



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

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CALIBRATION

Valid To: November 30, 2026

Certificate Number: 1995.02

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^{1,9}:

I. Dimensional

Parameter/Equipment	Range	CMC ^{2,7} , (\pm)	Comments
Length Standards ^{3,8}	Up to 10 in	$(25 + 0.5L) \mu\text{in}$	P&W Supermic TM & gage blocks
Micrometers ^{3,8}	Up to 4 in (4 to 24) in (24 to 36) in	$(4.5 + 11L) \mu\text{in}$ $(46 + 2.9L) \mu\text{in}$ $(83 + 1.6L) \mu\text{in}$	Gage blocks
Calipers ^{3,8}	Up to 60 in	$(100 + 1.3L) \mu\text{in}$	Gage blocks
Digital, Dial, & Test Indicators ^{3,8}	Up to 1 in	88 μin	Starrett 716

II. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ^{2, 4, 5, 6} (±)	Comments
DC Voltage – Generate ^{3, 8}	Up to 330 mV (0.33 to 3.3) V (3.3 to 33) V (33 to 330) V (330 to 1020) V	17 µV/V + 1 µV 9.9 µV/V + 2 µV 11 µV/V + 20 µV 15 µV/V + 0.15 mV 15 µV/V + 1.5 mV	Fluke 5520A
DC Voltage – Measure ^{3, 8}	(0 to 100) mV (0.1 to 1) V (1 to 10) V (10 to 100) V (100 to 1000) V (1 to 40) kV	11 µV/V + 0.3 µV 10 µV/V + 0.3 µV 10 µV/V + 0.5 µV 13 µV/V + 30 µV 14 µV/V + 100 µV 0.23 %	Agilent 3458A Fluke 80E10, DMM
DC Current – Generate ^{3, 8}	(0 to 330) µA (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 20.5) A	0.012 % + 0.02 µA 0.0079 % + 0.05 µA 0.0081 % + 0.25 µA 0.0084 % + 2.5 µA 0.018 % + 40 µA 0.031 % + 40 µA 0.043 % + 0.5 mA 0.08 % + 0.75 mA	Fluke 5520A
Current Clamps ^{3, 8}	(10 to 16.5) A (16.5 to 150) A (150 to 1025) A	0.19 % + 0.002 A 0.20 % + 0.015 A 0.21 % + 0.05 A	Fluke 5520A + 50 turn coil
DC Current – Measure ^{3, 8}	(10 to 100) µA (0.10 to 1.0) mA (1.0 to 10) mA (10 to 100) mA (0.10 to 1) A (1 to 1000) A	35 µA/A + 0.8 nA 35 µA/A + 5 nA 40 µA/A + 50 nA 53 µA/A + 0.5 µA 0.018 % + 10 µA 0.12 %	Agilent 3458A Empro shunts & Agilent 3458A

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
DC Power – Generate ^{3,8}	Up to 109 μW (0.109 to 1.09) mW (1.09 to 10.9) mW (10.9 to 109) mW (0.109 to 1.09) W (1.09 to 10.9) W (10.9 to 109) W (109 to 337) W (337 to 990) W (0.99 to 3.06) kW (3.06 to 11.2) kW (11.2 to 20.9) kW 5.5 W to 16.8 kW (16.8 to 153) kW (153 to 1045) kW	0.018 % 0.010 % 0.0091 % 0.0089 % 0.0089 % 0.0090 % 0.0090 % 0.0093 % 0.022 % 0.032 % 0.048 % 0.084 % 0.19 % 0.20 % 0.21 %	Fluke 5520A Fluke 5520A + 50 turn coil
Resistance – Generate, Fixed Points ^{3,8} for Insulation Testers	1 MΩ 10 MΩ 100 MΩ 1 GΩ 10 GΩ 100 GΩ	0.012 MΩ 0.12 MΩ 1.2 MΩ 0.012 GΩ 0.24 GΩ 5.8 GΩ	Fixed resistors
Resistance – Generate ^{3,8}	(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 33) MΩ (3.3 to 11) MΩ (11 to 33) MΩ (33 to 110) MΩ (110 to 330) MΩ (330 to 1100) MΩ	40 μΩ/Ω + 0.001 Ω 29 μΩ/Ω + 0.0015 Ω 29 μΩ/Ω + 0.0014 Ω 35 μΩ/Ω + 0.002 Ω 28 μΩ/Ω + 0.002 Ω 25 μΩ/Ω + 0.02 Ω 25 μΩ/Ω + 0.02 Ω 25 μΩ/Ω + 0.2 Ω 24 μΩ/Ω + 0.2 Ω 33 μΩ/Ω + 2 Ω 32 μΩ/Ω + 2 Ω 53 μΩ/Ω + 30 Ω 0.012 % + 50 Ω 0.022 % + 2.5 kΩ 0.049 % + 3 kΩ 0.29 % + 0.1 MΩ 1.3 % + 0.5 MΩ	Fluke 5520A

Parameter/Equipment	Range	CMC ^{2, 4, 5, 6} (\pm)	Comments
Resistance– Measure ^{3, 8}	(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 (0 to 100) M Ω 10 M Ω to 1 G Ω (1 to 10) G Ω (10 to 100) G Ω	21 $\mu\Omega/\Omega$ + 50 $\mu\Omega$ 18 $\mu\Omega/\Omega$ + 0.5 m Ω 17 $\mu\Omega/\Omega$ + 0.5 m Ω 16 $\mu\Omega/\Omega$ + 5 m Ω 19 $\mu\Omega/\Omega$ + 50 m Ω 24 $\mu\Omega/\Omega$ + 2 Ω 70 $\mu\Omega/\Omega$ + 100 Ω 0.06 % + 1 k Ω 77 $\mu\Omega/\Omega$ 0.54 % 0.70 %	Agilent 3458A Voltage source & μ A range of 3458A
Capacitance – Generate ^{3, 8}	(220 to 400) pF (0.4 to 1.1) nF (1.1 to 3.3) nF (3.3 to 11) nF (11 to 33) nF (33 to 110) nF (110 to 330) nF (0.33 to 1.1) μ F (1.1 to 3.3) μ F (3.3 to 11) μ F (11 to 33) μ F (33 to 110) μ F (110 to 330) μ F (0.33 to 1.1) mF (1.1 to 3.3) mF (3.3 to 11) mF (11 to 33) mF (33 to 110) mF	0.49 % + 0.01 nF 0.4 % + 0.01 nF 0.41 % + 0.01 nF 0.23 % + 0.01 nF 0.2 % + 0.1 nF 0.2 % + 0.1 nF 0.2 % + 0.3 nF 0.21 % + 1 nF 0.22 % + 3 nF 0.22 % + 10 nF 0.36 % + 30 nF 0.36 % + 0.1 μ F 0.36 % + 0.3 μ F 0.36 % + 1 μ F 0.42 % + 3 μ F 0.41 % + 10 μ F 0.77 % + 30 μ F 0.86 % + 100 μ F	Fluke 5520A
Capacitance – Measure ^{3, 8}	300 pF to 1000 nF (1 to 300) μ F (300 to 1100) μ F	0.05 % 0.12 % 0.15 %	GenRad 1689M RLC Digibridge

Parameter/Equipment	Range	CMC ² (±)	Comments
Electrical Calibration of Thermocouple Indicators – Generate & Measure ^{3,8}			
Type E	(-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1000) °C	0.39 °C 0.13 °C 0.12 °C 0.13 °C 0.17 °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	0.21 °C 0.13 °C 0.12 °C 0.14 °C 0.19 °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 0.20 °C 0.31 °C	
Type N	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 410) °C (410 to 1300) °C	0.31 °C 0.18 °C 0.16 °C 0.15 °C 0.21 °C	
Type R	(0 to 250) °C (250 to 400) °C (400 to 1000) °C (1000 to 1767) °C	0.44 °C 0.27 °C 0.26 °C 0.31 °C	
Type S	(0 to 250) °C (250 to 400) °C (400 to 1000) °C (1000 to 1767) °C	0.36 °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 0.20 °C 0.13 °C 0.12 °C	

Parameter/Equipment	Range	CMC ^{2,4,6} (±)	Comments
Electrical Calibration of RTD Indicators – Generate ^{3,8}			
Pt 385, 100 W	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 400) °C (400 to 630) °C (630 to 800) °C	0.04 °C 0.04 °C 0.04 °C 0.07 °C 0.08 °C 0.09 °C 0.19 °C	Fluke 5520A

Parameter/Range	Frequency	CMC ^{2,4,6} (±)	Comments
AC Voltage – Generate ^{3,8}			
(1.0 to 33) mV	(0.01 to 10) Hz (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	3.9 % + 170 μV 0.063 % + 6 μV 0.015 % + 6 μV 0.019 % + 6 μV 0.079 % + 6 μV 0.27 % + 12 μV 0.62 % + 50 μV	Fluke 5520A
(33 to 330) mV	(0.01 to 10) Hz (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	3.9 % + 1700 μV 0.025 % + 8 μV 0.012 % + 8 μV 0.013 % + 8 μV 0.028 % + 8 μV 0.063 % + 32 μV 0.16 % + 70 μV	
(0.33 to 3.3) V	(0.01 to 10) Hz (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	3.9 % + 17 000 μV 0.024 % + 50 μV 0.012 % + 60 μV 0.015 % + 60 μV 0.024 % + 50 μV 0.055 % + 0.13 mV 0.19 % + 0.6 mV	

Parameter/Range	Frequency	CMC ^{2, 4, 5, 6} (±)	Comments
AC Voltage – Generate ^{3, 8} (cont)			
(3.3 to 33) V	(0.01 to 10) Hz (10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz	3.9 % + 170 mV 0.024 % + 0.65 mV 0.012 % + 0.6 mV 0.019 % + 0.6 mV 0.028 % + 0.6 mV 0.071 % + 1.6 mV	Fluke 5520A
(33 to 330) V	(10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz	0.016 % + 2 mV 0.016 % + 6 mV 0.02 % + 6 mV 0.029 % + 6 mV 0.16 % + 50 mV	
(330 to 1020) V	45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.026 % + 10 mV 0.02 % + 10 mV 0.024 % + 10 mV	
AC Voltage – Measure ^{3, 8}			
(0 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	0.051 % + 3 μV 0.056 % + 1.1 μV 0.083 % + 1.1 μV 0.46 % + 1.1 μV 0.78 % + 1.1 μV 4.7 % + 2 μV	Agilent 3458A
(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	0.013 % + 4 μV 0.016 % + 2 μV 0.027 % + 2 μV 0.12 % + 2 μV 0.23 % + 2 μV 0.41 % + 10 μV 1.2 % + 10 μV	
(0.10 to 1.0) 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	0.011 % + 40 μV 0.016 % + 20 μV 0.024 % + 20 μV 0.041 % + 20 μV 0.11 % + 20 μV 0.36 % + 100 μV 1.2 % + 100 μV	

Parameter/Range	Frequency	CMC ^{2, 4, 5, 6} (\pm)	Comments
AC Voltage – Measure ^{3, 8} (cont)			
(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	0.029 % + 0.4 mV 0.012 % + 0.2 mV 0.02 % + 0.2 mV 0.037 % + 0.2 mV 0.095 % + 0.2 mV 0.36 % + 1 mV 1.2 % + 1 mV	Agilent 3458A
(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 (0.3 to 1) MHz	0.025 % + 4 mV 0.025 % + 2 mV 0.026 % + 2 mV 0.048 % + 2 mV 0.15 % + 2 mV 0.47 % + 10 mV 1.7 % + 10 mV	
(100 to 750) V	(1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz	0.048 % + 40 mV 0.048 % + 20 mV 0.07 % + 20 mV 0.14 % + 20 mV 0.35 % + 20 mV	
(0.75 to 10) kV	60 Hz	0.23 %	Fluke 80E10, DMM
AC Current – Generate ^{3, 8}			
(29 to 330) μ A	(0.01 to 10) Hz (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	3.9 % + 1.7 μ A 0.16 % + 0.1 μ A 0.12 % + 0.1 μ A 0.1 % + 0.1 μ A 0.24 % + 0.15 μ A 0.62 % + 0.2 μ A 1.3 % + 0.4 μ A	Fluke 5520A
(0.33 to 3.3) mA	(0.01 to 10) Hz (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	3.9 % + 17 μ A 0.16 % + 0.15 μ A 0.1 % + 0.15 μ A 0.081 % + 0.15 μ A 0.16 % + 0.2 μ A 0.39 % + 0.3 μ A 0.78 % + 0.6 μ A	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Current – Generate ^{3,8} (cont)			
(3.3 to 33) mA	(0.01 to 10) Hz (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	3.9 % + 170 µA 0.15 % + 2 µA 0.072 % + 2 µA 0.036 % + 2 µA 0.065 % + 2 µA 0.16 % + 3 µA 0.31 % + 4 µA	Fluke 5520A
(33 to 330) mA	(0.01 to 10) Hz (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	3.9 % + 1700 µA 0.15 % + 20 µA 0.073 % + 20 µA 0.037 % + 20 µA 0.081 % + 50 µA 0.16 % + 0.1 mA 0.31 % + 0.2 mA	
(0.33 to 1.1) A	(10 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.15 % + 0.1 mA 0.045 % + 0.1 mA 0.052 % + 1 mA 1.9 % + 5 mA	
(1.1 to 3) A	(10 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.15 % + 0.1 mA 0.051 % + 0.1 mA 0.47 % + 1 mA 1.9 % + 5 mA	
(3 to 11) A	(45 to 100) Hz 100 Hz to 1 kHz (1 to 5) kHz	0.06 % + 2 mA 0.086 % + 2 mA 2.3 % + 2 mA	
(11 to 20.5) A	(45 to 100) Hz 100 Hz to 1 kHz (1 to 5) kHz	0.098 % + 5 mA 0.12 % + 5 mA 2.3 % + 5 mA	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Current – Generate ^{3,8} (cont)			
LCOMP On			
Up to 330 µA	(10 to 100) Hz 100 Hz to 1 kHz	0.2 % + 0.2 µA 0.47 % + 0.5 µA	Fluke 5520A
(0.33 to 3.3) mA	(10 to 100) Hz 100 Hz to 1 kHz	0.2 % + 0.3 µA 0.47 % + 0.8 µA	
(3.3 to 33) mA	(10 to 100) Hz 100 Hz to 1 kHz	0.065 % + 4 µA 0.16 % + 10 µA	
(33 to 330) mA	(10 to 100) Hz 100 Hz to 1 kHz	0.065 % + 40 µA 0.16 % + 0.1 mA	
(0.33 to 3) A	(10 to 100) Hz (100 to 440) Hz	0.12 % + 0.2 mA 0.24 % + 1 mA	
(3 to 20.5) A	(10 to 100) Hz (100 to 440) Hz	0.095 % + 2 mA 0.78 % + 5 mA	
Current Clamps ^{3,8}			
(10 to 16.5) A	(45 to 65) Hz (65 to 440) Hz	0.23 % + 0.003 A 0.64 % + 0.003 A	Fluke 5520A + 50 turn coil
(16.5 to 150) A	(45 to 65) Hz (65 to 440) Hz	0.25 % + 0.025 A 0.66 % + 0.027 A	
(150 to 1025) A	(45 to 65) Hz (65 to 440) Hz	0.24 % + 0.09 A 1 % + 0.1 A	
Electrical Calibration of Phase Indicators – Generate Only ^{3,8}	(10 to 65) Hz (65 to 500) Hz 500 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.082 °phase 0.20 °phase 0.39 °phase 1.9 °phase 3.9 °phase 7.8 °phase	Fluke 5520A

Parameter/Range	Frequency	CMC ^{2, 5, 6} (\pm)	Comments
AC Current – Measure ^{3, 8}			
(10 to 100) μ A	(10 to 20) Hz (20 to 40) Hz (40 to 100) Hz (0.1 to 5) kHz	0.46 % + 0.03 μ A 0.18 % + 0.03 μ A 0.074 % + 0.03 μ A 0.074 % + 0.03 μ A	Agilent 3458A
(0.1 to 1) mA	(10 to 20) Hz (20 to 40) Hz (40 to 100) Hz (0.1 to 5) kHz (5 to 10) kHz	0.46 % + 0.2 μ A 0.18 % + 0.2 μ A 0.076 % + 0.2 μ A 0.047 % + 0.2 μ A 0.074 % + 0.2 μ A	
(1 to 10) mA	(10 to 20) Hz (20 to 40) Hz (40 to 100) Hz (0.1 to 5) kHz (5 to 10) kHz	0.46 % + 2 μ A 0.18 % + 2 μ A 0.077 % + 2 μ A 0.048 % + 2 μ A 0.075 % + 2 μ A	
(10 to 100) mA	(10 to 20) Hz (20 to 40) Hz (40 to 100) Hz (0.1 to 5) kHz (5 to 10) kHz	0.46 % + 20 μ A 0.18 % + 20 μ A 0.077 % + 20 μ A 0.049 % + 20 μ A 0.075 % + 20 μ A	
(0.1 to 1) A	(10 to 20) Hz (20 to 40) Hz (40 to 100) Hz (0.1 to 5) kHz (5 to 10) kHz	0.47 % + 200 μ A 0.2 % + 200 μ A 0.12 % + 200 μ A 0.14 % + 200 μ A 0.35 % + 200 μ A	
(1 to 1000) A	(45 to 65) Hz	0.15 %	

Parameter/Range	Frequency	CMC ^{2, 4, 6} (±)	Comments
AC Power – Generate (45 to 65 Hz, PF=1) ^{3, 8}	Up to 10.9 μW	0.13 %	Fluke 5520A
	(10.9 to 109) μW	0.09 %	
	(0.109 to 1.09) mW	0.05 %	
	(1.09 to 10.9) mW	0.044 %	
	(10.9 to 109) mW	0.044 %	
	(0.109 to 1.09) W	0.044 %	
	(1.09 to 10.9) W	0.045 %	
	(10.9 to 37) W	0.047 %	
	(37 to 337) W	0.051 %	
	(0.337 to 1.12) kW	0.057 %	
	(1.12 to 3.06) kW	0.061 %	
	(3.06 to 11.2) kW	0.08 %	
	(11.2 to 20.9) kW	0.13 %	
	0.55 W to 16.8 kW (16.8 to 1045) kW	0.23 % 0.25 %	Fluke 5520A + 50 turn coil

III. Mechanical

Parameter/Equipment	Range	CMC ^{2, 6} (±)	Comments
Torque Testers ^{3, 8}	(5 to 50) lbf·in	0.05 %	Torque arms, weights
	(25 to 250) lbf·in	0.043 %	
	(100 to 1000) lbf·in	0.030 %	
	(25 to 250) lbf·ft	0.075 %	
	(60 to 600) lbf·ft	0.092 %	
	(200 to 2000) lbf·ft	0.077 %	
Torque Devices ⁸	2.5 lbf·in to 2000 lbf·ft	0.6 %	CDI 2000 torque calibrator
Force Gauges ^{3, 8}	(5 to 500) lbf	0.021 %	ASTM Class 7
	(50 to 2000) lbf	0.030 %	Load cell & readout
	(1000 to 20 000) lbf	0.030 %	
	(1000 to 50 000) lbf	0.030 %	
	(2000 to 100 000) lbf	0.031 %	

Parameter/Equipment	Range	CMC ^{2, 6, 10} (±)	Comments
Pneumatic Pressure – Measure &/or Measuring Equipment Calibration of Transfer Standards & Pressure Gauges Absolute Gauge & Differential Effective Area Determination of High Accuracy Piston-Cylinder Unit (PCU) or Ball-Nozzle Units (BNU)	 (0 to 15) psia (15 to 50) psia (0.14 to 300) psi (0.14 to 30) psi	 0.0028 psia 0.0088 psia 0.0081 % 0.0085 %	 Mensor 2300 RK-300/1100WC Direct cross-float method– PK DWT, std. mass
Pressure (Hydraulic) – Measuring Equipment Calibration of Transfer Standards & Pressure Gauges	(25 to 15 000) psi	0.018 %	Ametek Type T deadweight tester
Conventional Mass –	(10 to 50) g (50 to 100) g (100 to 250) g (250 to 350) g (350 to 500) g (500 to 1000) g (1000 to 2000) g (2000 to 5000) g (5000 to 24 000) g	0.000 068 g 0.000 080 g 0.000 16 g 0.000 60 g 0.000 68 g 0.000 85 g 0.0063 g 0.0070 g 0.058 g	Single substitution method

Parameter/Equipment	Range	CMC ^{2,6} (±)	Comments
Balances & Scales ^{3,8}	(10 to 50) g	0.000 036 g	Class 1 weights
	(50 to 100) g	0.000 055 g	
	(100 to 150) g	0.000 064 g	
	(150 to 350) g	0.000 16 g	
	(350 to 500) g	0.000 37 g	
	(500 to 1100) g	0.000 63 g	
	(1100 to 3000) g	0.0026 g	
	(3000 to 6000) g	0.0058 g	
	(6000 to 12 000) g	0.0062 g	
	(12 000 to 30 000) g	0.013 g	
	(50 to 100) lb	0.011 lb	Class F weights
	(100 to 200) lb	0.013 lb	
	(200 to 500) lb	0.020 lb	

IV. Thermodynamics

Parameter/Equipment	Range	CMC ^{2,10} (±)	Comments
Temperature – Measure	(-38 to 0) °C	0.019 °C	PRT, readout
	(0 to 156) °C	0.023 °C	
	(156 to 420) °C	0.052 °C	
	(420 to 660) °C	0.099 °C	
Temperature – Measuring Equipment	(-25 to 0) °C	0.013 °C	PRT, readout, bath
	(0 to 156) °C	0.019 °C	
	(156 to 250) °C	0.051 °C	

V. Time & Frequency

Parameter/Equipment	Range	CMC ^{2,10} (±)	Comments
Frequency – Measuring Equipment ^{3,8}	10 MHz	4.0 parts in 10 ¹¹	GPS reference, rubidium standard
	0.01 Hz to 2 MHz	29 µHz/Hz	Fluke 5520A

Parameter/Equipment	Range	CMC ^{2,10} (\pm)	Comments
Frequency – Measure ^{3,8}	10 mHz to 100 MHz	4.0 parts in 10^{11} + counter resolution of 0.02 Hz at 100 MHz frequency input	HP 5335A counter slaved to time base – GPS steered rubidium OCXO
	10 MHz to 18 GHz	4.0 parts in 10^{11} + counter resolution (resolution = 2 Hz)	EIP 575 counter slaved to time base – GPS steered rubidium OCXO
Time Interval – Timers Stop Watches ^{3,8}			NIST SP 960-12
Time Base ⁷	(0 to 24) hour	0.0016 s/day	Fluke PM6681
Totalize Method	(0 to 24) hour	0.12 s	Fluke PM 6681, function generator

¹ This laboratory offers commercial calibration service and field calibration services.

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 Generate. 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. Field environmental conditions are limited to 15 °C to 30 °C and < 80% relative humidity to 30 °C.

⁴ Fluke 5700A and 5500A CMCs are based upon the temperature the standard was calibrated ($t_{cal} \pm 5$ °C) and assuming the instrument is zeroed at least every seven days or when the ambient temperature changes more than 5 °C. For Resistance, a zero calibration is performed at least every 12 hours within ± 1 °C of use. For AC Current, CMCs are determined with the LCOMP off. CMCs are also based upon 1-year floor specifications. CMCs 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 Agilent 3458A CMCs are based upon the temperature the standard was calibrated ($t_{cal} \pm 5$ °C) and an auto calibration (ACAL) was performed within the previous 24 hours (± 1 °C of ambient temperature.) CMCs are also based upon 1-year floor specifications. CMCs are expressed as either a specific value that covers the full range or as a combination of the fraction of the reading/output plus a range specification.

⁶ In the statement of CMC, percentages are percentages of reading, unless otherwise indicated.

⁷ In the statement of CMC, L is the numerical value of the nominal length of the device measured in inches

⁸ This Laboratory also has a Mobile Laboratory that can perform field calibrations for the noted calibrations.

⁹ This scope meets A2LA's *P112 Flexible Scope Policy*.

¹⁰ 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

JM TEST SYSTEMS, LLC.

Alexandria, LA

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/NC SL 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 18th day of November 2024.

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 1995.02
Valid to November 30, 2026

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