



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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CALIBRATION

Valid To: December 31, 2026

Certificate Number: 5037.01

In recognition of the successful completion of the A2LA evaluation process (including an assessment of the organization's compliance with R205 – A2LA's Calibration Program Requirements), accreditation is granted to this laboratory to perform the following calibrations^{1, 7}:

I. Dimensional

Parameter/Equipment	Range	CMC ^{2, 5} (±)	Comments
Length Standards ³	(0.05 to 0.4) in (0.45 to 1) in (1 to 2) in (2 to 3) in (3 to 4) in	290 µin. (290 + 1.9L) µin (150 + 140L) µin (84 + 180L) µin (1.0 + 600L) µin	Gauge blocks

II. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
DC Voltage ³ – Generate	(0 to 120) mV (0.12 to 1.2) V (1.2 to 12) V (12 to 120) V (120 to 1020) V	13 µV/V + 0.75 µV 8.6 µV/V + 0.94 µV 8.7 µV/V + 7.8 µV 12 µV/V + 78 µV 12 µV/V + 930 µV	Fluke 5550A

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
DC Voltage ³ – Measure	(1050 to 150 000) V (0 to 100) mV (0.1 to 1) V (1 to 10) V (10 to 100) V (100 to 1000) V	0.12 % + 0.07 V 6.0 μV/V + 0.31 μV 3.2 μV/V + 0.51 μV 3.1 μV/V + 2.8 μV 4.9 μV/V + 51 μV 5.1 μV/V + 670 μV	High Voltage Inc. DVR-150, Fluke 8508A Fluke 8508A
DC Current ³ – Generate	(0 to 120) μA (0.12 to 1.2) mA (1.2 to 12) mA (12 to 120) mA (0.12 to 1.2) A (1.2 to 3.1) A (3.1 to 12) A (3.1 to 12) A	0.11 nA/μA + 5.5 nA 0.064 μA/mA + 0.017 μA 0.086 μA/mA + 0.076 μA 0.086 μA/mA + 0.76 μA 140 μA/A + 9.4 μA 290 μA/A + 150 μA 0.33 mA/A + 0.77 mA 0.55 mA/A + 4.3 mA	Fluke 5550A
Clamp-On Meters ³	(16.5 to 550) A (550 to 1025) A	0.58 % + 0.21 A 0.60 % + 0.50 A	Fluke 5550A & 5500/coil
DC Current ³ – Measure	(0 to 10) μA (10 to 100) μA (0.1 to 1) mA (1 to 10) mA (10 to 100) mA (0.1 to 1) A (1 to 10) A (10 to 30) A	23 nA/μA + 0.44 nA 0.0088 nA/μA + 0.41 nA 8.1 nA/mA + 4.1 nA 9.4 nA/mA + 41 nA 0.038 μA/mA + 1.1 μA 110 μA/A + 100 μA 0.19 mA/A + 0.41 mA 0.51 mA/A + 4.4 mA	Fluke 8588A
Resistance ³ – Generate	(0 to 12) Ω (12 to 120) Ω (0.12 to 1.2) kΩ (1.2 to 12) kΩ (12 to 120) kΩ (0.12 to 1.2) MΩ (1.2 to 12) MΩ (12 to 120) MΩ (120 to 1200) MΩ	0.032 mΩ/Ω + 0.79 mΩ 0.024 mΩ/Ω + 0.80 mΩ 0.022 Ω/kΩ + 0.0018 Ω 0.022 Ω/kΩ + 0.0018 Ω 0.022 Ω/kΩ + 0.0018 Ω 25 Ω/MΩ + 1.8 Ω 44 Ω/MΩ + 24 Ω 390 Ω/MΩ + 2 kΩ 4.6 kΩ/MΩ + 810 kΩ	Fluke 5550A

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Resistance ³ – Generate (cont) Fixed Points ³	1 kΩ 10 kΩ 100 kΩ 1 MΩ 10 MΩ 100 MΩ 1 GΩ 10 GΩ 100 GΩ 1 TΩ	0.000 042 kΩ 0.000 28 kΩ 0.0009 kΩ 0.000 057 MΩ 0.000 70 MΩ 0.045 MΩ 0.0016 MΩ 0.030 GΩ 0.97 GΩ 0.021 TΩ	IET Labs VRS-100
Resistance ³ – Measure	(0 to 1) Ω (1 to 10) Ω (10 to 100) Ω (0.1 to 1) kΩ (1 to 10) kΩ (10 to 100) kΩ (0.1 to 1) MΩ (1 to 10) MΩ (10 to 100) MΩ	1.2 μΩ/Ω + 120 μΩ 3.6 μΩ/Ω + 120 μΩ 7.1 μΩ/Ω + 98 μΩ 7.6 μΩ/Ω + 480 μΩ 7.6 μΩ/Ω + 5 mΩ 7.8 μΩ/Ω + 48 mΩ 8.9 Ω/MΩ + 1.1 Ω 13 Ω/MΩ + 110 Ω 55 Ω/MΩ + 11 kΩ	Fluke 8588A
Electrical Simulation of Thermocouple – Generate & Measure ³ Type E Type J Type K	(-250 to -150) °C (-150 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1000) °C (-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1200) °C (-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1000) °C (1000 to 1372) °C	0.0034 °C/°C + 0.16 °C 0.000 88 °C/°C + 0.21 °C 0.0012 °C/°C + 0.24 °C 0.000 04 °C/°C + 0.22 °C 0.000 04 °C/°C + 0.22 °C 0.0026 °C/°C + 0.14 °C 0.0008 °C/°C + 0.17 °C 0.0017 °C/°C + 0.11 °C 0.000 03 °C/°C + 0.19 °C 0.000 005 °C/°C + 0.24 °C 0.0014 °C/°C + 0.19 °C 0.0012 °C/°C + 0.19 °C 0.0019 °C/°C + 0.12 °C 0.000 02 °C/°C + 0.28 °C 0.000 08 °C/°C + 0.30 °C	Fluke 5550A

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Electrical Simulation of Thermocouple – Generate & Measure ³ Type T	(-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C	0.0012 °C/°C + 0.34 °C 0.0033 °C/°C + 0.21 °C 0.000 06 °C/°C + 0.22 °C 0.000 02 °C/°C + 0.11 °C	Fluke 5550A
Capacitance ³ – Generate	(0 to 1.2) nF (1.2 to 12) nF (12 to 120) nF (0.12 to 1.2) μF (1.2 to 12) μF (12 to 120) μF (0.12 to 1.2) mF (1.2 to 12) mF (12 to 120) mF	1.9 pF/nF + 2.8 pF 1.9 pF/nF + 7.8 pF 1.6 pF/nF + 39 pF 1.6 nF/μF + 0.39 nF 1.6 nF/μF + 3.9 nF 2.4 nF/μF + 39 nF 3.5 μF/mF + 0.39 μF 3.5 μF/mF + 3.9 μF 7.8 μF/mF + 39 μF	Fluke 5550A
Capacitance ³ –Measure	(0.1 to 1) nF (1.8 to 18) nF (18 to 180) nF (0.18 to 1.8) μF (1.8 to 18) μF (18 to 180) μF (0.18 to 1.8) mF (1.8 to 18) mF (18 to 120) mF	1.7 pF/nF + 1.9 pF 0.69 pF/nF + 3.6 pF 0.47 pF/nF + 18 pF 0.46 nF/μF + 0.20 nF 0.53 nF/μF + 1.7 nF 0.62 nF/μF + 18 nF 0.62 μF/mF + 0.18 μF 0.72 μF/mF + 1.8 μF 0.71 μF/mF + 13 μF	Fluke 8588A

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Voltage ³ – Generate (0 to 12) mV	(3 to 5) Hz (5 to 10) Hz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300to 500) kHz	0.28 % + 6.3 μV 0.094 % + 6.3 μV 0.013 % + 5.5 μV 0.039 % + 5.5 μV 0.16 % + 14 μV 0.71 % + 28 μV 0.71 % + 28 μV	Fluke 5550A

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Voltage ³ – Generate (cont)			
(12 to 120) mV	(3 to 5) Hz (5 to 10) Hz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300to 500) kHz	0.28 % + 6.3 μV 0.094 % + 6.3 μV 0.012 % + 5.5 μV 0.023 % + 7.0 μV 0.078 % + 19 μV 0.20 % + 28 μV 0.20 % + 28 μV	Fluke 5550A
(0.12 to 1.2) V	(3 to 5) Hz (5 to 10) Hz (10 to 40) Hz (40 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300to 500) kHz	0.28 % + 0.071 mV 0.094 % + 0.066 mV 0.012 % + 0.066 mV 0.012 % + 0.0071 mV 0.025 % + 0.013 mV 0.055 % + 0.038 mV 0.16 % + 0.075 mV 0.16 % + 0.075 mV	
(1.2 to 12) V	(3 to 5) Hz (5 to 10) Hz (10 to 40) Hz (40 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz	0.28 % + 0.70 mV 0.094 % + 0.70 mV 0.012 % + 0.28 mV 0.012 % + 0.47 mV 0.025 % + 0.47 mV 0.055 % + 0.12 mV 0.20 % + 0.56 mV 0.20 % + 0.56 mV	
(12 to 120) V	(3 to 5) Hz (5 to 10) Hz (10 to 40) Hz (40 to 20) kHz (20 to 50) kHz (50 to 100) kHz	0.28 % + 7.0 mV 0.094 % + 7.0 mV 0.012 % + 2.8 mV 0.012 % + 0.47 mV 0.028 % + 0.47 mV 0.070 % + 1.2 mV	
(120 to 330) V	(3 to 5) Hz (5 to 10) Hz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz	0.28 % + 71 mV 0.093 % + 71 mV 0.015 % + 7.1 mV 0.024 % + 6.4 mV 0.17 % + 12 mV	
(330 to 1020) V	(3 to 5) Hz (5 to 10) Hz (10 to 10) kHz	0.28 % + 70 mV 0.094 % + 70 mV 0.021 % + 71 mV	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Voltage ³ – Measure			
(1050 to 150 000) V	60 Hz	1.1 % + 1 V	High Voltage Inc. DVR-150, Fluke 8508A
(0 to 10) mV	(0 to 2) kHz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz (100 to 300) kHz (300 to 1000) kHz	0.026 % + 1.2 μV 0.034 % + 1.2 μV 0.035 % + 1.2 μV 0.31 % + 0.78 μV 1.1 % + 3.4 μV 2.1 % + 3.4 μV	Fluke 8588A
(10 to 100) mV	(0 to 2) kHz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz (100 to 300) kHz (300 to 1000) kHz	0.0073 % + 0.58 μV 0.012 % + 0.56 μV 0.022 % + 1.0 μV 0.053 % + 5.8 μV 0.21 % + 32 μV 0.99 % + 120 μV	
(0.1 to 1) V	(0 to 2) kHz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz (100 to 300) kHz (300 to 1000) kHz	0.0067 % + 5.4 μV 0.012 % + 5.6 μV 0.022 % + 10 μV 0.052 % + 59 μV 0.21 % + 320 μV 0.99 % + 1.2 mV	
(1 to 10) V	(0 to 2) kHz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz (100 to 300) kHz (300 to 1000) kHz	0.0067 % + 54 μV 0.012 % + 56 μV 0.022 % + 100 μV 0.052 % + 590 μV 0.21 % + 3.2 mV 1.1 % + 10 mV	
(10 to 100) V	(0 to 2) kHz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz	0.0074 % + 570 μV 0.012 % + 560 μV 0.022 % + 1.0 mV 0.055 % + 5.6 mV	
(10 to 1000) V	(0 to 2) kHz (2 to 10) kHz	0.0095 % + 26 mV 0.0095 % + 26 mV	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Current ³ – Generate			
(10 to 120) µA	(3 to 45) Hz (0.045 to 1) kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.078 % + 12 nA 0.078 % + 12 nA 0.078 % + 12 nA 0.39 % + 63 nA 0.39 % + 800 nA	Fluke 5550A
(0.12 to 1.2) mA	(3 to 45) Hz (0.045 to 1) kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.059 % + 0.14 µA 0.078 % + 0.12 µA 0.078 % + 0.12 µA 0.24 % + 0.16 µA 0.39 % + 3.9 µA	
(1.2 to 12) mA	(3 to 45) Hz (0.045 to 1) kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.063 % + 1.2 µA 0.063 % + 1.2 µA 0.063 % + 1.2 µA 0.14 % + 1.6 µA 0.39 % + 7.8 µA	
(12 to 120) mA	(3 to 45) Hz (0.045 to 1) kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.063 % + 9.4 µA 0.039 % + 9.4 µA 0.063 % + 9.4 µA 0.12 % + 7.8 µA 0.39 % + 78 µA	
(0.12 to 1.2) A	(3 to 45) Hz (0.045 to 1) kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.062 % + 0.079 mA 0.047 % + 0.040 mA 0.062 % + 0.079 mA 0.20 % + 0.24 mA 0.39 % + 0.24 mA	
(1.2 to 3.1) A	(3 to 45) Hz (0.045 to 1) kHz (1 to 5) kHz (5 to 10) kHz	0.094 % + 0.40 mA 0.070 % + 0.35 mA 0.094 % + 0.36 mA 0.47 % + 0.78 mA	
(3.1 to 12) A	(3 to 45) Hz (0.045 to 1) kHz (1 to 5) kHz (5 to 10) kHz	0.12 % + 0.94 mA 0.094 % + 0.45 mA 0.12 % + 0.94 mA 0.47 % + 0.98 mA	
(12 to 30.2) A	(3 to 45) Hz (0.045 to 1) kHz (1 to 5) kHz	0.079 % + 9.3 mA 0.055 % + 7.5 mA 0.40 % + 9.1 mA	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Current ³ – Generate (cont)			Fluke 5550A
Clamp-On Meters:			
(16.5 to 149.999) A (150 to 1025) A	(45 to 65) Hz (45 to 65) Hz	0.64 % + 0.32 A 0.65 % + 1.1 A	Non-toroidal
(16.5 to 149.999) A (150 to 325.0) A	(65 to 440) Hz (65 to 440) Hz	1.2 % + 0.31 A 1.2 % + 1.1 A	
(16.5 to 149.999) A (150 to 1025) A	(45 to 65) Hz (45 to 65) Hz	0.28 % + 0.14 A 0.34 % + 0.11 A	Toroidal
(16.5 to 149.999) A (150 to 350.0) A	(65 to 440) Hz (65 to 440) Hz	0.88 % + 0.091 A 0.91 % + 0.14 A	
AC Current – Measure ³			Fluke 8588A
(10 to 100) µA	(0 to 2) kHz (2 to 10) kHz (10 to 30) kHz	0.027 % + 5.2 nA 0.052 % + 5.2 nA 0.073 % + 5.2 nA	
(0.1 to 1) mA	(0 to 2) kHz (2 to 10) kHz (10 to 30) kHz	0.027 % + 51 nA 0.052 % + 51 nA 0.073 % + 51 nA	
(1 to 10) mA	(0 to 2) kHz (2 to 10) kHz (10 to 30) kHz	0.027 % + 510 nA 0.052 % + 510 nA 0.073 % + 510 nA	
(10 to 100) mA	(0 to 2) kHz (2 to 10) kHz (10 to 30) kHz	0.027 % + 5.1 µA 0.051 % + 5.1 µA 0.071 % + 5.1 µA	
(0.1 to 1) A	(0 to 2) kHz (2 to 10) kHz (10 to 30) kHz	0.027 % + 100 µA 0.052 % + 100 µA 0.073 % + 100 µA	
(1 to 10) A	(0 to 2) kHz (2 to 10) kHz	0.082 % + 0.50 mA 0.081 % + 0.51 mA	
(10 to 30) A	(0 to 2) kHz (2 to 10) kHz	0.081 % + 13 mA 0.13 % + 12 mA	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
Inductance ³ – Generate (13 to 120) μH (0.12 to 1.2) mH (1.2 to 12) mH (12 to 120) mH (0.12 to 1.2) H (1.2 to 12) H (12 to 120) H	1 kHz 1 kHz 110 Hz 100 Hz 10 Hz 3 Hz 2 Hz	0.019 nH/μH + 190 nH 1.6 μH/mH + 0.94 μH 1.6 μH/mH + 9.4 μH 1.6 μH/mH + 94 μH 2.0 mH/H + 0.94 mH 2.4 mH/H + 9.4 mH 3.2 mH/H + 94 mH	Fluke 5550A

III. Mechanical

Parameter/Equipment	Range	CMC ^{2,4,6} (±)	Comments
Pneumatic Pressure ³ – Measuring Equipment	(-15 to 15) kPa (10 to 250) kPa Up to 700 kPa Up to 7000 kPa Up to 20 000 kPa Up to 70 MPa	0.0053 % + 2.9 Pa 0.0065 % + 19 Pa 0.011 % + 0.026 kPa 0.0017 % + 0.63 kPa 0.0070 % + 1.1 kPa 0.0073 % + 3.6 kPa	Fluke PM600-BG15K Fluke PM600-A350K Fluke 8370A with: PM600-A700 PM600-A7M PM600-A20M PM600-A70M
Hydraulic Pressure ³ – Measuring Equipment	(1 to 112) MPa (5 to 280) MPa	0.0074 % + 240 Pa 0.0057 % + 490 Pa	DHI PG7302-2 DHI PG7302-5

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Temperature ³ – Measure	(-60 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 600) °C	0.0011 °C/°C + 0.012 °C 0.000 05 °C/°C + 0.0012 °C 0.000 003 °C/°C + 0.0016 °C 0.000 014 °C/°C + 0.0013 °C	AccuMac AM1880 Additel 286
Temperature ³ – Measuring Equipment	(-60 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 600) °C	0.0024 °C/°C + 0.060 °C 0.000 01 °C/°C + 0.060 °C 0.0 °C/°C + 0.30 °C 0.0006 °C/°C + 0.11 °C	AccuMac AM1880 Additel 286

V. Time & Frequency

Parameter/Equipment	Frequency	CMC ^{2, 4} (±)	Comments
Frequency – Measuring Equipment	(0.01 to 120) Hz (120 to 1200) Hz (1.2 to 12) kHz (12 to 120) kHz (120 to 1200) kHz (1.2 to 2) MHz	0.012 Hz + 5 µHz 0.12 Hz + 5 µHz 0.0012 kHz + 5 µHz 0.012 kHz + 5 µHz 0.12 kHz + 5 µHz 0.0012 MHz + 5 µHz	Fluke 5522A

SATELLITE FACILITY

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CALIBRATION

I. Electrical – DC & Low Frequency

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
DC Voltage ³ – Generate	(0 to 330) mV (0 to 3.3) V (0 to 33) V (30 to 330) V (100 to 1020) V	15 µV/V + 1.2 µV 7.1 µV/V + 8.4 µV 7.9 µV/V + 100 µV 13 µV/V + 1.5 mV 10 µV/V + 8.9 mV	Fluke 5522A
DC Voltage ³ – Measure	(0 to 200) mV (0.2 to 2) V (2 to 20) V (20 to 200) V (200 to 1000) V	10 µV/V + 0.14 µV 12 µV/V + 0.36 µV 3.6 µV/V + 3.2 µV 6.4 µV/V + 31 µV 7.0 µV/V + 390 µV	Fluke 8508A
DC Current ³ – Generate	(0 to 330) µA (0.33 to 3.3) mA (3.3 to 33) mA (33 to 330) mA (0.33 to 3) A (3 to 20) A	0.012 % + 0.02 µA 0.008 % + 0.04 µA 0.028 % + 3.5 µA 0.077 % + 2.5 µA 0.038 % + 140 µA 0.090 % + 700 µA	Fluke 5522A
Clamp-On Meters ³	(16.5 to 550) A (550 to 1025) A	0.57 % + 0.25 A 0.60 % + 0.48 A	
DC Current ³ – Measure	(0 to 200) µA (0.2 to 2) mA (2 to 20) mA (20 to 200) mA (0.2 to 2) A (2 to 20) A	13 µA/A + 0.000 33 µA 13 µA/A + 0.000 003 1 mA 21 µA/A + 0.000 031 mA 75 µA/A + 0.000 62 mA 0.026 % + 0.000 012 A 0.041 % + 0.000 31 A	Fluke 8508A

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Resistance ³ – Generate	(0 to 11) Ω (11 to 33) Ω (33 to 110) Ω (110 to 330) Ω (0.33 Ω 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	0.0032 % + 0.000 79 Ω 0.0020 % + 0.0012 Ω 0.0022 % + 0.0011 Ω 0.0022 % + 0.0015 Ω 0.0029 % + 0.0056 Ω 0.0025 % + 0.012 Ω 0.0024 % + 0.010 Ω 0.0022 % + 0.16 Ω 0.0026 % + 0.19 Ω 0.0028 % + 1.1 Ω 0.0019 % + 5.7 Ω 0.058 % + 0.98 kΩ 0.011 % + 0.21 kΩ 0.052 % + 5.0 kΩ 0.050 % + 7.8 kΩ 0.39 % + 140 kΩ 0.84 % + 0.86 MΩ	Fluke 5522A
Fixed Points ³	1 kΩ 10 kΩ 100 kΩ 1 MΩ 10 MΩ 100 MΩ 1 GΩ 10 GΩ 100 GΩ 1 TΩ	0.000 023 kΩ 0.000 22 kΩ 0.0022 kΩ 0.000 051 MΩ 0.000 83 MΩ 0.022 MΩ 0.0011 GΩ 0.031 GΩ 0.44 GΩ 0.021 TΩ	IET Labs VRS-100
Resistance ³ – Measure	(0 to 2) Ω (2 to 20) Ω (20 to 200) Ω (0.2 to 2) kΩ (2 to 20) kΩ (20 to 200) kΩ (0.2 to 2) MΩ (2 to 20) MΩ (20 to 200) MΩ (0.2 to 2) GΩ	50 μΩ/Ω + 3.9 μΩ 22 μΩ/Ω + 14 μΩ 11 μΩ/Ω + 47 μΩ 8.4 μΩ/Ω + 0.55 mΩ 8.0 μΩ/Ω + 5 mΩ 7.9 μΩ/Ω + 47 mΩ 15 μΩ/Ω + 1.0 Ω 11 μΩ/Ω + 90 Ω 0.023 % + 9.3 kΩ 0.24 % + 0.93 MΩ	Fluke 8508A

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Capacitance ³ – Generate	(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) μF (1.1 to 3.3) μF (3.3 to 11) μF (11 to 33) μF (33 to 110) μF (110 to 330) μF (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	0.23 % + 10 pF 0.19 % + 0.010 nF 0.28 % + 0.010 nF 0.17 % + 0.010 nF 0.081 % + 0.10 nF 0.17 % + 0.10 nF 0.17 % + 0.30 nF 0.17 % + 0.0010 μF 0.17 % + 0.0030 μF 0.17 % + 0.010 μF 0.30 % + 0.030 μF 0.33 % + 0.10 μF 0.33 % + 0.30 μF 0.40 % + 0.0010 mF 0.48 % + 0.0030 mF 0.41 % + 0.010 mF 0.59 % + 0.030 mF 0.87 % + 0.10 mF	Fluke 5522A
Electrical Simulation of Thermocouple ³ – Generate & Measure			
Type E	(-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1000) °C	0.25 °C 0.19 °C 0.21 °C 0.20 °C 0.23 °C	Fluke 5522A
Type J	(-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1200) °C	0.26 °C 0.20 °C 0.20 °C 0.21 °C 0.24 °C	
Type K	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1000) °C (1000 to 1372) °C	0.30 °C 0.21 °C 0.68 °C 0.26 °C 0.36 °C	
Type T	(-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C	0.52 °C 0.25 °C 0.20 °C 0.19 °C	

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Voltage ³ – Generate			
(1 to 33) mV	(10 to 45) Hz (0.045 to 10) kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz	0.060 % + 0.0060 mV 0.058 % + 0.0060 mV 0.009 % + 0.0060 mV 0.075 % + 0.0060 mV 0.28 % + 0.012 mV 0.61 % + 0.050 mV	Fluke 5522A
(33 to 330) mV	(10 to 45) Hz (0.045 to 10) kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz	0.028 % + 0.0080 mV 0.011 % + 0.0080 mV 0.012 % + 0.0080 mV 0.028 % + 0.0080 mV 0.064 % + 0.032 mV 0.15 % + 0.070 mV	
(0.33 to 3.3) V	(10 to 45) Hz (0.045 to 10) kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz	0.035 % + 0.000 050 V 0.011 % + 0.000 060 V 0.016 % + 0.000 060 V 0.030 % + 0.000 050 V 0.081 % + 0.000 13 V 0.20 % + 0.000 60 V	
(3.3 to 33) V	(10 to 45) Hz (0.045 to 10) kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz	0.034 % + 0.000 65 V 0.012 % + 0.000 60 V 0.018 % + 0.000 60 V 0.027 % + 0.000 60 V 0.069 % + 0.0016 V	
(33 to 330) V	(10 to 45) Hz (0.045 to 10) kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz	0.017 % + 0.0020 V 0.017 % + 0.0060 V 0.023 % + 0.0060 V 0.023 % + 0.0060 V 0.10 % + 0.050 V	
(330 to 1020) V	(45 to 1000) Hz (1 to 5) kHz (5 to 10) kHz	0.027 % + 0.010 V 0.019 % + 0.010 V 0.023 % + 0.010 V	
AC Voltage – Measure ³			
(20 to 200) mV	(10 to 40) Hz (40 to 100) Hz (100 to 2000) Hz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz	0.016 % + 0.014 mV 0.013 % + 0.0040 mV 0.010 % + 0.0020 mV 0.013 % + 0.0040 mV 0.034 % + 0.0080 mV 0.065 % + 0.020 mV	Fluke 8508A

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Voltage ³ – Measure (cont)			
(0.2 to 2) V	(10 to 40) Hz (40 to 100) Hz (100 to 2000) Hz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz (100 to 300) kHz (300 to 1000) kHz	0.014 % + 0.000 12 V 0.011 % + 0.000 020 V 0.0085 % + 0.000 020 V 0.0071 % + 0.000 020 V 0.011 % + 0.000 020 V 0.050 % + 0.000 20 V 0.22 % + 0.0020 V 0.77 % + 0.020 V	Fluke 8508A
(2 to 20) V	(10 to 40) Hz (40 to 100) Hz (100 to 2000) Hz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz (100 to 300) kHz (300 to 1000) kHz	0.014 % + 0.000 12 V 0.011 % + 0.000 020 V 0.0085 % + 0.000 020 V 0.0071 % + 0.000 020 V 0.011 % + 0.000 020 V 0.050 % + 0.000 20 V 0.22 % + 0.0020 V 0.77 % + 0.020 V	
(20 to 200) V	(10 to 40) Hz (40 to 100) Hz (100 to 2000) Hz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz	0.014 % + 0.012 V 0.010 % + 0.0020 V 0.0088 % + 0.0020 V 0.014 % + 0.0020 V 0.044 % + 0.004 V 0.069 % + 0.020 V	
(200 to 1000) V	(1 to 10) Hz (10 to 40) Hz (40 to 10 000) Hz (10 to 30) kHz (30 to 100) kHz	0.014 % + 0.070 V 0.014 % + 0.070 V 0.011 % + 0.020 V 0.049 % + 0.040 V 0.054 % + 0.20 V	
AC Current – Generate ³			
(29 to 330) µA	(10 to 20) Hz (20 to 45) Hz (45 to 1000) Hz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.16 % + 0.10 µA 0.11 % + 0.10 µA 0.094 % + 0.10 µA 0.25 % + 0.15 µA 0.61 % + 0.20 µA 1.2 % + 0.40 µA	Fluke 5522A
(0.33 to 3.3) mA	(10 to 20) Hz (20 to 45) Hz (45 to 1000) Hz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.17 % + 0.15 µA 0.096 % + 0.15 µA 0.077 % + 0.15 µA 0.15 % + 0.20 µA 0.39 % + 0.30 µA 0.77 % + 0.60 µA	

Parameter/Range	Frequency	CMC ^{2,4} (±)	Comments
AC Current – Generate (cont)			
(3.3 to 33) mA	(10 to 20) Hz (20 to 45) Hz (45 to 1000) Hz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.15 % + 2.0 µA 0.069 % + 2.0 µA 0.030 % + 2.0 µA 0.061 % + 2.0 µA 0.15 % + 3.0 µA 0.31 % + 4.0 µA	Fluke 5522A
(33 to 330) mA	(10 to 20) Hz (20 to 45) Hz (45 to 1000) Hz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.15 % + 2.0 µA 0.069 % + 2.0 µA 0.03 % + 2.0 µA 0.07 % + 50 µA 0.15 % + 100 µA 0.30 % + 200 µA	
(0.33 to 3) A	(10 to 45) Hz (45 to 1000) Hz (1 to 5) kHz (5 to 10) kHz	0.15 % + 100 µA 0.046 % + 100 µA 0.46 % + 1 mA 2.0 % + 5 mA	
(3 to 20) A	(45 to 1000) Hz (1 to 5) kHz (5 to 10) kHz	0.089 % + 5 mA 0.11 % + 5 mA 2.8 % + 5 mA	
Clamp-On Meters ³ :			
(16.5 to 149.999) A (150 to 1025) A	(45 to 65) Hz (45 to 65) Hz	0.65 % + 0.31 A 0.65 % + 1.1 A	Non-toroidal
(16.5 to 149.999) A (150 to 325.0) A	(65 to 440) Hz (65 to 440) Hz	1.2 % + 0.31 A 1.2 % + 1.1 A	
(16.5 to 149.999) A (150 to 1025) A	(45 to 65) Hz (45 to 65) Hz	0.28 % + 0.13 A 0.33 % + 0.12 A	Toroidal
(16.5 to 149.999) A (150 to 350.0) A	(65 to 440) Hz (65 to 440) Hz	0.90 % + 0.69 A 0.92 % + 0.13 A	

II. Time & Frequency

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Frequency – Measuring Equipment ³	(1 to 120) Hz (120 to 1200) Hz (1.2 to 12) kHz (12 to 120) kHz (120 to 500) kHz	0.012 Hz + 5 μHz 0.12 Hz + 5 μHz 0.001 kHz + 5 μHz 0.012 kHz + 5 μHz 0.12 kHz + 5 μHz	Fluke 5522A

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 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.

⁴ 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.

⁵ L is the numerical value of the nominal length of the device measured in inches,

⁶ In the statement of CMC, percentages are to be read as percent of indicated value.

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



Accredited Laboratory

A2LA has accredited

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Edmonton, Alberta, CANADA

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 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 January 2025.

A blue ink signature of Mr. Trace McInturff, written over a horizontal line.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 5037.01
Valid to December 31, 2026

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