



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

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CALIBRATION

Valid To: September 30, 2025

Certificate Number: 1395.02

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

I. Dimensional

Parameter/Equipment	Range	CMC ^{2, 4} ($\pm$)	Comments
Indicators	Up to 1 in	$(26 + 2.4L) \mu\text{in}$	Gage blocks
Ring Gages	(0.04 to 1) in	$(6.3 + 0.78L) \mu\text{in}$	Lab Master
	(1.0 to 4) in	$(5.9 + 1.6L) \mu\text{in}$	Lab Master
Adjustable Thread Ring Gages ³	Up to 2.5 in	W Class set plug tolerance	Master setting plug
Thread Wire Size – Wire Set (Constant)	(4 to 80) TPI	$(11 + 2.2L) \mu\text{in}$, 28 μin	Zeiss ULM, gage blocks
	(0.3 to 6) mm	$(0.28 + 0.059L) \mu\text{m}$, 0.70 μm	Zeiss ULM, gage blocks
Thread Plug Gages –			
Major Diameter	Up to 4 in	$(14 + 2.2L) \mu\text{in}$	Master Discs w/ thread wires & Zeiss ULM
Pitch Diameter	(4 to 80) TPI (1-1/2 to 27) in Diameters	$(68 + 3.8L) \mu\text{in}$	

Parameter/Equipment	Range	CMC ^{2, 4} ($\pm$)	Comments
Surface Roughness – Roughness Average (Patch)	(13 to 120) μin	23 μin	Mitutoyo SJ-410
Surface Roughness Tester	3 μm , 0.35 μm , & 0.4 μm	(0.008 % of value + 5.7) μm	Roughness patch
Micrometers ³ – Linearity Flatness Parallelism	Up to 36 in Up to 1 in Up to 1 in	(36 + 4.2L) μin 5.6 μin 5.6 μin	Gage blocks Optical flat Optical parallel
Height Gages ³	Up to 40 in	(120 + 4.2L) μin	Gage blocks w/ surface plate
Depth Gages ³	Up to 12 in	(120 + 4.2L) μin	Gage blocks w/ surface plate
Feeler Gages & Thickness Specimens	Up to 1 in	(20 + 1.5L) μin	Gage blocks w/ Zeiss ULM
Calipers ³	Up to 40 in	(90 + 4.2L) μin	Gage blocks / cal kit
Plug Gages & Master Setting Discs	(0.01 to 4) in	(14 + 2.2L) μin	Master discs w/ Zeiss ULM
Surface Plates ³ – Overall Flatness	(12 to 60) in	78 μin	Planekator
Optical Flats – Flatness	Up to 4 in Diameter	4.2 μin	Van Keuren 12 in optical flat
Angle Meters & Protractors	(0 to 90) $^{\circ}$	0.03 $^{\circ}$ + 0.6R	Gage blocks & sine bar

II. Dimensional Testing/Calibration¹

Parameter/Equipment	Range	CMC ^{2, 4} ($\pm$)	Comments
Length – 1D ⁶	Up to 4 in (> 4 to 12) in	$(12 + 2.2L) \mu\text{in}$ $(20 + 2.5L) \mu\text{in}$	Zeiss ULM w/ gage blocks

III. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ^{2, 5} ($\pm$)	Comments
DC Voltage – Generate ³	(0 to 330) mV (0.33 to 3.3) V (3.3 to 33) V (33 to 330) V (330 to 1000) V	$20 \mu\text{V/V} + 1 \mu\text{V}$ $11 \mu\text{V/V} + 2 \mu\text{V}$ $17 \mu\text{V/V} + 20 \mu\text{V}$ $21 \mu\text{V/V} + 0.15 \text{ mV}$ $15 \mu\text{V/V} + 1.5 \text{ mV}$	Fluke 5520A/SC600
DC Voltage – Measure ³	(0 to 100) mV (0.1 to 1) V (1 to 10) V (10 to 100) V (100 to 1000) V	$9.2 \mu\text{V/V} + 0.3 \mu\text{V}$ $7.8 \mu\text{V/V} + 0.3 \mu\text{V}$ $7.1 \mu\text{V/V} + 0.5 \mu\text{V}$ $9.5 \mu\text{V/V} + 30 \mu\text{V}$ $9.5 \mu\text{V/V} + 0.1 \text{ mV}^*$	HP 3458A opt-2 *Add $12(V_{\text{in}}/1000)^2 \mu\text{V/V}$ to all $V_{\text{in}} > 100$

Parameter/Equipment	Range	CMC ^{2, 4, 5} ($\pm$)	Comments
DC High Voltage – Measure ³	(1 to 90) kV	0.12 % + 0.000 014 V	Ross Engineering VD90-16.5Y-AK-KB-AL, Fluke 87III
DC Current – Generate ³	(0 to 330) μ A (0.33 to 3.3) mA (3.3 to 33) mA (33 to 330) mA (0.33 to 1.1) A (1.1 to 3) A (3 to 11) A (11 to 20) A (20 to 100) A	0.013 % + 0.02 μ A 0.008 % + 0.05 μ A 0.0098 % + 0.25 μ A 0.009 % + 2.5 μ A 0.017 % + 40 μ A 0.03 % + 40 μ A 0.044 % + 500 μ A 0.08 % + 750 μ A 0.06 % + 10 mA	Fluke 5520A/SC600 Valhalla 2555A
DC Current – Measure ³	(0.1 to 1) mA (1 to 10) mA (10 to 100) mA (0.1 to 1) A	25 μ A/A + 5 nA 25 μ A/A + 50 nA 43 μ A/A + 0.50 μ A 140 μ A/A + 1 μ A	HP 3458A opt-2
DC Current – Clamp on Meters & Current Transformers ³	(10 to 25) A (25 to 150) A (150 to 1025) A	0.62 % + 0.02 A 0.62 % + 0.14 A 0.62 % + 0.5 A	Fluke 5520A/SC600, Fluke 5500A/coil, HP 3458A OPT-2
DC Current Shunts ³	(1 to 10) m Ω , Up to 100 A	0.032 %	HP 3458A opt-2 w/ Valhalla 2555A
DC Power – Generate 33 mV to 1020 V: (0.33 to 329.99) mA (0.33 to 2.9999) A (3 to 20.5) A	(0.01 to 330) W (0.33 to 3.3) kW (3.3 to 20.5) kW	0.019 % + 0.000 58 W 0.013 % + 0.2 W 0.046 % + 2.9 W	Fluke 5520A/SC600
Resistance – Measure ³	(0 to 10) Ω (10 to 100) Ω (0.1 to 1) k Ω (1 to 10) k Ω (10 to 100) k Ω (0.1 to 1) M Ω (1 to 10) M Ω (10 to 100) M Ω (100 to 1000) M Ω	35 $\mu\Omega/\Omega$ + 50 $\mu\Omega$ 22 $\mu\Omega/\Omega$ + 0.5 m Ω 16 $\mu\Omega/\Omega$ + 0.5 m Ω 16 $\mu\Omega/\Omega$ + 5.0 m Ω 16 $\mu\Omega/\Omega$ + 50 m Ω 21 $\mu\Omega/\Omega$ + 2 Ω 83 $\mu\Omega/\Omega$ + 100 Ω 0.06 % + 1 k Ω 0.61 % + 10 k Ω	HP 3458A opt-2

Parameter/Equipment	Range	CMC ^{2, 5} (±)	Comments
Resistance – Generate ³	(0 to 11) Ω (11 to 33) Ω (33 to 110) Ω (110 to 330) Ω (0.33 to 1.1) kΩ (1.1 to 3.3) kΩ (3.3 to 11) kΩ (11 to 33) kΩ (33 to 110) kΩ (110 to 330) kΩ (0.33 to 1.1) MΩ (1.1 to 3.3) MΩ (3.3 to 11) MΩ (11 to 33) MΩ (33 to 110) MΩ (110 to 330) MΩ (0.33 to 1.1) GΩ	0.0081 % + 1.0 mΩ 0.005 % + 1.5 mΩ 32 μΩ/Ω + 1.4 mΩ 27 μΩ/Ω + 2.0 mΩ 30 μΩ/Ω + 2.0 mΩ 27 μΩ/Ω + 0.02 Ω 30 μΩ/Ω + 0.02 Ω 27 μΩ/Ω + 0.2 Ω 22 μΩ/Ω + 0.2 Ω 26 μΩ/Ω + 2 Ω 31 μΩ/Ω + 2 Ω 0.006 % + 30 Ω 0.014 % + 50 Ω 0.023 % + 2.5 kΩ 0.04 % + 3 kΩ 0.37 % + 0.10 MΩ 1.3 % + 0.50 MΩ	Fluke 5520A/SC600
Oscilloscopes ³ – Level Sine Amp: 50 kHz Ref Level Sine Flatness: 5 mV to 5.5 V Relative to 50 kHz Reference Bandwidth DC Signal Level Time Marker Output Into 50 Ω Pulse Rise Time: 10 MHz 1 MHz Square Wave – Generate 50 Ω (0.01 to 10) kHz 1 MΩ (0.01 to 1) kHz 1 MΩ (1 to 10) kHz Edge Transition Time	10 mV to 5 V _(p-p) 50 kHz to 100 MHz (100 to 300) MHz (300 to 600) MHz Up to 130 V Up to 6.6 V 2 ns to 20 ms 50 ms to 5 s 0.5 V, 1 V _(p-p) 1 V _(p-p) 1 mV to 6.6 V _(p-p) 1 mV to 130 V _(p-p) 1 mV to 130 V _(p-p) (200 to 350) ps 1 kHz to 10 MHz	2.3 % + 300 μV 2.3 % + 100 μV 2.9 % + 100 μV 4.9 % + 100 μV 0.06 % + 40 μV 0.29 % + 40 μV 3 parts in 10 ⁶ (29 + 1000 <i>t</i>) μs/s 160 ps 160 ps 0.29 % + 40 μV 0.14 % + 40 μV 0.29 % + 40 μV 120 ps	Fluke 5520A/SC600 Into 1 MΩ load Into 50 Ω load Fluke 5520A/SC600 <i>t</i> = time in seconds

Parameter/Equipment	Range	CMC ^{2, 5} (±)	Comments
Capacitance – Generate ³	(0.19 to 0.3999) nF (0.4 to 1.0999) nF (1.1 to 3.2999) nF (3.3 to 10.9999) nF (11 to 32.9999) nF (33 to 109.999) nF (110 to 329.999) nF (0.33 to 1.099 99) µF (1.1 to 3.299 99) µF (3.3 to 10.9999) µF (11 to 32.9999) µF (33 to 109.999) µF (110 to 329.999) µF (0.33 to 0.7) mF	0.39 % + 10 pF 0.60 % + 10 pF 0.63 % + 10 pF 0.27 % + 10 pF 0.26 % + 0.1 nF 0.24 % + 0.1 nF 0.29 % + 0.3 nF 0.24 % + 1.0 nF 0.20 % + 3.0 nF 0.21 % + 10 nF 0.33 % + 30 nF 0.43 % + 0.1 µF 0.36 % + 0.3 µF 0.36 % + 1.0 µF	Fluke calibrator 5520A
Electrical Simulation of Thermocouples – Generate/Measure ³			
Type E	(-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1000) °C	0.58 °C 0.19 °C 0.17 °C 0.19 °C 0.25 °C	Fluke 5520A
Type J	(-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1200) °C	0.32 °C 0.32 °C 0.18 °C 0.22 °C 0.28 °C	
Type K	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1000) °C (1000 to 1372) °C	0.39 °C 0.22 °C 0.20 °C 0.31 °C 0.47 °C	
Type S	(0 to 250) °C (250 to 1000) °C (1000 to 1400) °C (1400 to 1767) °C	0.55 °C 0.42 °C 0.44 °C 0.54 °C	
Type T	(-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C	0.74 °C 0.30 °C 0.21 °C 0.19 °C	

Parameter/Range	Frequency	CMC ^{2, 5} (±)	Comments
Phase Angle – Generate ³ 3.0 V/ 0.5 V (All at 0°)	(10 to 65) Hz (65 to 400) Hz 400 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.23 ° 0.30 ° 0.50 ° 2.3 ° 4.6 ° 9.2 °	Fluke 5520A/SC600
AC Voltage – Generate ³ (1 to 33) mV (33 to 330) mV (0.33 to 3.3) V (3.3 to 33) V (33 to 330) V (330 to 1020) 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 (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 (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 (10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz 45 Hz to 1 kHz (1 to 10) kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.091 % + 6 µV 0.058 % + 6 µV 0.049 % + 6 µV 0.12 % + 6 µV 0.30 % + 12 µV 0.71 % + 50 µV 0.024 % + 8 µV 0.012 % + 8 µV 0.014 % + 8 µV 0.029 % + 8 µV 0.063 % + 32 µV 0.16 % + 70 µV 0.024 % + 50 µV 0.013 % + 60 µV 0.016 % + 60 µV 0.024 % + 50 µV 0.056 % + 0.13 mV 0.19 % + 0.60 mV 0.024 % + 0.65 mV 0.013 % + 0.6 mV 0.019 % + 0.6 mV 0.028 % + 0.6 mV 0.071 % + 1.6 mV 0.016 % + 2 mV 0.017 % + 6 mV 0.020 % + 6 mV 0.028 % + 6 mV 0.16 % + 50 mV 0.024 % + 10 mV 0.020 % + 10 mV 0.024 % + 10 mV	Fluke 5520A/SC600

Parameter/Range	Frequency	CMC ^{2,5} (±)	Comments
AC Voltage – Measure ³			
(1 to 10) 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	0.07 % + 3.0 µV 0.06 % + 1.1 µV 0.06 % + 1.1 µV 0.14 % + 1.1 µV 0.58 % + 1.1 µV 4.6 % + 2.0 µV	HP 3458A opt-2
(10 to 100) 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 (0.3 to 1) MHz	0.02 % + 4.0 µV 0.01 % + 2.0 µV 0.018 % + 2.0 µV 0.038 % + 2.0 µV 0.094 % + 2.0 µV 0.35 % + 10 µV 1.2 % + 10 µV	
(0.1 to 1) V	(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 (0.3 to 1) MHz	0.0084 % + 40 µV 0.0085 % + 20 µV 0.017 % + 20 µV 0.036 % + 20 µV 0.093 % + 20 µV 0.35 % + 0.10 mV 1.2 % + 0.10 mV	
(1 to 10) V	(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 (0.3 to 1) MHz	0.013 % + 0.40 mV 0.0084 % + 0.20 mV 0.017 % + 0.20 mV 0.035 % + 0.20 mV 0.093 % + 0.20 mV 0.36 % + 1.0 mV 1.2 % + 1.0 mV	
(10 to 100) V	(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	0.024 % + 4.0 mV 0.024 % + 2.0 mV 0.024 % + 2.0 mV 0.041 % + 2.0 mV 0.14 % + 2.0 mV 0.47 % + 10 mV	
(100 to 700) V	(1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz	0.05 % + 40 mV 0.05 % + 20 mV 0.07 % + 20 mV 0.14 % + 20 mV 0.35 % + 20 mV	
AC High Voltage ³ – Measure @ 60 Hz	(1 to 60) kV	0.0058 V/V + 0.000 043 V	Ross Engineering VD90-16.5Y-AK- KB-AL, Fluke 87III

Parameter/Range	Frequency	CMC ^{2, 5} (±)	Comments
AC Current – Generate ³			
(29 to 330) µA	(45 to 1000) Hz	0.13 % + 0.10 µA	Fluke 5520A/SC600 *For compliance voltages >1V, add 1mA/V to floor specification
(0.33 to 3.3) mA	(45 to 1000) Hz (> 1 to 5) kHz	0.042 % + 0.15 µA 0.16 % + 0.20 µA	
(3.3 to 33) mA	(45 to 1000) Hz (> 1 to 5) kHz	0.042 % + 2 µA 0.068 % + 2 µA	
(33 to 330) mA	(45 to 1000) Hz (> 1 to 5) kHz	0.053 % + 20 µA 0.089 % + 50 µA	
(0.33 to 1.1) A	(45 to 1000) Hz (> 1 to 5) kHz	0.041 % + 0.1 mA 0.47 % + 1.0 mA*	
(1.1 to 3.0) A	(45 to 1000) Hz (> 1 to 5) kHz	0.079 % + 0.1 mA 0.47 % + 1.0 mA*	
(3.0 to 11.0) A	(45 to 1000) Hz (> 1 to 5) kHz	0.095 % + 2.0 mA 2.3 % + 2.0 mA	
(11.0 to 20.5) A	(45 to 1000) Hz (> 1 to 5) kHz	0.13 % + 5.0 mA 2.4 % + 5.0 mA	
(20 to 100) A	(45 to 1000) Hz	0.79 % + 0.082 A	Valhalla 2555A
AC Current – Measure ³			
(5 to 100) µA	(45 to 1000) Hz	0.073 % + 30 nA	HP 3458A opt-2
(0.1 to 1) mA	(45 to 1000) Hz (0.1 to 5) kHz	0.071 % + 200 nA 0.036 % + 200 nA	
(1 to 10) mA	(45 to 1000) Hz (0.1 to 5) kHz	0.070 % + 2 µA 0.036 % + 2 µA	
(10 to 100) mA	(45 to 1000) Hz (0.1 to 5) kHz	0.070 % + 20 µA 0.036 % + 20 µA	
(0.1 to 1) A	(45 to 1000) Hz (0.1 to 5) kHz	0.093 % + 200 µA 0.12 % + 200 µA	
AC Current – Clamp-On Meter ³			
(10 to 25) A	(45 to 65) Hz (65 to 440) Hz	0.71 % + 0.03 A 1.3 % + 0.03 A	Fluke 5520A/SC600, Fluke 5500A/coil
(25 to 150) A	(45 to 65) Hz (65 to 440) Hz	0.73 % + 0.25 A 1.7 % + 0.25 A	

Parameter/Range	Frequency	CMC ^{2, 4, 5} ($\pm$)	Comments
AC Current – Clamp-On Meter ³ (cont) (150 to 1025) A	(45 to 65) Hz (65 to 440) Hz	0.71 % + 0.9 A 1.6 % + 0.9 A	Fluke 5520A/SC600, Fluke 5500A/coil
AC Power – Generate ³ (0.01 to 0.1) W (0.1 to 890) W (0.89 to 3) kW (3 to 11) kW (11 to 20.4) kW	(45 to 65) Hz; PF=1	0.000 45 % 0.036 % 0.049 % 0.26 % 0.26 %	Fluke 5520A/SC600

IV. Electrical – RF/Microwave

Parameter/Equipment	Range	CMC ^{2, 4, 8}	Comments
Tuned RF Power – Measure ³ 100 kHz to 1.3 GHz	(+10 to 0) dBm (< 0 to -10) dBm (< -10 to -20) dBm (< -20 to -30) dBm (< -30 to -40) dBm (< -40 to -50) dBm (< -50 to -60) dBm (< -60 to -70) dBm (< -70 to -80) dBm (< -80 to -90) dBm (< -90 to -100) dBm (< -100 to -110) dBm (< -110 to -120) dBm	2.2 % 2.2 % 2.4 % 2.7 % 3.2 % 3.6 % 4.0 % 4.9 % 5.3 % 5.8 % 6.2 % 6.7 % 9.4 %	HP 8902A measuring receiver w/ 11722A sensor
> (1.3 to 18) GHz	(+10 to 0) dBm (< 0 to -10) dBm (< -10 to -20) dBm (< -20 to -30) dBm (< -30 to -40) dBm (< -40 to -50) dBm (< -50 to -60) dBm (< -60 to -70) dBm	2.4 % 2.5 % 2.6 % 2.9 % 3.4 % 3.8 % 4.2 % 5.0 %	

Parameter/Equipment	Range	CMC ^{2, 4, 8}	Comments
Tuned RF Power – Measure ³ (cont)			
> (1.3 to 18) GHz	(< -70 to -80) dBm (< -80 to -90) dBm (< -90 to -100) dBm (< -100 to -110) dBm (< -110 to -120) dBm	5.4 % 5.9 % 8.0 % 8.4 % 9.4 %	HP 8902A measuring receiver w/ 11722A sensor
> (18 to 26.5) GHz	(+10 to 0) dBm (< 0 to -10) dBm (< -10 to -20) dBm (< -20 to -30) dBm (< -30 to -40) dBm (< -40 to -50) dBm (< -50 to -60) dBm (< -60 to -70) dBm (< -70 to -80) dBm (< -80 to -90) dBm (< -90 to -100) dBm (< -100 to -110) dBm (< -110 to -120) dBm	2.6 % 2.7 % 2.8 % 3.1 % 3.1 % 3.3 % 3.5 % 4.2 % 4.3 % 4.5 % 4.7 % 5.0 % 7.6 %	

V. Mechanical

Parameter/Equipment	Range	CMC ^{2, 4, 8} (±)	Comments
Scales & Balances ³	(0.001 to 500) g Up to 2 kg Up to 5 kg Up to 10 kg Up to 20 kg (> 20 to 40) kg	1.0 mg + 0.6R 4.0 mg + 0.6R 6.3 mg + 0.6R 14 mg + 0.6R 26 mg + 0.6R 30 mg + 0.6R	Ultra-Class weights
	(0.5 to 1) lb (> 1 to 325) lb	0.02 % + 0.6R 0.01 % + 0.6R	Class F weights
Force – Measuring Equipment ³ Compression /Tension	Up to 500 lbf	1.3 % of value + 0.0016 lbf	Load cell

Parameter/Equipment	Range	CMC ^{2, 4, 8} ($\pm$)	Comments
Analytical Balances ³	Up to 5 mg Up to 500 mg Up to 5 g Up to 50 g Up to 100 g Up to 200 g Up to 500 g Up to 1 kg Up to 2 kg Up to 5 kg Up to 10 kg	1.7 $\mu\text{g} + 0.6R$ 2.0 $\mu\text{g} + 0.6R$ 3.5 $\mu\text{g} + 0.6R$ 7.2 $\mu\text{g} + 0.6R$ 15 $\mu\text{g} + 0.6R$ 0.072 mg + 0.6R 0.090 mg + 0.6R 0.16 mg + 0.6R 0.26 mg + 0.6R 0.51 mg + 0.6R 2.4 mg + 0.6R	Class E1 mass set
Mass – Measure	1 mg 2 mg 5 mg 10 mg 20 mg 50 mg 100 mg 200 mg 500 mg 1 g 2 g 5 g 10 g 20 g 50 g 100 g 200 g 500 g 1 kg 2 kg 5 kg 10 kg	2.1 μg 1.1 μg 1.5 μg 1.5 μg 1.5 μg 1.6 μg 1.6 μg 1.6 μg 2.0 μg 3.4 μg 3.8 μg 4.9 μg 7.1 μg 7.4 μg 21 μg 24 μg 29 μg 48 μg 0.07 mg 0.79 mg 0.92 mg 1.2 mg	Mettler Toledo PR10003, AT1005, AT106 mass comparators & class E1 mass set
Pressure ³ –Measuring Equipment	(-14.5 to 300) psig	0.081 psig + 0.58R	Druck PM620
Nitrogen Gas	(> 300 to 500) psig (> 500 to 1000) psig	0.31 psig + 0.58R 0.53 psig + 0.58R	Eaton UPC5000 pressure calibrator

Parameter/Equipment	Range	CMC ^{2, 4, 8} ($\pm$)	Comments
Torque Wrenches ³ – Measure	(5 to 50) ozf·in (2.5 to 25) lbf·in (25 to 250) lbf·in (20 to 250) lbf·ft	0.67 % + 0.58 <i>R</i> 0.96 % + 0.58 <i>R</i> 0.61 % + 0.58 <i>R</i> 0.61 % + 0.58 <i>R</i>	AWS torque transducers
Torque – Measuring Equipment ³	(1 to 50) ozf·in (1 to 100) lbf·in	0.16 % 0.32 %	Calibration arms & weights

VI. Thermodynamics

Parameter/Equipment	Range	CMC ^{2, 4, 8} ($\pm$)	Comments
Relative Humidity – Measure ³	(15 to 90) % RH (90 to 95) % RH	1.2 % RH 2.1 % RH	Vaisala MI70 w/ HMP75
Relative Humidity – Measuring Equipment ³	(15 to 80) % RH	1.3 % RH	Vaisala MI70 w/ HMP75, humidity chamber
Temperature – Measuring Equipment ³	(-50 to 140) °C	0.18 °C	Comparison to PRT w/ readout, thermal well
Temperature – Measure ³	(-196 to 420) °C	0.004 % + 0.037 °C	Comparison to PRT w/ readout
Infrared Thermometers ³ – Measuring Equipment	(25 to 500) °C	1.5 % / °C + 0.89 °C	Fluke blackbody source Emissivity = 0.95 Wavelength (8 to 14) μ m

VII. Time & Frequency

Parameter/Equipment	Range	CMC ^{2, 4, 8} ($\pm$)	Comments
Frequency – Measuring Equipment ³	10 MHz	1.5 nHz/Hz	Agilent Z3805A, GPS receiver
	DC to 10 MHz 10 MHz to 26.5 GHz	1.5 μ Hz/Hz 1.5 nHz/Hz + 0.6R	RF signal generator, GPS receiver
	0.01 Hz to 2 MHz	2.1 μ Hz + 0.001 Hz	Fluke 5520A
Frequency – Measure ³	DC to 12.4 GHz	2.1 Hz	Counter locked to Agilent Z3805A, GPS receiver
Timers/Stopwatches ³	1 s to 6 hr	39 ms	Agilent Z3805A, GPS receiver
Tachometer – Optical Pickup ³	(60 to 200 000) rpm	0.002 % + 0.6R	Agilent 3325B

¹ This laboratory offers commercial calibration, dimensional testing and field calibration service.

² Calibration and Measurement Capability (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, R is the numerical value of the resolution of the device. In the statement of CMC, L is the numerical value of the nominal length of the device measured in inches. In the statement of CMC, adjustable thread rings are set to applicable specifications using calibrated master set plug gages. In the statement of CMC, percentages are percent of reading, unless otherwise indicated.

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. CMC's 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 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.

⁷ This scope meets A2LA's *P112 Flexible Scope Policy*.

⁸ 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.



Accredited Laboratory

A2LA has accredited

SIMCO ELECTRONICS

Springboro, OH

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 29th day of September 2023.

A blue ink signature of Mr. Trace McInturff.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 1395.02
Valid to September 30, 2025

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