



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

ELECTRICAL TEST INSTRUMENTS, LLC
8430 Spires Way, Suites A - F
Frederick, MD 21701
Alek Arzdorf Phone: 719 641 8976

CALIBRATION

Valid To: August 31, 2028

Certificate Number: 5636.01

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, 5}:

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ^{2, 4} ($\pm$)	Comments
DC Voltage ³ – Generate	(0 to 120.0) mV (>0.12 to 1.2) V (>1.2 to 12.0) V (>12 to 120) V (>120 to 1020.0) V	12 μ V/V + 0.96 μ V 8.5 μ V/V + 1.2 μ V 8.5 μ V/V + 10 μ V 12 μ V/V + 100 μ V 12 μ V/V + 1.2 mV	Fluke 5550A/SC600
DC Voltage ³ – Measure	Up to 200 mV 200 mV to 2 V (2 to 20) V (20 to 200) V (200 to 1000) V Up to 10 kV (1 to 30) kV (30 to 70) kV (70 to 90) kV (90 to 100) kV	7.5 μ V/V + 400 nV 4 μ V/V + 0.61 μ V 4 μ V/V + 1 μ V 6.5 μ V/V + 65 μ V 6.7 μ V/V + 530 μ V 0.05 % + 75 mV 0.12 % + 0.7 V 0.15 % + 7 V 0.55 % + (-280) V 1.3 % + (-950) V	Fluke 8588A Vitrek 4700 Vitrek 4700 w/ HVL-150

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
DC Current ³ – Generate	(0 to 120.000) μ A (0 to 1.2000) mA (0 to 12.0000) mA (>12 to 120.0) mA (0.12 to 1.2000) A (>1.2 to 3.1) A (>3.1 to 12.000) A (>12 to 30.2) A	110 μ A/A + 7.2 nA 85 μ A/A + 18 nA 85 μ A/A + 96 nA 85 μ A/A + 0.96 μ A 140 μ A/A + 12 μ A 290 μ A/A + 180 μ A 360 μ A/A + 300 μ A 850 μ A/A + 600 μ A	Fluke 5550A/SC600
Toroidal Clamp-On	(10 to 16.5) A (16.5 to 150) A (150 to 550) A (550 to 1025) A	0.59 % + 23 mA 0.6 % + 0.16 A 0.6 % + 0.58 A 0.6 % + 0.58 A	Fluke 5550A/SC600 w/ 50-Turn Coil
DC Current ³ – Measure	(0 to 20) μ A (20 to 200) μ A (0.2 to 2.0) mA (2.0 to 20) mA (20 to 200) mA (0.2 to 2.0) A (2.0 to 20) A (20 to 30) A	27 μ A/A + 0.81 nA 9.8 μ A/A + 0.81 nA 9.2 μ A/A + 8.1 nA 14 μ A/A + 81 nA 57 μ A/A + 2 μ A 130 μ A/A + 200 μ A 230 μ A/A + 0.81 mA 550 μ A/A + 4.4 mA	Fluke 8588A
DC Resistance ³ – Generate	(0 to 12.000) Ω (>12 to 120.000) Ω (>0.12 to 1.200) k Ω (>1.2 to 12.000) k Ω (>12 to 120.00) k Ω (>0.12 to 1.20) M Ω (>1.2 to 12.00) M Ω (>12 to 120.0) M Ω (>120 to 1200) M Ω	31 $\mu\Omega/\Omega$ + 1 m Ω 23 $\mu\Omega/\Omega$ + 1 m Ω 22 $\mu\Omega/\Omega$ + 2 m Ω 22 $\mu\Omega/\Omega$ + 20 m Ω 22 $\mu\Omega/\Omega$ + 200 m Ω 25 $\mu\Omega/\Omega$ + 2 Ω 43 $\mu\Omega/\Omega$ + 30 Ω 390 $\mu\Omega/\Omega$ + 2.5 k Ω 5 m Ω/Ω + 100 k Ω	Fluke 5550A/SC600
DC Resistance ³ – Measure	Up to 2 Ω (2 to 20) Ω (20 to 200) Ω (0.2 to 2) k Ω (2 to 20) k Ω (20 to 200) k Ω (0.2 to 2) M Ω (2 to 20) M Ω (20 to 200) M Ω (0.2 to 2) G Ω	17 $\mu\Omega/\Omega$ + 8.1 $\mu\Omega$ 10 $\mu\Omega/\Omega$ + 28 $\mu\Omega$ 9.2 $\mu\Omega/\Omega$ + 100 $\mu\Omega$ 9.1 $\mu\Omega/\Omega$ + 1 m Ω 9.2 $\mu\Omega/\Omega$ + 10 m Ω 9.3 $\mu\Omega/\Omega$ + 100 m Ω 11 $\mu\Omega/\Omega$ + 2 Ω 19 $\mu\Omega/\Omega$ + 200 Ω 120 $\mu\Omega/\Omega$ + 20 k Ω 1.3 m Ω/Ω + 2 M Ω	Fluke 8588A

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Voltage ³ – Generate			
Up to 12.000 mV	(3 to 5) Hz (5 to 10) Hz (0.01 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz	2.7 mV/V + 8 µV 0.93 mV/V + 8 µV 120 µV/V + 7 µV 390 µV/V + 7 µV 1.6 mV/V + 18 µV 7 mV/V + 36 µV 7 mV/V + 36 µV	Fluke 5550A/SC600
(>12 to 120.000) mV	(3 to 5) Hz (5 to 10) Hz (0.01 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz	2.7 mV/V + 8 µV 0.93 mV/V + 8 µV 120 µV/V + 7 µV 290 µV/V + 7 µV 0.78 mV/V + 18 µV 1.9 mV/V + 36 µV 1.9 mV/V + 36 µV	
(>0.12 to 1.2000) V	(3 to 5) Hz (5 to 10) Hz (10 to 40) Hz 40.01 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz	2.7 mV/V + 90 µV 0.93 mV/V + 85 µV 120 µV/V + 85 µV 120 µV/V + 9 µV 250 µV/V + 16 µV 540 µV/V + 48 µV 1.6 mV/V + 96 µV 1.6 mV/V + 96 µV	
(>1.2 to 12.000) V	(3 to 5) Hz (5 to 10) Hz (10 to 40) Hz 40.01 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz	2.7 mV/V + 0.9 mV 0.93 mV/V + 0.9 mV 120 µV/V + 350 µV 120 µV/V + 60 µV 250 µV/V + 60 µV 540 µV/V + 150 µV 1.9 mV/V + 0.72 mV 1.9 mV/V + 0.72 mV	
(>12 to 120.000) V	(3 to 5) Hz (5 to 10) Hz (10 to 40) Hz 40.01 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz	2.7 mV/V + 9 mV 0.93 mV/V + 9 mV 120 µV/V + 3.5 mV 120 µV/V + 0.6 mV 270 µV/V + 0.6 mV 0.7 mV/V + 1.5 mV	
(>120 to 330.000) V	(3 to 5) Hz (5 to 10) Hz (0.01 to 20) kHz (20 to 50) kHz (50 to 100) kHz	2.7 mV/V + 90 mV 0.93 mV/V + 90 mV 150 µV/V + 9 mV 230 µV/V + 8 mV 1.6 mV/V + 15 mV	

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Voltage ³ – Measure (cont.)			
(1.21 to 121.2) V	1 Hz to 2 kHz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz (100 to 300) kHz 300 kHz to 1 MHz	90 $\mu\text{V/V} + 0.61 \text{ mV}$ 110 $\mu\text{V/V} + 0.61 \text{ mV}$ 230 $\mu\text{V/V} + 1.2 \text{ mV}$ 490 $\mu\text{V/V} + 6.1 \text{ mV}$ 3.7 $\text{mV/V} + 61 \text{ mV}$ 11 $\text{mV/V} + 6.1 \text{ V}$	Fluke 8588A
(121.2 to 1050.0) V	1 Hz to 10 kHz (10 to 30) kHz (30 to 100) kHz	110 $\mu\text{V/V} + 26 \text{ mV}$ 230 $\mu\text{V/V} + 26 \text{ mV}$ 590 $\mu\text{V/V} + 110 \text{ mV}$	Vitrek 4700 Vitrek 4700 w/ HVL-150 Probe
Up to 10 kV	(30 to 200) Hz	0.16 % + 140 mV	
(1 to 70) kV (70 to 100) kV	<65 Hz	0.69 % + 7.9 V 0.43 % + 190 V	
AC Current ³ – Generate			
Up to 120.00 μA	3 Hz to 5 kHz (5 to 10) kHz (10 to 30) kHz	0.78 $\text{mA/A} + 15 \text{ nA}$ 3.9 $\text{mA/A} + 80 \text{ nA}$ 3.9 $\text{mA/A} + 1 \mu\text{A}$	Fluke 5550A/SC600
(>0.12 to 1.2000) mA	3 Hz to 5 kHz (5 to 10) kHz (10 to 30) kHz	0.78 $\text{mA/A} + 150 \text{ nA}$ 2.3 $\text{mA/A} + 200 \text{ nA}$ 3.9 $\text{mA/A} + 5 \mu\text{A}$	
(>1.2 to 12.000) mA	3 Hz to 5 kHz (5 to 10) kHz (10 to 30) kHz	0.62 $\text{mA/A} + 1.5 \mu\text{A}$ 1.4 $\text{mA/A} + 2 \mu\text{A}$ 3.9 $\text{mA/A} + 10 \mu\text{A}$	
(>12 to 120.00) mA	(3 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.62 $\text{mA/A} + 12 \mu\text{A}$ 390 $\mu\text{A/A} + 12 \mu\text{A}$ 0.62 $\text{mA/A} + 12 \mu\text{A}$ 1.2 $\text{mA/A} + 10 \mu\text{A}$ 3.9 $\text{mA/A} + 100 \mu\text{A}$	
(>0.12 to 1.2000) A	(3 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.62 $\text{mA/A} + 100 \mu\text{A}$ 470 $\mu\text{A/A} + 50 \mu\text{A}$ 0.62 $\text{mA/A} + 100 \mu\text{A}$ 1.9 $\text{mA/A} + 300 \mu\text{A}$ 3.9 $\text{mA/A} + 300 \mu\text{A}$	

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Current ³ – Generate (cont.)			Fluke 5550A/SC600
(>1.2 to 3.1000) A	(3 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.93 mA/A + 500 µA 0.7 mA/A + 450 µA 0.93 mA/A + 450 µA 4.7 mA/A + 1 mA	
(>3.1 to 12.000) A	(3 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	1.2 mA/A + 1.2 mA 0.93 mA/A + 0.6 mA 1.2 mA/A + 1.2 mA 4.7 mA/A + 1.2 mA	
(>12 to 30.2) A	(3 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz	0.78 mA/A + 12 mA 540 µA/A + 9.6 mA 3.9 mA/A + 12 mA	
Non-Toroidal Clamp-On			Fluke 5550A/SC600 w/ 50-Turn Coil
(10 to 16.5) A	(45 to 65) Hz (65 to 440) Hz	0.66 % + 35 mA 1.2 % + 35 mA	
(>16.5 to 150) A	(45 to 65) Hz (65 to 440) Hz	0.66 % + 0.29 A 1.2 % + 0.29 A	
(>150 to 550) A	(45 to 65) Hz (65 to 440) Hz	0.67 % + 1 A 1.2 % + 1 A	
(>550 to 1025) A	(45 to 65) Hz (65 to 440) Hz	0.66 % + 1 A 1.2 % + 1 A	
Toroidal Clamp-On			
(10 to 16.5) A	(45 to 65) Hz (65 to 440) Hz	0.34 % + 3.5 mA 0.92 % + 3.5 mA	
(>16.5 to 150) A	(45 to 65) Hz (65 to 440) Hz	0.35 % + 29 mA 0.93 % + 32 mA	
(>150 to 550) A	(45 to 65) Hz (65 to 440) Hz	0.36 % + 0.1 A 0.93 % + 0.12 A	
(>550 to 1025) A	(45 to 65) Hz (65 to 440) Hz	0.35 % + 0.1 A 0.93 % + 0.12 A	

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Current ³ – Measure			
(0.02 to 20.2) µA	1 Hz to 10 kHz (10 to 30) kHz	2.0 mA/A + 5.1 nA 2.1 mA/A + 5.1 nA	Fluke 8588A
(20.2 to 202) µA	1 Hz to 2 kHz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz	280 µA/A + 10 nA 530 µA/A + 10 nA 0.74 mA/A + 10 nA 4.1 mA/A + 20 nA	
202 µA to 2.02 mA	1 Hz to 2 kHz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz	280 µA/A + 100 nA 530 µA/A + 100 nA 0.74 mA/A + 100 nA 4.1 mA/A + 200 nA	
(2.02 to 20.2) mA	1 Hz to 2 kHz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz	280 µA/A + 1 µA 530 µA/A + 1 µA 0.74 mA/A + 1 µA 4.1 mA/A + 2 µA	
(20.2 to 202) mA	1 Hz to 2 kHz (2 to 10) kHz (10 to 30) kHz	280 µA/A + 10 µA 520 µA/A + 10 µA 0.74 mA/A + 10 µA	
202 mA to 2.02 A	1 Hz to 2 kHz (2 to 10) kHz (10 to 30) kHz	300 µA/A + 200 µA 550 µA/A + 200 µA 0.79 mA/A + 200 µA	
(2.02 to 20.2) A	1 Hz to 10 kHz	0.84 mA/A + 1 mA	
(20.2 to 30.2) A	1 Hz to 2 kHz (2 to 10) kHz	0.84 mA/A + 12 mA 1.2 mA/A + 12 mA	
Inductance ³ – Generate			
(13 to 120) µH	1 kHz	0.23 % + 240 nH	Fluke 5550A/SC600
(>0.12 to 1.2) mH	1 kHz	0.16 % + 1.2 µH	
(>1.2 to 12) mH	110 Hz	0.16 % + 12 µH	
(>12 to 120) mH	100 Hz	0.16 % + 120 µH	
(>0.12 to 1.2) H	10 Hz	0.19 % + 1.2 mH	
(>1.2 to 12) H	3 Hz	0.19 % + 12 mH	
(>12 to 120) H	2 Hz	0.19 % + 120 mH	

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Capacitance ³ – Generate	(0.2 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	0.19 % + 4 pF 0.19 % + 10 pF 0.16 % + 50 pF 0.16 % + 500 pF 0.16 % + 5 nF 0.23 % + 50 nF 0.35 % + 500 nF 0.35 % + 5 µF 0.78 % + 50 µF	Fluke 5550A/SC600
Capacitance ³ – Measure	(0 to 2.02) nF (>2.02 to 20.2) nF (>20.2 to 202) nF (>0.2 to 2.02) µF (>2.02 to 20.2) µF (>20.2 to 202) µF (>0.2 to 2.02) mF (>2.02 to 20.2) mF (>20.2 to 202) mF	1.8 mF/F + 2 pF 0.8 mF/F + 4 pF 490 µF/F + 20 pF 410 µF/F + 200 pF 420 µF/F + 2 nF 0.61 mF/F + 20 nF 0.62 mF/F + 200 nF 0.71 mF/F + 2 µF 0.71 mF/F + 20 µF	Fluke 8588A
Electrical Calibration of Thermocouple Indicators ³			Fluke 5550A/SC600
Type B	(600 to 800) °C (800 to 1000) °C (1000 to 1550) °C (1550 to 1820) °C	0.35 °C 0.27 °C 0.23 °C 0.27 °C	
Type C	(0 to 150) °C (150 to 650) °C (650 to 1000) °C (1000 to 1800) °C (1800 to 2315) °C	0.19 °C 0.16 °C 0.2 °C 0.36 °C 0.62 °C	
Type D	(0 to 150) °C (150 to 650) °C (650 to 1000) °C (1000 to 1800) °C (1800 to 2315) °C	0.19 °C 0.16 °C 0.2 °C 0.35 °C 0.62 °C	
Type E	(-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1000) °C	0.32 °C 0.11 °C 0.092 °C 0.12 °C 0.16 °C	

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Electrical Calibration of Thermocouple Indicators ³ (cont.)			Fluke 5550A/SC600
Type G	(0 to 150) °C (150 to 650) °C (650 to 1000) °C (1000 to 1800) °C (1800 to 2315) °C	0.4 °C 0.27 °C 0.2 °C 0.34 °C 0.61 °C	
Type J	(-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1200) °C	0.19 °C 0.1 °C 0.092 °C 0.11 °C 0.16 °C	
Type K	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1000) °C (1000 to 1372) °C	0.22 °C 0.1 °C 0.092 °C 0.16 °C 0.28 °C	
Type L	(-200 to -100) °C (-100 to 800) °C (800 to 900) °C	0.24 °C 0.16 °C 0.092 °C	
Type N	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 410) °C (410 to 1300) °C	0.27 °C 0.12 °C 0.092 °C 0.092 °C 0.16 °C	
Type R	(0 to 250) °C (250 to 400) °C (400 to 1000) °C (1000 to 1767) °C	0.41 °C 0.23 °C 0.21 °C 0.27 °C	
Type S	(0 to 250) °C (250 to 1000) °C (1000 to 1400) °C (1400 to 1767) °C	0.34 °C 0.24 °C 0.26 °C 0.33 °C	
Type T	(-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C	0.48 °C 0.16 °C 0.1 °C 0.092 °C	
Type U	(-200 to 0) °C (0 to 600) °C	0.32 °C 0.092 °C	

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Electrical Calibration of RTDs ³			Fluke 5550A/SC600
Pt 385, 100 Ω	(-200 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 400) °C (400 to 630) °C (630 to 800) °C	0.041 °C 0.051 °C 0.071 °C 0.082 °C 0.092 °C 0.18 °C	
Pt 3926, 100 Ω	(-200 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 400) °C (400 to 630) °C	0.041 °C 0.051 °C 0.071 °C 0.082 °C 0.092 °C	
Pt 3916, 100 Ω	(-200 to -190) °C (-190 to -80) °C (-80 to 0) °C (0 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.19 °C 0.031 °C 0.041 °C 0.051 °C 0.061 °C 0.071 °C 0.082 °C 0.18 °C	
Pt 385, 200 Ω	(-200 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.031 °C 0.041 °C 0.092 °C 0.1 °C 0.11 °C 0.12 °C	
PtNi 385, 120 Ω (Ni 120)	(-80 to 100) °C (100 to 260) °C	0.061 °C 0.11 °C	
Pt 385, 500 Ω	(-200 to -80) °C (-80 to 100) °C (100 to 260) °C (260 to 400) °C (400 to 600) °C (600 to 630) °C	0.031 °C 0.041 °C 0.051 °C 0.061 °C 0.071 °C 0.092 °C	
Pt 385, 1000 Ω	(-200 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 600) °C (600 to 630) °C	0.02 °C 0.031 °C 0.041 °C 0.051 °C 0.18 °C	
Cu 427, 10 Ω	(-100 to 0) °C	0.23 °C	

II. Time & Frequency

Parameter/Equipment	Range	CMC ^{2, 4} ($\pm$)	Comments
Frequency – Source ³	0.1 Hz to 2 MHz	1.9 μ Hz/Hz	Fluke 5550A
Frequency – Measure ³	10 Hz to 100 MHz	1.2 μ Hz/Hz	Fluke 8588A

SATELLITE

ELECTRICAL TEST INSTRUMENTS, LLC
 616 Henrietta Creek Rd Suite 200
 Roanoke, TX 76262
 Alek Arzdorf Phone: 719 641 8976

CALIBRATION

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
DC Voltage ³ – Generate	(0 to 120.0) mV (>0.12 to 1.2) V (>1.2 to 12.0) V (>12 to 120) V (>120 to 1020.0) V	12 µV/V + 0.96 µV 8.5 µV/V + 1.2 µV 8.5 µV/V + 10 µV 12 µV/V + 100 µV 12 µV/V + 1.2 mV	Fluke 5550A/SC600
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 Up to 10 kV (1 to 30) kV (30 to 70) kV (70 to 90) kV (90 to 100) kV	33 µV/V + 2.7 µV 19 µV/V + 5.4 µV 20 µV/V + 39 µV 31 µV/V + 470 µV 33 µV/V + 7.8 mV 0.05 % + 75 mV 0.12 % + 0.7 V 0.15 % + 7 V 0.55 % + (-280) V 1.3 % + (-950) V	Fluke 8846A Vitrek 4700 Vitrek 4700 w/ HVL-150
DC Current ³ – Generate	(0 to 120.000) µA (0 to 1.2000) mA (0 to 12.0000) mA (>12 to 120.0) mA (0.12 to 1.2000) A (>1.2 to 3.1) A (>3.1 to 12.000) A (>12 to 30.2) A	110 µA/A + 7.2 nA 85 µA/A + 18 nA 85 µA/A + 96 nA 85 µA/A + 0.96 µA 140 µA/A + 12 µA 290 µA/A + 180 µA 360 µA/A + 300 µA 850 µA/A + 600 µA	Fluke 5550A/SC600

Parameter/Equipment	Range	CMC ^{2,4} ($\pm$)	Comments
DC Current – Generate (cont.) Toroidal Clamp-On	(10 to 16.5) A (16.5 to 150) A (150 to 550) A (550 to 1025) A	0.59 % + 23 mA 0.6 % + 0.16 A 0.6 % + 0.58 A 0.6 % + 0.58 A	Fluke 5550A/SC600 w/ 50-Turn Coil
DC Current ³ – Measure	(0 to 100) μ A (0.1 to 1) mA (1 to 10) mA (10 to 100) mA (100 to 400) mA (0.4 to 1) A (1 to 3) A (3 to 10) A	390 μ A/A + 19 nA 400 μ A/A + 39 nA 400 μ A/A + 1.6 μ A 400 μ A/A + 3.9 μ A 410 μ A/A + 16 μ A 410 μ A/A + 160 μ A 0.83 mA/A + 470 μ A 1.2 mA/A + 0.62 mA	Fluke 8846A
DC Resistance ³ – Generate	(0 to 12.000) Ω (>12 to 120.000) Ω (>0.12 to 1.200) k Ω (>1.2 to 12.000) k Ω (>12 to 120.00) k Ω (>0.12 to 1.20) M Ω (>1.2 to 12.00) M Ω (>12 to 120.0) M Ω (>120 to 1200) M Ω	31 $\mu\Omega/\Omega$ + 1 m Ω 23 $\mu\Omega/\Omega$ + 1 m Ω 22 $\mu\Omega/\Omega$ + 2 m Ω 22 $\mu\Omega/\Omega$ + 20 m Ω 22 $\mu\Omega/\Omega$ + 200 m Ω 25 $\mu\Omega/\Omega$ + 2 Ω 43 $\mu\Omega/\Omega$ + 30 Ω 390 $\mu\Omega/\Omega$ + 2.5 k Ω 5 m Ω/Ω + 100 k Ω	Fluke 5550A/SC600
DC Resistance ³ – Measure	(0 to 10) Ω (10 to 100) Ω (0.10 to 1.0) k Ω (1.0 to 10) k Ω (10 to 100) k Ω (0.10 to 1.0) M Ω (1.0 to 10) M Ω (10 to 100) M Ω (0.1 to 1) G Ω	120 $\mu\Omega/\Omega$ + 2.3 m Ω 82 $\mu\Omega/\Omega$ + 3.1 m Ω 80 $\mu\Omega/\Omega$ + 7.8 m Ω 80 $\mu\Omega/\Omega$ + 78 m Ω 80 $\mu\Omega/\Omega$ + 0.78 Ω 80 $\mu\Omega/\Omega$ + 7.8 Ω 310 $\mu\Omega/\Omega$ + 78 Ω 6.2 m Ω/Ω + 7.8 k Ω 16 m Ω/Ω + 78 k Ω	Fluke 8846A
AC Voltage ³ – Generate Up to 12.000 mV	(3 to 5) Hz (5 to 10) Hz (0.01 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz	2.7 mV/V + 8 μ V 0.93 mV/V + 8 μ V 120 μ V/V + 7 μ V 390 μ V/V + 7 μ V 1.6 mV/V + 18 μ V 7 mV/V + 36 μ V 7 mV/V + 36 μ V	Fluke 5550A/SC600

Parameter/Range	Frequency	CMC ^{2, 4} ($\pm$)	Comments
AC Voltage ³ – Generate (cont.)			Fluke 5550A/SC600
(>12 to 120.000) mV	(3 to 5) Hz (5 to 10) Hz (0.01 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz	2.7 mV/V + 8 μ V 0.93 mV/V + 8 μ V 120 μ V/V + 7 μ V 290 μ V/V + 7 μ V 0.78 mV/V + 18 μ V 1.9 mV/V + 36 μ V 1.9 mV/V + 36 μ V	
(>0.12 to 1.2000) V	(3 to 5) Hz (5 to 10) Hz (10 to 40) Hz 40.01 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz	2.7 mV/V + 90 μ V 0.93 mV/V + 85 μ V 120 μ V/V + 85 μ V 120 μ V/V + 9 μ V 250 μ V/V + 16 μ V 540 μ V/V + 48 μ V 1.6 mV/V + 96 μ V 1.6 mV/V + 96 μ V	
(>1.2 to 12.000) V	(3 to 5) Hz (5 to 10) Hz (10 to 40) Hz 40.01 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz	2.7 mV/V + 0.9 mV 0.93 mV/V + 0.9 mV 120 μ V/V + 350 μ V 120 μ V/V + 60 μ V 250 μ V/V + 60 μ V 540 μ V/V + 150 μ V 1.9 mV/V + 0.72 mV 1.9 mV/V + 0.72 mV	
(>12 to 120.000) V	(3 to 5) Hz (5 to 10) Hz (10 to 40) Hz 40.01 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz	2.7 mV/V + 9 mV 0.93 mV/V + 9 mV 120 μ V/V + 3.5 mV 120 μ V/V + 0.6 mV 270 μ V/V + 0.6 mV 0.7 mV/V + 1.5 mV	
(>120 to 330.000) V	(3 to 5) Hz (5 to 10) Hz (0.01 to 20) kHz (20 to 50) kHz (50 to 100) kHz	2.7 mV/V + 90 mV 0.93 mV/V + 90 mV 150 μ V/V + 9 mV 230 μ V/V + 8 mV 1.6 mV/V + 15 mV	
(>330 to 1020) V	(3 to 5) Hz (5 to 10) Hz (0.01 to 10) kHz	2.7 mV/V + 90 mV 0.93 mV/V + 90 mV 200 μ V/V + 90 mV	

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Voltage ³ – Measure			Fluke 8846A
(20 to 100) mV	(3 to 5) Hz (5 to 10) Hz 10 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	7.8 mV/V + 31 µV 2.7 mV/V + 31 µV 570 µV/V + 31 µV 0.99 mV/V + 39 µV 4.7 mV/V + 62 µV 31 mV/V + 390 µV	
(0.1 to 1.0) V	(3 to 5) Hz (5 to 10) Hz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	7.8 mV/V + 230 µV 2.7 mV/V + 230 µV 480 µV/V + 230 µV 0.96 mV/V + 390 µV 4.7 mV/V + 0.62 mV 31 mV/V + 3.9 mV	
(1.0 to 10) V	(3 to 5) Hz (5 to 10) Hz 10 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	7.8 mV/V + 2.3 mV 2.7 mV/V + 2.3 mV 480 µV/V + 2.3 mV 0.96 mV/V + 3.9 mV 4.7 mV/V + 6.2 mV 31 mV/V + 39 mV	
(10 to 100) V	(3 to 5) Hz (5 to 10) Hz 10 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	7.8 mV/V + 23 mV 2.8 mV/V + 23 mV 470 µV/V + 62 mV 0.94 mV/V + 39 mV 4.7 mV/V + 62 mV 31 mV/V + 390 mV	
(100 to 1000) V	(3 to 5) Hz (5 to 10) Hz 10 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	7.8 mV/V + 170 mV 2.7 mV/V + 170 mV 500 µV/V + 170 mV 1 mV/V + 290 mV 4.7 mV/V + 470 mV 31 mV/V + 2.9 V	
Up to 10 kV	(30 to 200) Hz	0.16 % + 140 mV	Vitrek 4700
(1 to 70) kV (70 to 100) kV	<65 Hz	0.69 % + 7.9 V 0.43 % + 190 V	Vitrek 4700 w/ HVL-150 Probe

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Current ³ – Generate			Fluke 5550A/SC600
Up to 120.00 µA	3 Hz to 5 kHz (5 to 10) kHz (10 to 30) kHz	0.78 mA/A + 15 nA 3.9 mA/A + 80 nA 3.9 mA/A + 1 µA	
(>0.12 to 1.2000) mA	3 Hz to 5 kHz (5 to 10) kHz (10 to 30) kHz	0.78 mA/A + 150 nA 2.3 mA/A + 200 nA 3.9 mA/A + 5 µA	
(>1.2 to 12.000) mA	3 Hz to 5 kHz (5 to 10) kHz (10 to 30) kHz	0.62 mA/A + 1.5 µA 1.4 mA/A + 2 µA 3.9 mA/A + 10 µA	
(>12 to 120.00) mA	(3 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.62 mA/A + 12 µA 390 µA/A + 12 µA 0.62 mA/A + 12 µA 1.2 mA/A + 10 µA 3.9 mA/A + 100 µA	
(>0.12 to 1.2000) A	(3 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.62 mA/A + 100 µA 470 µA/A + 50 µA 0.62 mA/A + 100 µA 1.9 mA/A + 300 µA 3.9 mA/A + 300 µA	
(>1.2 to 3.1000) A	(3 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.93 mA/A + 500 µA 0.7 mA/A + 450 µA 0.93 mA/A + 450 µA 4.7 mA/A + 1 mA	
(>3.1 to 12.000) A	(3 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	1.2 mA/A + 1.2 mA 0.93 mA/A + 0.6 mA 1.2 mA/A + 1.2 mA 4.7 mA/A + 1.2 mA	
(>12 to 30.2) A	(3 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz	0.78 mA/A + 12 mA 540 µA/A + 9.6 mA 3.9 mA/A + 12 mA	

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Current ³ – Generate (cont.)			Fluke 5550A/SC600 w/ 50-Turn Coil
Non-Toroidal Clamp-On			
(10 to 16.5) A	(45 to 65) Hz (65 to 440) Hz	0.66 % + 35 mA 1.2 % + 35 mA	
(>16.5 to 150) A	(45 to 65) Hz (65 to 440) Hz	0.66 % + 0.29 A 1.2 % + 0.29 A	
(>150 to 550) A	(45 to 65) Hz (65 to 440) Hz	0.67 % + 1 A 1.2 % + 1 A	
(>550 to 1025) A	(45 to 65) Hz (65 to 440) Hz	0.66 % + 1 A 1.2 % + 1 A	
Toroidal Clamp-On			
(10 to 16.5) A	(45 to 65) Hz (65 to 440) Hz	0.34 % + 3.5 mA 0.92 % + 3.5 mA	
(>16.5 to 150) A	(45 to 65) Hz (65 to 440) Hz	0.35 % + 29 mA 0.93 % + 32 mA	
(>150 to 550) A	(45 to 65) Hz (65 to 440) Hz	0.36 % + 0.1 A 0.93 % + 0.12 A	
(>550 to 1025) A	(45 to 65) Hz (65 to 440) Hz	0.35 % + 0.1 A 0.93 % + 0.12 A	
AC Current ³ – Measure			Fluke 8846A
Up to 100 µA	(3 to 5) Hz (5 to 10) Hz 10 Hz to 5 kHz (5 to 10) kHz	8.5 mA/A + 47 nA 2.8 mA/A + 47 nA 1.3 mA/A + 47 nA 2.8 mA/A + 540 nA	
100 µA to 1 mA	(3 to 5) Hz (5 to 10) Hz 10 Hz to 5 kHz (5 to 10) kHz	7.8 mA/A + 310 nA 2.3 mA/A + 310 nA 0.82 mA/A + 310 nA 1.6 mA/A + 1.9 µA	
(1 to 10) mA	(3 to 5) Hz (5 to 10) Hz 10 Hz to 5 kHz (5 to 10) kHz	8.5 mA/A + 4.7 µA 2.7 mA/A + 4.7 µA 1.2 mA/A + 4.7 µA 2.7 mA/A + 54 µA	

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Current ³ – Measure (cont.)			
(10 to 100) mA	(3 to 5) Hz (5 to 10) Hz 10 Hz to 5 kHz (5 to 10) kHz	7.8 mA/A + 31 µA 2.3 mA/A + 31 µA 0.79 mA/A + 31 µA 1.6 mA/A + 190 µA	Fluke 8846A
(100 to 400) mA	(3 to 5) Hz (5 to 10) Hz 10 Hz to 5 kHz (5 to 10) kHz	7.8 mA/A + 310 µA 2.3 mA/A + 310 µA 0.83 mA/A + 310 µA 1.6 mA/A + 2.2 mA	
(0.4 to 1) A	(3 to 5) Hz (5 to 10) Hz 10 Hz to 5 kHz (5 to 10) kHz	7.8 mA/A + 310 µA 2.3 mA/A + 310 µA 0.81 mA/A + 310 µA 2.7 mA/A + 5.4 mA	
(1 to 3) A	(3 to 5) Hz (5 to 10) Hz 10 Hz to 5 kHz (5 to 10) kHz	8.5 mA/A + 1.4 mA 2.7 mA/A + 1.4 mA 1.2 mA/A + 1.4 mA 2.7 mA/A + 16 mA	
(3 to 10) A	(3 to 5) Hz (5 to 10) Hz 10 Hz to 5 kHz (5 to 10) kHz	8.5 mA/A + 4.7 mA 2.7 mA/A + 4.7 mA 1.2 mA/A + 4.7 mA 2.7 mA/A + 54 mA	
Inductance ³ – Generate			
(13 to 120) µH	1 kHz	0.23 % + 240 nH	Fluke 5550A/SC600
(>0.12 to 1.2) mH	1 kHz	0.16 % + 1.2 µH	
(>1.2 to 12) mH	110 Hz	0.16 % + 12 µH	
(>12 to 120) mH	100 Hz	0.16 % + 120 µH	
(>0.12 to 1.2) H	10 Hz	0.19 % + 1.2 mH	
(>1.2 to 12) H	3 Hz	0.19 % + 12 mH	
(>12 to 120) H	2 Hz	0.19 % + 120 mH	

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Capacitance ³ – Generate	(0.2 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	0.19 % + 4 pF 0.19 % + 10 pF 0.16 % + 50 pF 0.16 % + 500 pF 0.16 % + 5 nF 0.23 % + 50 nF 0.35 % + 500 nF 0.35 % + 5 µF 0.78 % + 50 µF	Fluke 5550A/SC600

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Capacitance ³ – Measure	(0 to 2.02) nF (>2.02 to 20.2) nF (>20.2 to 202) nF (>0.2 to 2.02) µF (>2.02 to 20.2) µF (>20.2 to 202) µF (>0.2 to 2.02) mF (>2.02 to 20.2) mF (>20.2 to 202) mF	18 mF/F + 19 pF 11 mF/F + 39 pF 11 µF/F + 390 pF 11 µF/F + 3.9 nF 11 µF/F + 39 nF 11 µF/F + 390 nF 11 µF/F + 3.9 µF 11 µF/F + 39 µF 32 mF/F + 160 µF	Fluke 8846A
Electrical Calibration of Thermocouple Indicators ³			Fluke 5550A/SC600
Type B	(600 to 800) °C (800 to 1000) °C (1000 to 1550) °C (1550 to 1820) °C	0.35 °C 0.27 °C 0.23 °C 0.27 °C	
Type C	(0 to 150) °C (150 to 650) °C (650 to 1000) °C (1000 to 1800) °C (1800 to 2315) °C	0.19 °C 0.16 °C 0.2 °C 0.36 °C 0.62 °C	
Type D	(0 to 150) °C (150 to 650) °C (650 to 1000) °C (1000 to 1800) °C (1800 to 2315) °C	0.19 °C 0.16 °C 0.2 °C 0.35 °C 0.62 °C	
Type E	(-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1000) °C	0.32 °C 0.11 °C 0.092 °C 0.12 °C 0.16 °C	
Type G	(0 to 150) °C (150 to 650) °C (650 to 1000) °C (1000 to 1800) °C (1800 to 2315) °C	0.4 °C 0.27 °C 0.2 °C 0.34 °C 0.61 °C	
Type J	(-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1200) °C	0.19 °C 0.1 °C 0.092 °C 0.11 °C 0.16 °C	

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Electrical Calibration of Thermocouple Indicators ³ (cont.)			Fluke 5550A/SC600
Type K	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1000) °C (1000 to 1372) °C	0.22 °C 0.1 °C 0.092 °C 0.16 °C 0.28 °C	
Type L	(-200 to -100) °C (-100 to 800) °C (800 to 900) °C	0.24 °C 0.16 °C 0.092 °C	
Type N	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 410) °C (410 to 1300) °C	0.27 °C 0.12 °C 0.092 °C 0.092 °C 0.16 °C	
Type R	(0 to 250) °C (250 to 400) °C (400 to 1000) °C (1000 to 1767) °C	0.41 °C 0.23 °C 0.21 °C 0.27 °C	
Type S	(0 to 250) °C (250 to 1000) °C (1000 to 1400) °C (1400 to 1767) °C	0.34 °C 0.24 °C 0.26 °C 0.33 °C	
Type T	(-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C	0.48 °C 0.16 °C 0.1 °C 0.092 °C	
Type U	(-200 to 0) °C (0 to 600) °C	0.32 °C 0.092 °C	
Electrical Calibration of RTDs ³			
Pt 385, 100 Ω	(-200 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 400) °C (400 to 630) °C (630 to 800) °C	0.041 °C 0.051 °C 0.071 °C 0.082 °C 0.092 °C 0.18 °C	

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Electrical Calibration of RTDs ³ (cont.)			Fluke 5550A/SC600
Pt 3926, 100 Ω	(-200 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 400) °C (400 to 630) °C	0.041 °C 0.051 °C 0.071 °C 0.082 °C 0.092 °C	
Pt 3916, 100 Ω	(-200 to -190) °C (-190 to -80) °C (-80 to 0) °C (0 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.19 °C 0.031 °C 0.041 °C 0.051 °C 0.061 °C 0.071 °C 0.082 °C 0.18 °C	
Pt 385, 200 Ω	(-200 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.031 °C 0.041 °C 0.092 °C 0.1 °C 0.11 °C 0.12 °C	
PtNi 385, 120 Ω (Ni 120)	(-80 to 100) °C (100 to 260) °C	0.061 °C 0.11 °C	
Pt 385, 500 Ω	(-200 to -80) °C (-80 to 100) °C (100 to 260) °C (260 to 400) °C (400 to 600) °C (600 to 630) °C	0.031 °C 0.041 °C 0.051 °C 0.061 °C 0.071 °C 0.092 °C	
Pt 385, 1000 Ω	(-200 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 600) °C (600 to 630) °C	0.02 °C 0.031 °C 0.041 °C 0.051 °C 0.18 °C	
Cu 427, 10 Ω	(-100 to 0) °C	0.23 °C	

Parameter/Equipment	Range	CMC ^{2, 4} ($\pm$)	Comments
Circuit Breaker Tester ³			ETI Precision BTSA3 w/ Empro WT2500-50
Simulated AC Current – (60Hz)	Up to 10 kA	0.89 A + 0.32 %	
Timer – Measure	(0 to 60) s	0.16 s	

II. Time & Frequency

Parameter/Equipment	Range	CMC ^{2, 4} ($\pm$)	Comments
Frequency – Source ³	0.1 Hz to 2 MHz	1.9 μ Hz/Hz	Fluke 5550A
Frequency – Measure ³	(3 to 5) Hz (5 to 10) Hz (10 to 40) Hz 40 Hz to 1 MHz	0.78 mHz/Hz 390 μ Hz/Hz 230 μ Hz/Hz 78 μ Hz/Hz	Fluke 8846A

SATELLITE

ELECTRICAL TEST INSTRUMENTS, LLC
 4407 Halik St.
 Pearland, TX 77581
 Alek Arzdorf Phone: 719 641 8976

CALIBRATION

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
DC Voltage ³ – Generate	(0 to 120.0) mV (>0.12 to 1.2) V (>1.2 to 12.0) V (>12 to 120) V (>120 to 1020.0) V	12 μ V/V + 0.96 μ V 8.5 μ V/V + 1.2 μ V 8.5 μ V/V + 10 μ V 12 μ V/V + 100 μ V 12 μ V/V + 1.2 mV	Fluke 5550A/SC600
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 Up to 10 kV (1 to 30) kV (30 to 70) kV (70 to 90) kV (90 to 100) kV	33 μ V/V + 2.7 μ V 19 μ V/V + 5.4 μ V 20 μ V/V + 39 μ V 31 μ V/V + 470 μ V 33 μ V/V + 7.8 mV 0.05 % + 75 mV 0.12 % + 0.7 V 0.15 % + 7 V 0.55 % + (-280) V 1.3 % + (-950) V	Fluke 8846A Vitrek 4700 Vitrek 4700 w/ HVL-150
DC Current ³ – Generate	(0 to 120.000) μ A (0 to 1.2000) mA (0 to 12.0000) mA (>12 to 120.0) mA (0.12 to 1.2000) A (>1.2 to 3.1) A (>3.1 to 12.000) A (>12 to 30.2) A	110 μ A/A + 7.2 nA 85 μ A/A + 18 nA 85 μ A/A + 96 nA 85 μ A/A + 0.96 μ A 140 μ A/A + 12 μ A 290 μ A/A + 180 μ A 360 μ A/A + 300 μ A 850 μ A/A + 600 μ A	Fluke 5550A/SC600

Parameter/Equipment	Range	CMC ^{2,4} ($\pm$)	Comments
DC Current – Generate (cont.) Toroidal Clamp-On	(10 to 16.5) A (16.5 to 150) A (150 to 550) A (550 to 1025) A	0.59 % + 23 mA 0.6 % + 0.16 A 0.6 % + 0.58 A 0.6 % + 0.58 A	Fluke 5550A/SC600 w/ 50-Turn Coil
DC Current ³ – Measure	(0 to 100) μ A (0.2 to 1) mA (1 to 10) mA (10 to 100) mA (100 to 400) mA (0.4 to 1) A (1 to 3) A (3 to 10) A	390 μ A/A + 19 nA 400 μ A/A + 39 nA 400 μ A/A + 1.6 μ A 400 μ A/A + 3.9 μ A 410 μ A/A + 16 μ A 410 μ A/A + 160 μ A 0.83 mA/A + 470 μ A 1.2 mA/A + 0.62 mA	Fluke 8846A
DC Resistance ³ – Generate	(0 to 12.000) Ω (>12 to 120.000) Ω (>0.12 to 1.200) k Ω (>1.2 to 12.000) k Ω (>12 to 120.00) k Ω (>0.12 to 1.20) M Ω (>1.2 to 12.00) M Ω (>12 to 120.0) M Ω (>120 to 1200) M Ω	31 $\mu\Omega/\Omega$ + 1 m Ω 23 $\mu\Omega/\Omega$ + 1 m Ω 22 $\mu\Omega/\Omega$ + 2 m Ω 22 $\mu\Omega/\Omega$ + 20 m Ω 22 $\mu\Omega/\Omega$ + 200 m Ω 25 $\mu\Omega/\Omega$ + 2 Ω 43 $\mu\Omega/\Omega$ + 30 Ω 390 $\mu\Omega/\Omega$ + 2.5 k Ω 5 m Ω/Ω + 100 k Ω	Fluke 5550A/SC600
DC Resistance ³ – Measure	(0 to 10) Ω (10 to 100) Ω (0.10 to 1.0) k Ω (1.0 to 10) k Ω (10 to 100) k Ω (0.10 to 1.0) M Ω (1.0 to 10) M Ω (10 to 100) M Ω (0.1 to 1) G Ω	120 $\mu\Omega/\Omega$ + 2.3 m Ω 82 $\mu\Omega/\Omega$ + 3.1 m Ω 80 $\mu\Omega/\Omega$ + 7.8 m Ω 80 $\mu\Omega/\Omega$ + 78 m Ω 80 $\mu\Omega/\Omega$ + 0.78 Ω 80 $\mu\Omega/\Omega$ + 7.8 Ω 310 $\mu\Omega/\Omega$ + 78 Ω 6.2 m Ω/Ω + 7.8 k Ω 16 m Ω/Ω + 78 k Ω	Fluke 8846A
AC Voltage ³ – Generate Up to 12.000 mV	(3 to 5) Hz (5 to 10) Hz (0.01 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz	2.7 mV/V + 8 μ V 0.93 mV/V + 8 μ V 120 μ V/V + 7 μ V 390 μ V/V + 7 μ V 1.6 mV/V + 18 μ V 7 mV/V + 36 μ V 7 mV/V + 36 μ V	Fluke 5550A/SC600

Parameter/Range	Frequency	CMC ^{2,4} ($\pm$)	Comments
AC Voltage ³ – Generate (cont.)			Fluke 5550A/SC600
(>12 to 120.000) mV	(3 to 5) Hz (5 to 10) Hz (0.01 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz	2.7 mV/V + 8 μ V 0.93 mV/V + 8 μ V 120 μ V/V + 7 μ V 290 μ V/V + 7 μ V 0.78 mV/V + 18 μ V 1.9 mV/V + 36 μ V 1.9 mV/V + 36 μ V	
(>0.12 to 1.2000) V	(3 to 5) Hz (5 to 10) Hz (10 to 40) Hz 40.01 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz	2.7 mV/V + 90 μ V 0.93 mV/V + 85 μ V 120 μ V/V + 85 μ V 120 μ V/V + 9 μ V 250 μ V/V + 16 μ V 540 μ V/V + 48 μ V 1.6 mV/V + 96 μ V 1.6 mV/V + 96 μ V	
(>1.2 to 12.000) V	(3 to 5) Hz (5 to 10) Hz (10 to 40) Hz 40.01 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz	2.7 mV/V + 0.9 mV 0.93 mV/V + 0.9 mV 120 μ V/V + 350 μ V 120 μ V/V + 60 μ V 250 μ V/V + 60 μ V 540 μ V/V + 150 μ V 1.9 mV/V + 0.72 mV 1.9 mV/V + 0.72 mV	
(>12 to 120.000) V	(3 to 5) Hz (5 to 10) Hz (10 to 40) Hz 40.01 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz	2.7 mV/V + 9 mV 0.93 mV/V + 9 mV 120 μ V/V + 3.5 mV 120 μ V/V + 0.6 mV 270 μ V/V + 0.6 mV 0.7 mV/V + 1.5 mV	
(>120 to 330.000) V	(3 to 5) Hz (5 to 10) Hz (0.01 to 20) kHz (20 to 50) kHz (50 to 100) kHz	2.7 mV/V + 90 mV 0.93 mV/V + 90 mV 150 μ V/V + 9 mV 230 μ V/V + 8 mV 1.6 mV/V + 15 mV	
(>330 to 1020) V	(3 to 5) Hz (5 to 10) Hz (0.01 to 10) kHz	2.7 mV/V + 90 mV 0.93 mV/V + 90 mV 200 μ V/V + 90 mV	

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Voltage ³ – Measure			Fluke 8846A
(20 to 100) mV	(3 to 5) Hz (5 to 10) Hz 10 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	7.8 mV/V + 31 µV 2.7 mV/V + 31 µV 570 µV/V + 31 µV 0.99 mV/V + 39 µV 4.7 mV/V + 62 µV 31 mV/V + 390 µV	
(0.1 to 1.0) V	(3 to 5) Hz (5 to 10) Hz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	7.8 mV/V + 230 µV 2.7 mV/V + 230 µV 480 µV/V + 230 µV 0.96 mV/V + 390 µV 4.7 mV/V + 0.62 mV 31 mV/V + 3.9 mV	
(1.0 to 10) V	(3 to 5) Hz (5 to 10) Hz 10 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	7.8 mV/V + 2.3 mV 2.7 mV/V + 2.3 mV 480 µV/V + 2.3 mV 0.96 mV/V + 3.9 mV 4.7 mV/V + 6.2 mV 31 mV/V + 39 mV	
(10 to 100) V	(3 to 5) Hz (5 to 10) Hz 10 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	7.8 mV/V + 23 mV 2.8 mV/V + 23 mV 470 µV/V + 62 mV 0.94 mV/V + 39 mV 4.7 mV/V + 62 mV 31 mV/V + 390 mV	
(100 to 1000) V	(3 to 5) Hz (5 to 10) Hz 10 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	7.8 mV/V + 170 mV 2.7 mV/V + 170 mV 500 µV/V + 170 mV 1 mV/V + 290 mV 4.7 mV/V + 470 mV 31 mV/V + 2.9 V	
Up to 10 kV	(30 to 200) Hz	0.16 % + 140 mV	Vitrek 4700
(1 to 70) kV (70 to 100) kV	<65 Hz	0.69 % + 7.9 V 0.43 % + 190 V	Vitrek 4700 w/ HVL-150 Probe

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Current ³ – Generate			Fluke 5550A/SC600
Up to 120.00 µA	3 Hz to 5 kHz (5 to 10) kHz (10 to 30) kHz	0.78 mA/A + 15 nA 3.9 mA/A + 80 nA 3.9 mA/A + 1 µA	
(>0.12 to 1.2000) mA	3 Hz to 5 kHz (5 to 10) kHz (10 to 30) kHz	0.78 mA/A + 150 nA 2.3 mA/A + 200 nA 3.9 mA/A + 5 µA	
(>1.2 to 12.000) mA	3 Hz to 5 kHz (5 to 10) kHz (10 to 30) kHz	0.62 mA/A + 1.5 µA 1.4 mA/A + 2 µA 3.9 mA/A + 10 µA	
(>12 to 120.00) mA	(3 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.62 mA/A + 12 µA 390 µA/A + 12 µA 0.62 mA/A + 12 µA 1.2 mA/A + 10 µA 3.9 mA/A + 100 µA	
(>0.12 to 1.2000) A	(3 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.62 mA/A + 100 µA 470 µA/A + 50 µA 0.62 mA/A + 100 µA 1.9 mA/A + 300 µA 3.9 mA/A + 300 µA	
(>1.2 to 3.1000) A	(3 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.93 mA/A + 500 µA 0.7 mA/A + 450 µA 0.93 mA/A + 450 µA 4.7 mA/A + 1 mA	
(>3.1 to 12.000) A	(3 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	1.2 mA/A + 1.2 mA 0.93 mA/A + 0.6 mA 1.2 mA/A + 1.2 mA 4.7 mA/A + 1.2 mA	
(>12 to 30.2) A	(3 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz	0.78 mA/A + 12 mA 540 µA/A + 9.6 mA 3.9 mA/A + 12 mA	

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Current ³ – Generate (cont.)			Fluke 5550A/SC600 w/ 50-Turn Coil
Non-Toroidal Clamp-On			
(10 to 16.5) A	(45 to 65) Hz (65 to 440) Hz	0.66 % + 35 mA 1.2 % + 35 mA	
(>16.5 to 150) A	(45 to 65) Hz (65 to 440) Hz	0.66 % + 0.29 A 1.2 % + 0.29 A	
(>150 to 550) A	(45 to 65) Hz (65 to 440) Hz	0.67 % + 1 A 1.2 % + 1 A	
(>550 to 1025) A	(45 to 65) Hz (65 to 440) Hz	0.66 % + 1 A 1.2 % + 1 A	
Toroidal Clamp-On			
(10 to 16.5) A	(45 to 65) Hz (65 to 440) Hz	0.34 % + 3.5 mA 0.92 % + 3.5 mA	
(>16.5 to 150) A	(45 to 65) Hz (65 to 440) Hz	0.35 % + 29 mA 0.93 % + 32 mA	
(>150 to 550) A	(45 to 65) Hz (65 to 440) Hz	0.36 % + 0.1 A 0.93 % + 0.12 A	
(>550 to 1025) A	(45 to 65) Hz (65 to 440) Hz	0.35 % + 0.1 A 0.93 % + 0.12 A	
AC Current ³ – Measure			Fluke 8846A
Up to 100 µA	(3 to 5) Hz (5 to 10) Hz 10 Hz to 5 kHz (5 to 10) kHz	8.5 mA/A + 47 nA 2.8 mA/A + 47 nA 1.3 mA/A + 47 nA 2.8 mA/A + 540 nA	
100 µA to 1 mA	(3 to 5) Hz (5 to 10) Hz 10 Hz to 5 kHz (5 to 10) kHz	7.8 mA/A + 310 nA 2.3 mA/A + 310 nA 0.82 mA/A + 310 nA 1.6 mA/A + 1.9 µA	
(1 to 10) mA	(3 to 5) Hz (5 to 10) Hz 10 Hz to 5 kHz (5 to 10) kHz	8.5 mA/A + 4.7 µA 2.7 mA/A + 4.7 µA 1.2 mA/A + 4.7 µA 2.7 mA/A + 54 µA	

Parameter/Range	Frequency	CMC ^{2, 4} (±)	Comments
AC Current ³ – Measure (cont.)			
(10 to 100) mA	(3 to 5) Hz (5 to 10) Hz 10 Hz to 5 kHz (5 to 10) kHz	7.8 mA/A + 31 µA 2.3 mA/A + 31 µA 0.79 mA/A + 31 µA 1.6 mA/A + 190 µA	Fluke 8846A
(100 to 400) mA	(3 to 5) Hz (5 to 10) Hz 10 Hz to 5 kHz (5 to 10) kHz	7.8 mA/A + 310 µA 2.3 mA/A + 310 µA 0.83 mA/A + 310 µA 1.6 mA/A + 2.2 mA	
(0.4 to 1) A	(3 to 5) Hz (5 to 10) Hz 10 Hz to 5 kHz (5 to 10) kHz	7.8 mA/A + 310 µA 2.3 mA/A + 310 µA 0.81 mA/A + 310 µA 2.7 mA/A + 5.4 mA	
(1 to 3) A	(3 to 5) Hz (5 to 10) Hz 10 Hz to 5 kHz (5 to 10) kHz	8.5 mA/A + 1.4 mA 2.7 mA/A + 1.4 mA 1.2 mA/A + 1.4 mA 2.7 mA/A + 16 mA	
(3 to 10) A	(3 to 5) Hz (5 to 10) Hz 10 Hz to 5 kHz (5 to 10) kHz	8.5 mA/A + 4.7 mA 2.7 mA/A + 4.7 mA 1.2 mA/A + 4.7 mA 2.7 mA/A + 54 mA	
Inductance ³ – Generate			
(13 to 120) µH	1 kHz	0.23 % + 240 nH	Fluke 5550A/SC600
(>0.12 to 1.2) mH	1 kHz	0.16 % + 1.2 µH	
(>1.2 to 12) mH	110 Hz	0.16 % + 12 µH	
(>12 to 120) mH	100 Hz	0.16 % + 120 µH	
(>0.12 to 1.2) H	10 Hz	0.19 % + 1.2 mH	
(>1.2 to 12) H	3 Hz	0.19 % + 12 mH	
(>12 to 120) H	2 Hz	0.19 % + 120 mH	

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Capacitance ³ – Generate			
(0.2 to 1.2) nF	(0.2 to 1.2) nF	0.19 % + 4 pF	Fluke 5550A/SC600
(>1.2 to 12) nF	(>1.2 to 12) nF	0.19 % + 10 pF	
(>12 to 120) nF	(>12 to 120) nF	0.16 % + 50 pF	
(>0.12 to 1.2) µF	(>0.12 to 1.2) µF	0.16 % + 500 pF	
(>1.2 to 12) µF	(>1.2 to 12) µF	0.16 % + 5 nF	
(>12 to 120) µF	(>12 to 120) µF	0.23 % + 50 nF	
(>0.12 to 1.2) mF	(>0.12 to 1.2) mF	0.35 % + 500 nF	
(>1.2 to 12) mF	(>1.2 to 12) mF	0.35 % + 5 µF	
(>12 to 120) mF	(>12 to 120) mF	0.78 % + 50 µF	

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Capacitance ³ – Measure	(0 to 2.02) nF (>2.02 to 20.2) nF (>20.2 to 202) nF (>0.2 to 2.02) µF (>2.02 to 20.2) µF (>20.2 to 202) µF (>0.2 to 2.02) mF (>2.02 to 20.2) mF (>20.2 to 202) mF	18 mF/F + 19 pF 11 mF/F + 39 pF 11 µF/F + 390 pF 11 µF/F + 3.9 nF 11 µF/F + 39 nF 11 µF/F + 390 nF 11 µF/F + 3.9 µF 11 µF/F + 39 µF 32 mF/F + 160 µF	Fluke 8846A
Electrical Calibration of Thermocouple Indicators ³			Fluke 5550A/SC600
Type B	(600 to 800) °C (800 to 1000) °C (1000 to 1550) °C (1550 to 1820) °C	0.35 °C 0.27 °C 0.23 °C 0.27 °C	
Type C	(0 to 150) °C (150 to 650) °C (650 to 1000) °C (1000 to 1800) °C (1800 to 2315) °C	0.19 °C 0.16 °C 0.2 °C 0.36 °C 0.62 °C	
Type D	(0 to 150) °C (150 to 650) °C (650 to 1000) °C (1000 to 1800) °C (1800 to 2315) °C	0.19 °C 0.16 °C 0.2 °C 0.35 °C 0.62 °C	
Type E	(-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1000) °C	0.32 °C 0.11 °C 0.092 °C 0.12 °C 0.16 °C	
Type G	(0 to 150) °C (150 to 650) °C (650 to 1000) °C (1000 to 1800) °C (1800 to 2315) °C	0.4 °C 0.27 °C 0.2 °C 0.34 °C 0.61 °C	
Type J	(-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1200) °C	0.19 °C 0.1 °C 0.092 °C 0.11 °C 0.16 °C	

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Electrical Calibration of Thermocouple Indicators ³ (cont.)			Fluke 5550A/SC600
Type K	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1000) °C (1000 to 1372) °C	0.22 °C 0.1 °C 0.092 °C 0.16 °C 0.28 °C	
Type L	(-200 to -100) °C (-100 to 800) °C (800 to 900) °C	0.24 °C 0.16 °C 0.092 °C	
Type N	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 410) °C (410 to 1300) °C	0.27 °C 0.12 °C 0.092 °C 0.092 °C 0.16 °C	
Type R	(0 to 250) °C (250 to 400) °C (400 to 1000) °C (1000 to 1767) °C	0.41 °C 0.23 °C 0.21 °C 0.27 °C	
Type S	(0 to 250) °C (250 to 1000) °C (1000 to 1400) °C (1400 to 1767) °C	0.34 °C 0.24 °C 0.26 °C 0.33 °C	
Type T	(-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C	0.48 °C 0.16 °C 0.1 °C 0.092 °C	
Type U	(-200 to 0) °C (0 to 600) °C	0.32 °C 0.092 °C	
Electrical Calibration of RTDs ³			
Pt 385, 100 Ω	(-200 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 400) °C (400 to 630) °C (630 to 800) °C	0.041 °C 0.051 °C 0.071 °C 0.082 °C 0.092 °C 0.18 °C	

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Electrical Calibration of RTDs ³ (cont.)			Fluke 5550A/SC600
Pt 3926, 100 Ω	(-200 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 400) °C (400 to 630) °C	0.041 °C 0.051 °C 0.071 °C 0.082 °C 0.092 °C	
Pt 3916, 100 Ω	(-200 to -190) °C (-190 to -80) °C (-80 to 0) °C (0 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.19 °C 0.031 °C 0.041 °C 0.051 °C 0.061 °C 0.071 °C 0.082 °C 0.18 °C	
Pt 385, 200 Ω	(-200 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.031 °C 0.041 °C 0.092 °C 0.1 °C 0.11 °C 0.12 °C	
PtNi 385, 120 Ω (Ni 120)	(-80 to 100) °C (100 to 260) °C	0.061 °C 0.11 °C	
Pt 385, 500 Ω	(-200 to -80) °C (-80 to 100) °C (100 to 260) °C (260 to 400) °C (400 to 600) °C (600 to 630) °C	0.031 °C 0.041 °C 0.051 °C 0.061 °C 0.071 °C 0.092 °C	
Pt 385, 1000 Ω	(-200 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 600) °C (600 to 630) °C	0.02 °C 0.031 °C 0.041 °C 0.051 °C 0.18 °C	
Cu 427, 10 Ω	(-100 to 0) °C	0.23 °C	

Parameter/Equipment	Range	CMC ^{2, 4} ($\pm$)	Comments
Circuit Breaker Tester ³			ETI Precision BTSA3 w/ Empro WT2500-50
Simulated AC Current – (60Hz)	Up to 10 kA	0.89 A + 0.32 %	
Timer – Measure	(0 to 60) s	0.16 s	

II. Time & Frequency

Parameter/Equipment	Range	CMC ^{2, 4} ($\pm$)	Comments
Frequency – Source ³	0.1 Hz to 2 MHz	1.9 μ Hz/Hz	Fluke 5550A
Frequency – Measure ³	(3 to 5) Hz (5 to 10) Hz (10 to 40) Hz 40 Hz to 1 MHz	0.78 mHz/Hz 390 μ Hz/Hz 230 μ Hz/Hz 78 μ Hz/Hz	Fluke 8846A

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, repeatability) 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 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.

⁵ This scope meets A2LA's *P112 Flexible Scope Policy*.



Accredited Laboratory

A2LA has accredited

ELECTRICAL TEST INSTRUMENTS, LLC

Frederick, MD

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 19th day of August 2026.

A blue ink signature of Mr. Trace McInturff.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 5636.01
Valid to August 31, 2028

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