measurands stated are generated 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 are expressed as either a specific value that covers the full range or as a fraction of the reading plus a fixed floor specification.

⁵ 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.

⁶ This scope meets A2LA’s P112 *Flexible Scope Policy*.



Accredited Laboratory

A2LA has accredited

TRESCAL, INC.

Pleasanton, CA

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 31st day of March 2023.

A blue ink signature of Mr. Trace McInturff.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2220.01
Valid to August 31, 2024
Revised February 2, 2024

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