



SCOPE OF ACCREDITATION TO ISO 17025:2005
& ANSI/NCSL Z540-1-1994

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CALIBRATION

Valid To: August 31, 2019

Certificate Number: 2044.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations¹:

I. Dimensional

Parameter	Range	CMC ^{2,6} (±)	Comments
Dial Indicators	Up to 1 in	60 µin	Comparison to gage blocks
Micrometers	Up to 36 in	(4 + 10L + 0.6R) µin	Comparison to gage blocks
Calipers	Up to 36 in	(4 + 10L + 0.6R) µin	Comparison to gage blocks

II. Electrical – DC/ Low Frequency

Parameter/Equipment	Range	CMC ^{2,7} (±)	Comments
DC Voltage – Measure	(0 to 120) mV 100 mV to 1.2 V (1 to 12) V (10 to 120) V (100 to 1050) V	7 µV/V + 0.3 µV 6 µV/V + 0.3 µV 6 µV/V + 0.5 µV 8 µV/V + 30 µV 8 µV/V + 100 µV	Long scale multimeter See footnote 3

Parameter/Equipment	Range	CMC ^{2,7} (\pm)	Comments
DC Voltage – Generate	(0 to 220) mV 220 mV to 2.2 V (2.2 to 11) V (11 to 22) V (22 to 220) V (220 to 1100) V	9 μ V/V + 0.8 μ V 8 μ V/V + 1.2 μ V 8 μ V/V + 4 μ V 8 μ V/V + 8.6 μ V 9 μ V/V + 100 μ V 11 μ V/V + 600 μ V	Primary multi-function calibrator
DC Current – Measure	(10 to 120) μ A 100 μ A to 1.2 mA (1 to 12) mA (10 to 120) mA 100 mA to 1.05 A	25 μ A/A + 0.8 nA 25 μ A/A + 5 nA 25 μ A/A + 50 nA 40 μ A/A + 500 nA 0.012 % + 10 μ A	Long scale multimeter
DC Current – Generate	(0 to 220) μ A 220 μ A to 2.2 mA (2.2 to 22) mA (22 to 220) mA 220 mA to 2.2 A (2.2 to 11) A	60 μ A/A + 10 nA 60 μ A/A + 10 nA 60 μ A/A + 100 nA 70 μ A/A + 1 μ A 95 μ A/A + 30 μ A 0.036 % + 480 μ A	Primary multi-function calibrator with precision amplifier See footnote 4 See footnote 5
Resistance – Measure	(0 to 12) Ω (10 to 120) Ω (100 to 1200) Ω (1 to 12) k Ω (10 to 120) k Ω 100 k Ω to 1.2 M Ω (1 to 12) M Ω (10 to 120) M Ω (9 to 90) M Ω (90 to 900) M Ω 900 M Ω to 1 G Ω (9 to 90) G Ω (90 to 900) G Ω 900 G Ω to 1 T Ω	18 $\mu\Omega/\Omega$ + 51 $\mu\Omega$ 15 $\mu\Omega/\Omega$ + 500 $\mu\Omega$ 13 $\mu\Omega/\Omega$ + 500 $\mu\Omega$ 13 $\mu\Omega/\Omega$ + 5 m Ω 13 $\mu\Omega/\Omega$ + 50 m Ω 18 $\mu\Omega/\Omega$ + 2 Ω 53 $\mu\Omega/\Omega$ + 100 Ω 0.05 % + 1 k Ω 0.029 % + 500 Ω 0.041 % + 5 k Ω 0.058 % + 100 k Ω 0.081 % + 1 M Ω 0.12 % + 5 M Ω 0.23 % + 400 M Ω	Long scale multimeter Precision high resistance meter

Parameter/Equipment	Range	CMC ^{2,7} (±)	Comments
Resistance – Generate, Fixed Points	0 Ω	60 μΩ	Precision multi-function calibrator
	1 Ω	0.012 %	
(DC Resistance)	1.9 Ω	0.012 %	Precision 4-terminal resistance set
	10 Ω	33 μΩ/Ω	
	19 Ω	32 μΩ/Ω	
	100 Ω	20 μΩ/Ω	
	190 Ω	20 μΩ/Ω	
	1 kΩ	15 μΩ/Ω	
	1.9 kΩ	15 μΩ/Ω	
	10 kΩ	14 μΩ/Ω	
	19 kΩ	14 μΩ/Ω	
	100 kΩ	16 μΩ/Ω	
	190 kΩ	16 μΩ/Ω	
	1 MΩ	23 μΩ/Ω	
	1.9 MΩ	24 μΩ/Ω	
	10 MΩ	46 μΩ/Ω	
	19 MΩ	55 μΩ/Ω	
	100 MΩ	0.013 %	
	1 mΩ	0.10 %	
	10 mΩ	0.10 %	
	100 mΩ	0.10 %	
	1 Ω	0.10 %	
10 Ω	0.03 %		
100 Ω	0.02 %		
1 kΩ	0.02 %		
10 kΩ	0.02 %		
100 kΩ	0.02 %		

Parameter/Range	Frequency	CMC ^{2,7} (±)	Comments
AC Resistance – Measure			
(10 to 100) mΩ	30 Hz to 10 kHz	0.66 %	Precision impedance meter
100 mΩ to 25 kΩ	12 Hz to 100 kHz	0.03 %	
26 kΩ to 20 MΩ	12 Hz to 20 kHz	0.03 %	
(2 to 20) MΩ	12 Hz to 1 kHz	0.08 %	

Parameter/Range	Frequency	CMC ^{2,7} (±)	Comments
AC Resistance – Generate, Fixed Points			
10 Ω	DC to 1 MHz	0.12 %	Precision 4-terminal resistance set
100 Ω	DC to 1 MHz	0.12 %	
1 kΩ	DC to 100 kHz 100 kHz to 1 MHz	0.12 % 0.08 %	
10 kΩ	DC to 100 kHz 100 kHz to 1 MHz	0.08 % 0.08 %	
100 kΩ	DC to 100 kHz 100 kHz to 1 MHz	0.08 % 0.12 %	
AC Voltage – Measure			
(1 to 12) 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	0.03 % + 3 μV 0.02 % + 1.1 μV 0.03 % + 1.1 μV 0.1 % + 1.1 μV 0.5 % + 1.1 μV 4 % + 2 μV	Long scale multimeter
(12 to 120) 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 300 kHz to 1 MHz (1 to 2) MHz	72 μV/V + 4 μV 72 μV/V + 2 μV 0.014 % + 2 μV 0.03 % + 2 μV 0.08 % + 2 μV 0.3 % + 10 μV 1 % + 10 μV 1.5 % + 10 μV	
120 mV to 1.2 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 300 kHz to 1 MHz (1 to 2) MHz	72 μV/V + 40 μV 72 μV/V + 20 μV 0.014 % + 20 μV 0.03 % + 20 μV 0.08 % + 20 μV 0.3 % + 100 μV 1 % + 100 μV 1.5 % + 100 μV	

Parameter/Range	Frequency	CMC ^{2,7} (±)	Comments
AC Voltage – Measure (cont)			
(1.2 to 12) 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 300 kHz to 1 MHz (1 to 2) MHz	72 µV/V + 0.4 mV 72 µV/V + 0.2 mV 0.014 % + 0.2 mV 0.03 % + 0.2 mV 0.08 % + 0.2 mV 0.3 % + 1 mV 1 % + 1 mV 1.5 % + 1 mV	Long scale multimeter
(12 to 120) 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 300 kHz to 1 MHz	0.02 % + 4 mV 0.02 % + 2 mV 0.02 % + 2 mV 0.035 % + 2 mV 0.12 % + 2 mV 0.4 % + 10 mV 1.5 % + 10 mV	
(120 to 700) V	(1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz	0.04 % + 40 mV 0.04 % + 20 mV 0.06 % + 20 mV 0.12 % + 20 mV 0.3 % + 20 mV	
AC Voltage – Generate			
(0.22 to 2.2) mV	(10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz 500 kHz to 1 MHz	0.06 % + 5 µV 0.024 % + 5 µV 0.012 % + 5 µV 0.041 % + 5 µV 0.095 % + 8 µV 0.13 % + 15 µV 0.18 % + 30 µV 0.36 % + 30 µV	Precision multi- function calibrator
(2.2 to 22) mV	(10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz 500 kHz to 1 MHz	0.06 % + 6 µV 0.024 % + 6 µV 0.012 % + 6 µV 0.041 % + 6 µV 0.095 % + 8 µV 0.13 % + 15 µV 0.18 % + 30 µV 0.36 % + 30 µV	

Parameter/Range	Frequency	CMC ^{2,7} (±)	Comments	
AC Voltage – Generate (cont)				
(22 to 220) mV	(10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz 500 kHz to 1 MHz	0.06 % + 16 µV 0.024 % + 11 µV 0.011 % + 10 µV 0.036 % + 11 µV 0.09 % + 30 µV 0.11 % + 30 µV 0.18 % + 40 µV 0.36 % + 100 µV	Precision multi- function calibrator	
220 mV to 2.2 V	(10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz 500 kHz to 1 MHz	0.06 % + 100 µV 0.018 % + 34 µV 85 µV/V + 8.8 µV 0.014 % + 25 µV 0.028 % + 80 µV 0.048 % + 150 µV 0.12 % + 400 µV 0.24 % + 1 mV		
(2.2 to 22) V	(10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz 500 kHz to 1 MHz	0.06 % + 1 mV 0.018 % + 340 µV 86 µV/V + 70 µV 0.014 % + 300 µV 0.028 % + 430 µV 0.06 % + 1.7 mV 0.14 % + 5 mV 0.30 % + 9 mV		
(22 to 220) V	(10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz 500 kHz to 1 MHz	0.06 % + 10 mV 0.018 % + 3.3 mV 91 µV/V + 1.1 mV 0.025 % + 4.2 mV 0.06 % + 10 mV 0.16 % + 110 mV 0.54 % + 110 mV 1.3 % + 220 mV		
(220 to 1100) V	40 Hz to 1 kHz 50 Hz to 1 kHz (1 to 20) kHz (20 to 30) kHz	90 µV/V + 4 mV 90 µV/V + 4.2 mV 0.017 % + 6 mV 0.06 % + 11 mV		Precision multi- function calibrator with precision amplifier
(220 to 750) V	(30 to 50) kHz (50 to 100) kHz	0.06 % + 11 mV 0.23 % + 45 mV		

Parameter/Range	Frequency	CMC ^{2,7} (±)	Comments
AC Current – Measure			
(12 to 120) µA	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 1 kHz	0.4 % + 30 nA 0.15 % + 30 nA 0.06 % + 30 nA 0.06 % + 30 nA	Long scale multimeter
120 µA to 1.2 mA	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	0.4 % + 200 nA 0.15 % + 200 nA 0.06 % + 200 nA 0.03 % + 200 nA	
(1.2 to 12) mA	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	0.4 % + 2 µA 0.15 % + 2 µA 0.06 % + 2 µA 0.03 % + 2 µA	
(12 to 120) mA	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	0.4 % + 20 µA 0.15 % + 20 µA 0.06 % + 20 µA 0.03 % + 20 µA	
(0.12 to 1) A	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	0.4 % + 200 µA 0.16 % + 200 µA 0.08 % + 200 µA 0.1 % + 200 µA	
AC Current – Generate			
(10 to 220) µA	(10 to 20) Hz (20 to 40) Hz 40 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.08 % + 30 nA 0.042 % + 25 nA 0.016 % + 20 nA 0.07 % + 50 nA 0.18 % + 100 nA	Precision multi-function calibrator
(0.22 to 2.2) mA	(10 to 20) Hz (20 to 40) Hz 40 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.08 % + 50 nA 0.042 % + 40 nA 0.016 % + 40 nA 0.07 % + 500 nA 0.18 % + 1 µA	
(2.2 to 22) mA	(10 to 20) Hz (20 to 40) Hz 40 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.08 % + 500 nA 0.042 % + 400 nA 0.016 % + 400 nA 0.07 % + 5 µA 0.18 % + 10 µA	
(22 to 220) mA	(10 to 20) Hz (20 to 40) Hz 40 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.08 % + 5 µA 0.042 % + 4 µA 0.018 % + 4.1 µA 0.07 % + 50 µA 0.18 % + 100 µA	

Parameter/Range	Frequency	CMC ^{2,7} (±)	Comments
AC Current – Generate (cont)			
(0.22 to 2.2) A	40 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.075 % + 40 µA 0.085 % + 100 µA 1.0 % + 200 µA	Precision multi-function calibrator
(2.2 to 11) A	40 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.046 % + 170 µA 0.095 % + 380 µA 0.36 % + 750 µA	Precision multi-function calibrator with precision amplifier
Inductance – Measure			
(10 to 100) µH 100 µH to 1 mH (1 to 16) mH (16 to 40) mH (40 to 100) mH 100 mH to 20 H	300 Hz to 100 kHz 30 Hz to 100 kHz 12 Hz to 100 kHz 12 Hz to 30 kHz 12 Hz to 10 kHz 12 Hz to 5 kHz	0.08 % 0.05 % 0.05 % 0.05 % 0.05 % 0.03 %	Precision impedance meter
Capacitance – Measure			
(10 to 100) pF 100 pF to 1 nF 1 nF to 1.6 µF	100 Hz to 20 kHz 100 Hz to 100 kHz 12 Hz to 100 kHz	0.15 % 0.03 % 0.03 %	Precision impedance meter

Parameter/Equipment	Range	CMC ^{2,7} (±)	Comments
Capacitance – Generate	(0.19 to 0.4) nF (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	0.5 % + 0.01 nF 0.5 % + 0.01 nF 0.5 % + 0.01 nF 0.25 % + 0.01 nF 0.25 % + 0.1 nF 0.25 % + 0.1 nF 0.25 % + 0.3 nF 0.25 % + 1 nF 0.25 % + 3 nF 0.25 % + 10 nF 0.4 % + 30 nF 0.45 % + 100 nF 0.45 % + 300 nF 0.45 % + 1 µF 0.45 % + 3 µF 0.45 % + 10 µF 0.75 % + 30 µF 1.1 % + 100 µF	Precision multi-function calibrator with capacitance generation



Parameter/Range	Frequency	CMC ^{2,7} (±)	Comments
Capacitance – Generate, Fixed Points			
1 pF	1 kHz 1 MHz	0.036 % 0.05 %	Precision standard air capacitor set
10 pF	1 kHz 1 MHz	0.01 % 0.025 %	
100 pF	1 kHz 1 MHz	0.01 % 0.025 %	
1000 pF	1 kHz 1 MHz	0.01 % 0.05 %	
0.01 μF	120 Hz 1 kHz 10 kHz 100 kHz	0.025 % 0.01 % 0.025 % 0.05 %	
0.1 μF	120 Hz 1 kHz 10 kHz 100 kHz	0.025 % 0.01 % 0.025 % 0.05 %	
1 μF	120 Hz 1 kHz 10 kHz 100 kHz	0.04 % 0.01 % 0.04 % 0.1 %	
Phase – Generate			
0° to 90°	(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	0.1° 0.25° 0.5° 2.5° 5° 10°	Precision multi- function calibrator with phase generation



Parameter/Equipment	Range	CMC ² (±)	Comments
Electrical Calibration of Thermocouple Devices –			
Type E	-250 °C to -100 °C -100 °C to -25 °C -25 °C to 350 °C 350 °C to 650 °C 650 °C to 1000 °C	0.5 °C 0.16 °C 0.14 °C 0.16 °C 0.21 °C	Precision multi- function calibrator with temperature generation
Type J	-210 °C to -100 °C -100 °C to -30 °C -30 °C to 150 °C 150 °C to 760 °C 760 °C to 1200 °C	0.27 °C 0.16 °C 0.14 °C 0.17 °C 0.23 °C	
Type K	-200 °C to -100 °C -100 °C to -30 °C -25 °C to 120 °C 120 °C to 1000 °C 1000 °C to 1372 °C	0.33 °C 0.18 °C 0.16 °C 0.26 °C 0.4 °C	
Type R	0 °C to 250 °C 250 °C to 400 °C 400 °C to 1000 °C 1000 °C to 1767 °C	0.57 °C 0.35 °C 0.33 °C 0.4 °C	
Type S	0 °C to 250 °C 250 °C to 1000 °C 1000 °C to 1400 °C 1400 °C to 1767 °C	0.47 °C 0.36 °C 0.37 °C 0.46 °C	
Type T	-250 °C to -150 °C -150 °C to 0 °C 0 °C to 120 °C 120 °C to 400 °C	0.63 °C 0.24 °C 0.16 °C 0.14 °C	

Parameter/Equipment	Range	CMC ^{2,7} (\pm)	Comments
Oscilloscope –			
50 Ω load	DC	0.25 % of output + 40 μ V	Precision multi-function calibrator with waveform generation
1 M Ω load	DC	0.05 % of output + 40 μ V	
Squarewave Signal			
50 Ω at 1 kHz	1.0 mV to 6.6 V _{pk-pk}	0.25 % of output + 40 μ V	
1 M Ω			
10 Hz to 1 kHz	1.0 mV to 130 V _{pk-pk}	0.1 % of output + 40 μ V	
(1 to 10) kHz	1.0 mV to 130 V _{pk-pk}	0.25 % of output + 40 μ V	
Level Sine Wave			
Amplitude (50 kHz reference)	50 kHz	2 % + 300 μ V	
	50 kHz to 100 MHz	3.5 % + 300 μ V	
	(100 to 300) MHz	4 % + 300 μ V	
	(300 to 600) MHz	6 % + 300 μ V	
	(600 to 1100) MHz	7 % + 300 μ V	
Flatness (50 kHz reference)	50 kHz to 100 MHz	1.5 % + 100 μ V	
	(100 to 300) MHz	2 % + 100 μ V	
	(300 to 600) MHz	4 % + 100 μ V	
	(600 to 1100) MHz	5 % + 100 μ V	
Time Markers – Source and Period into a 50 Ω Load	5 s to 50 ms 20 ms to 2 ns	(25 + 1000t) parts in 10 ⁶ 2.5 parts in 10 ⁶	t = time in seconds
Rise Time			
\leq 2 MHz	\leq 300 ps	+ 0 ps / -100 ps	
> 2 MHz	\leq 350 ps	+ 0 ps / -100 ps	
Wave Generator			
Amplitude			
1 M Ω	1.8 mV to 55 V _{pk-pk}	3 % of output + 100 μ V	
50 Ω	1.8 mV to 2.5 V _{pk-pk}	3% of output + 100 μ V	
Frequency	10 Hz to 100 kHz	25 parts in 10 ⁶ + 15 mHz	

III. Electrical – RF/ Microwave

Parameter/Range	Frequency	CMC ^{2,7,8} (±)	Comments
Power – Measure			
1 mW, 50Ω	(10 to 30) MHz	0.41 %	Precision power meter with reference mount and long scale multimeter
(-30 to +20) dBm, 50 Ω	(100 to 300) kHz SWR ≤ 1.6:1	0.13 dB	Precision power meter with precision power sensor
	300 kHz to 1 MHz SWR ≤ 1.2:1	0.081 dB	
	1 MHz to 2 GHz SWR ≤ 1.1:1	0.078 dB	
	(2 to 4.2) GHz SWR ≤ 1.3:1	0.10 dB	
	(10 to 30) MHz SWR ≤ 1.4:1	0.069 dB	
	(30 to 50) MHz SWR ≤ 1.18:1	0.069 dB	
	50 MHz to 2 GHz SWR ≤ 1.1:1	0.071 dB	
	(2 to 12.4) GHz SWR ≤ 1.18:1	0.078 dB	
	(12.4 to 18) GHz SWR ≤ 1.28:1	0.097 dB	
	(50 to 100) MHz SWR ≤ 1.15:1	0.084 dB	
	100 MHz to 2 GHz SWR ≤ 1.1:1	0.087 dB	
	(2 to 12.4) GHz SWR ≤ 1.15:1	0.093 dB	
	(12.4 to 18) GHz SWR ≤ 1.2:1	0.1 dB	
	(18 to 26.5) GHz SWR ≤ 1.25:1	0.12 dB	

IV. Mechanical

Parameter/Equipment	Range	CMC ² (±)	Comments
Torque Wrenches	(0 to 6500) ft·lbf	0.65 % of reading	Precision torque transducer system



V. Time & Frequency

Parameter/Equipment	Range	CMC ^{2,7} (\pm)	Comments
Frequency – Measuring Equipment	0.01 Hz to 2 MHz	2.5 parts in $10^6 + 5 \mu\text{Hz}$	Precision multi-function calibrator
Frequency – Measure	(1 to 100) Hz 100 Hz to 1 kHz (1 to 10) kHz (10 to 100) kHz 100 kHz to 1 MHz (1 to 10) MHz (10 to 100) MHz (100 to 225) MHz 100 MHz to 1 GHz (3 to 5) GHz (5 to 12.4) GHz	1.8 μHz 1 μHz 10 μHz 100 μHz 1 mHz 10 mHz 100 mHz 230 mHz 1 Hz 5 Hz 12 Hz	Precision frequency counter referenced to the GPS

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 Add to uncertainty specification: $\pm 12 \text{ part in } 10^6 \times (V_{in} / 1000)^2$ for $> 100 \text{ V}$.

⁴ Add to uncertainty specification: $\pm 200 \times I^2 \text{ part in } 10^6$ for $> 100 \text{ mA}$.

⁵ Add to uncertainty specification: $\pm 10 \times I^2$ for $> 1 \text{ A}$.

⁶ In the statement of CMC, L is the numerical value of the nominal length of the device measured in inches; R is the numerical value of the resolution of the device in microinches.

⁷ 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 are expressed as either a specific value that covers the full range or as a fraction/percentage of the reading plus a fixed floor specification.

⁸ The CMC associated with RF Power measurement does not include mismatch.



Accredited Laboratory

A2LA has accredited

EXELON POWERLABS, LLC - NORTHEAST DIVISION

Plattsburgh, NY

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of ANSI/NCSLI 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 8 January 2009*).



Presented this 11th day of December 2017.

A handwritten signature in blue ink, written over a horizontal line.

President & CEO
For the Accreditation Council
Certificate Number 2044.02
Valid to August 31, 2019

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