SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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CALIBRATION

Valid To: September 30, 2026 Certificate Number: 5941.01

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, 8]:

I. Acoustical Quantities

Parameter/Equipment	Range	CMC[2, 6] (±)	Comments
Sound Pressure –			
Measuring Equipment (94, 104 ,114) dB	31.5 Hz 63 Hz to 12.5 kHz 16 kHz	0.17 dB 0.16 dB 0.17 dB	Sound level calibrator
Simulation	10 Hz to 20 kHz	0.02 dB	Function generator DMM & simulated microphone
Measure (94, 104 ,114) dB	250 Hz 1000 Hz	0.08 dB 0.15 dB	Reference microphone

II. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC[2, 4, 7] (±)	Comments
DC Voltage– Generate, Fixed Points	100 mV 1 V 10 V 100 V 1000 V	4.0 µV/V 1.0 µV/V 0.25 µV/V 1.0 µV/V 2.0 µV/V	DC voltage reference & reference voltage divider DC voltage reference DC voltage reference & reference voltage divider
DC Voltage[3]– Generate	Up to 220 mV 220 mV to 2 V (2.2 to 11) V (11 to 22) V (22 to 220) V (220 to 1100) V	2.9 µV/V + 0.2 µV 2.0 µV/V + 0.4 µV 1.3 µV/V + 1.4 µV 1.2 µV/V + 2.1 µV 2.1 µV/V + 22 µV 2.5 µV/V + 230 µV	Multifunction calibrator
DC Voltage – Measure, Fixed Points	100 mV 1 V 10 V 100 V 1000 V	4.0 µV/V 1.0 µV/V 0.25 µV/V 1.6 µV/V 2.1 µV/V	DC ref, ref V divider, null meter DC ref comparison, null meter DC ref, ref V divider, null meter
DC Voltage[3] –Measure	Up to 100 mV (>0.1 to 1) V (>1 to 10) V (>10 to 100) V (>100 to 1000) V (1 to 10) kV (10 to 70) kV	5.6 µV/V + 0.15 µV 3.6 µV/V + 0.34 µV 3.0 µV/V + 0.8 µV 5.2 µV/V + 35 µV 5.2 µV/V + 150 µV 0.031 % + 0.34 V 0.032 % + 3.4 V	Long scale voltmeter HV meter HV meter & HV divider

Parameter/Equipment	Range	CMC[2, 4, 7] (±)	Comments
DC Current – Measure	(0 to 20) pA (20 to 200) pA 200 pA to 2 nA (2 to 20) nA (20 to 200) nA 100 nA to 1 µA (1 to 10) µA (10 to 100) µA (100 to 10 000) µA (1 to 10) mA (10 to 100) mA 100 mA to 1 A (1 to 10) A (10 to 100) A	0.58 % + 13 fA 0.58 % + 120 fA 0.23 % + 620 fA 0.23 % + 4.9 pA 0.23 % + 49 pA 6 µA/A + 0.8 pA 4.1 µA/A + 4.5 pA 4.2 µA/A + 59 pA 3.5 µA/A + 650 pA 3.6 µA/A + 3.6 nA 4.3 µA/A + 43 nA 6.9 µA/A + 1 µA 7.1 µA/A + 7.2 µA 31 µA/A + 310 µA	Pico ammeter Long scale DMM & standard resistors DC current comparator, standard resistor & voltmeter
DC Current – Generate	(2 to 20) A (20 to 100) A (100 to 1000) A	0.023 % + 2.5 mA 0.023 % + 15 mA 0.39 % + 0.5 A	Transconductance amplifier & calibrator Current coil & calibrator
DC Current[3] – Generate	(0 to 20) pA (20 to 200) pA 200 pA to 2 nA (2 to 20) nA (20 to 200) nA 200 nA to 2 µA (2 to 20) µA (20 to 200) µA (200 to 2000) µA (2 to 20) mA (20 to 200) mA 200 mA to 2A (1 to 3) A (3 to 11) A (11 to 20) A	0.85 % + 1.7 fA 0.057 % + 8.1 fA 0.11 % + 22 fA 0.006 % + 120 fA 0.002 % + 0.4 pA 0.002 % + 3.5 nA 0.002 % + 34 nA 100 µA/A + 3 nA 40 µA/A + 13 nA 40 µA/A + 130 nA 58 µA/A + 1.3µA 40 µA/A + 21 µA 0.039 % + 860 µA 0.05 % + 1.8 mA 0.1 % + 13 mA	DC calibrator with precision resistors applied to virtual ground meters Multifunction calibrator

Parameter/Frequency	Range	CMC[2, 4, 5, 7] (±)	Comments
Capacitance – Generate			
Fixed Points	10 pF 100 pF	0.5 µF/F 2.0 µF/F	Primary level capacitors
	1000 pF 10 nF 100 nF 1 µF	2.0 µF/F 17 µF/F 38 µF/F 70 µF/F	Precision bridge & capacitors at 23 °C +/- 0.1 °C
100/120/1000 Hz	10 µF	0.02 %	Navair 10 µF capacitor
100/120/1000 Hz	10 µF 100 µF 1 mF 10 mF 1F	0.29 % 0.29 % 0.30 % 0.45 % 0.50 %	4T capacitance simulator
Capacitance[3] – Generate			
1 kHz	(0.19 to 3.299 99) nF (1.1 to 3.299 99) nF (3.3 to 10.9999) nF (11 to 32.9999) nF (33 to 109.999) nF (110 to 329.999) nF	0.39 % + 6.0 pF 0.39 % + 9.3 pF 0.19 % + 12 pF 0.19 % + 72 pF 0.19 % + 110 pF 0.19 % + 360 pF	Multifunction calibrator
100 Hz	(0.33 to 1.099 99) µF (1.1 to 3.299 99) µF (3.3 to 10.9999) µF (11 to 32.9999) µF	0.19 % + 1.2 nF 0.19 % + 3.7 nF 0.19 % + 11 nF 0.31 % + 49 nF	
80 Hz	(33 to 109.999) µF	0.35 % + 170 nF	
50 Hz	(110 to 329.999) µF	0.35 % + 530 nF	
20 Hz	(0.33 to 1.099 99) mF	0.35 % + 1.7 µF	
DC	(1.1 to 3.2999) mF (3.3 to 10.9999) mF (11 to 32.999) mF (33 to 110) mF	0.35 % + 5.3 µF 0.37 % + 17 µF 0.59 % + 80 µF 0.8 % + 340 µF	

Parameter/Frequency	Range	CMC[2, 4, 7] (±)	Comments
Capacitance– Measure, Fixed Points			
1 kHz	10 pF 100 pF 1000 pF 10 nF 100 nF 1 µF	1 µF/F 2.0 µF/F 2.0 µF/F 16 µF/F 36 µF/F 69 µF/F	AH 2500A/2700A & reference capacitors
Capacitance[3]– Measure			
1 kHz	(0.19 to 3.299 99) nF (1.1 to 3.299 99) nF (3.3 to 10.9999) nF (11 to 32.9999) nF (33 to 109.999) nF (110 to 329.999) nF	0.025 % + 0.1 pF 0.016 % + 0.2 pF 0.019 % + 0.6 pF 0.019 % + 2 pF 0.019 % + 6 pF 0.019 % + 20 pF	LCR bridge
100 Hz	(0.33to 1.099 99) µF (1.1 to 3.299 99) µF (3.3 to 10.9999) µF (11 to 32.9999) µF	0.033 % + 0.11 nF 0.033 % + 0.36 nF 0.033 % + 1.1 nF 0.033 % + 3.6 nF	
80 Hz	(33 to 109.999) µF	0.04 % + 14 nF	
50 Hz	(110 to 329.999) µF	0.04 % + 44 nF	
20 Hz	(0.33 to 1.099 99) mF	0.07 % + 0.3 µF	
DC	(1.1 to 3.2999) mF (3.3 to 10.9999) mF (11 to 32.999) mF (33 to 110) mF	0.1 % + 1.1 µF 0.02 % + 0.9 µF 0.02 % + 2.3 µF 0.07 % + 22 µF	Charge technique using a DCI source & long scale DMM

Parameter/Equipment	Range	CMC[2, 4, 7] (±)	Comments
Resistance – Measure, Fixed Points	1 mΩ 10 mΩ 100 mΩ 1 Ω 10 Ω 100 Ω 1 kΩ 10 kΩ 100 kΩ 1 MΩ 10 MΩ 100 MΩ 1 GΩ 10 GΩ 100 GΩ 1 TΩ	10 μΩ/Ω 5 μΩ/Ω 1 μΩ/Ω 0.5 μΩ/Ω 1.0 μΩ/Ω 1.0 μΩ/Ω 1.0 μΩ/Ω 0.5 μΩ/Ω 1.0 μΩ/Ω 2.0 μΩ/Ω 3.0 μΩ/Ω 8.0 μΩ/Ω 23 μΩ/Ω 83 μΩ/Ω 250 μΩ/Ω 620 μΩ/Ω	DCC bridge reference resistors & range extender in oil or air bath Teraohmmeter & air bath
Resistance – Measure	(0 to 12) Ω (12 to 120) Ω (120 to 1200) Ω (1.2 to 12) kΩ (12 to 120) kΩ 120 kΩ to 1.2 MΩ (1.2 to 12) MΩ (12 to 120) MΩ (20 to 200) MΩ 200 MΩ to 2GΩ (2 to 20) GΩ (20 to 200) GΩ 200 GΩ to 2 TΩ	17 μΩ/Ω + 0.042 mΩ 12 μΩ/Ω + 0.39 mΩ 9.3 μΩ/Ω + 1.4 mΩ 9.3 μΩ/Ω + 14 mΩ 9.3 μΩ/Ω + 110 mΩ 14 μΩ/Ω + 2.7 Ω 50 μΩ/Ω + 120 Ω 580 μΩ/Ω + 7.4 kΩ 93 μΩ/Ω 170 μΩ/Ω 460 μΩ/Ω 690 μΩ/Ω 1200 μΩ/Ω	Long scale DMM Teraohmmeter direct measurement

Parameter/Equipment	Range	CMC[2, 4, 5, 7] (±)	Comments
Resistance – Generate, Fixed Points	1 mΩ 10 mΩ 100 mΩ 1 Ω 10 Ω 100 Ω 1 kΩ 10 kΩ 100 kΩ 1 MΩ 10 MΩ 100 MΩ 1 GΩ 10 GΩ 100 GΩ 1 TΩ	40 µΩ/Ω 30 µΩ/Ω 1.0 µΩ/Ω 0.50 µΩ/Ω 1.0 µΩ/Ω 1.0 µΩ/Ω 1.0 µΩ/Ω 0.50 µΩ/Ω 1.0 µΩ/Ω 2.0 µΩ/Ω 3.0 µΩ/Ω 5.0 µΩ/Ω 30 µΩ/Ω 0.040 % 0.060 % 0.10 %	Standard resistors
	10 Ω 19 Ω 100 Ω 190 Ω 1 kΩ 1.9 kΩ 10 kΩ 19 kΩ 100 kΩ 190 kΩ 1 MΩ 1.9 MΩ 10 MΩ 19 MΩ 100 MΩ	21 µΩ/Ω 21 µΩ/Ω 9 µΩ/Ω 9 µΩ/Ω 5.7 µΩ/Ω 5.7 µΩ/Ω 5.5 µΩ/Ω 5.5 µΩ/Ω 7.5 µΩ/Ω 7 µΩ/Ω 11 µΩ/Ω 14 µΩ/Ω 31 µΩ/Ω 39 µΩ/Ω 96 µΩ/Ω	Multifunction calibrator

Parameter/Equipment	Range	CMC[2, 4, 7] (±)	Comments
Resistance – Generate	(0 to 11) Ω (11 to 33) Ω (33to 110) Ω (110 to 330) Ω 330 Ω to 1.1kΩ (1.1 to 3.3) kΩ (3.3 to 11) kΩ (11 to 33) kΩ (33 to 110) kΩ (110 to 330) kΩ 330 kΩ to 1.1MΩ (1.1 to 3.3) MΩ (3.3 to 11) MΩ (11 to 33) MΩ (33 to 110) MΩ (110 to 330) MΩ (330 to 1100) MΩ	31 µΩ/Ω + 0.0005 Ω 25 µΩ/Ω + 0.001 Ω 22 µΩ/Ω + 0.0015 Ω 22 µΩ/Ω + 0.0034 Ω 22 µΩ/Ω + 0.0082 Ω 22 µΩ/Ω + 0.034 Ω 22 µΩ/Ω + 0.082 Ω 22 µΩ/Ω + 0.34 Ω 22 µΩ/Ω + 0.82 Ω 22 µΩ/Ω + 4 Ω 25 µΩ/Ω + 10 Ω 47 µΩ/Ω + 66 Ω 100 µΩ/Ω + 360 Ω 110 µΩ/Ω + 3.4 kΩ 390 µΩ/Ω + 14 kΩ 2000 µΩ/Ω + 0.31 MΩ 1.2 % + 0.87 MΩ	Multifunction calibrator

Parameter/Range	Frequency	CMC[2, 4, 7] (±)	Comments
AC Voltage[3] – Generate			
(1 to 2.2) mV	(10 to 20) Hz (20 to 40) Hz (0.04 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (500 to 1000) kHz	240 µV/V + 4 µV 91 µV/V + 4 µV 81 µV/V + 4 µV 200 µV/V + 4 µV 500 µV/V + 5.1 µV 1100 µV/V + 10 µV 1400 µV/V + 20 µV 2700 µV/V + 20 µV	Multifunction calibrator
(2.2 to 22) mV	10 to 20) Hz (20 to 40) Hz (0.04 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (500 to 1000) kHz	240 µV/V + 4.5 µV 91 µV/V + 4.2 µV 81 µV/V + 4.2 µV 200 µV/V + 4.4 µV 500 µV/V + 6.1 µV 1100 µV/V + 12 µV 1400 µV/V + 23 µV 2700 µV/V + 26 µV	
(22 to 220) mV	10 to 20) Hz (20 to 40) Hz (0.04 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (500 to 1000) kHz	240 µV/V + 17 µV 90 µV/V + 9 µV 58 µV/V + 8.3 µV 120 µV/V + 9.6 µV 310 µV/V + 24 µV 66 µV/V + 34 µV 1400 µV/V + 56 µV 2700 µV/V + 100 µV	
(0.22 to 2.2) V	(10 to 20) Hz (20 to 40) Hz (0.04 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (500 to 1000) kHz	240 µV/V + 140 µV 90 µV/V + 15 µV 43 µV/V + 8.0 µV 67 µV/V + 10 µV 86 µV/V + 30 µV 340 µV/V + 80 µV 1000 µV/V + 200 µV 1700 µV/V + 300 µV	
(2.2 to 22) V	(10 to 20) Hz (20 to 40) Hz (0.04 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (500 to 1000) kHz	240 µV/V + 400 µV 90 µV/V + 150 µV 42 µV/V + 50 µV 67 µV/V + 100 µV 84 µV/V + 200 µV 260 µV/V + 600µV 1000 µV/V + 2000 µV 1500 µV/V + 3200 µV	

Parameter/Range	Frequency	CMC[2, 4, 7] (±)	Comments
AC Voltage[3] – Generate (cont)			
(2.2 to 22) V	(10 to 20) Hz (20 to 40) Hz (0.04 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz (300 to 500) kHz (500 to 1000) kHz	240 µV/V + 400 µV 90 µV/V + 150 µV 42 µV/V + 50 µV 67 µV/V + 100 µV 84 µV/V + 200 µV 255 µV/V + 600 µV 1000 µV/V + 2000 µV 1500 µV/V + 3200 µV	Multifunction calibrator
(22 to 220) V	(0.04 to 1) kHz (1 to 20) kHz (20 to 30) kHz (30 to 50) kHz (50 to 100) kHz	80 µV/V + 2.6 mV 150 µV/V + 5.5 mV 900 µV/V + 34 mV 4400 µV/V + 130 mV 8000 µV/V + 240 mV	
(220 to 1100) V	(0.4 to 1) kHz (1 to 20) kHz (20 to 30) kHz	91 µV/V + 24 mV 170 µV/V + 42 mV 600 µV/V + 140 mV	
(220 to 750) V	(30 to 50) kHz (50 to 100) kHz	600 µV/V + 140 mV 2300 µV/V + 550 mV	

Parameter/Range	Frequency	CMC[2, 4, 7] (±)	Comments
AC Current – Measure			
2 mA	40 Hz	35 µA/A	ACV measurement standard & AC shunts
20 mA		29 µA/A	
200 mA		27 µA/A	
2 A		29 µA/A	
10 A		38 µA/A	
20A		43 µA/A	
2 mA	500 Hz	35 µA/A	
20 mA		25 µA/A	
200 mA		23 µA/A	
2 A		25 µA/A	
10 A		36 µA/A	
20A		40 µA/A	
2 mA	1 kHz	35 µA/A	
20 mA		25 µA/A	
200 mA		23 µA/A	
2 A		25 µA/A	
10 A		36 µA/A	
20A		40 µA/A	
2 mA	5 kHz	35 µA/A	
20 mA		27 µA/A	
200 mA		25 µA/A	
2 A		27 µA/A	
10 A		41 µA/A	
20 A		46 µA/A	
2 mA	10 kHz	35 µA/A	
20 mA		32 µA/A	
200 mA		27 µA/A	
2 A		29 µA/A	
10 A		70 µA/A	
20 A		73 µA/A	

Parameter/Range	Frequency	CMC[2, 4, 7] (±)	Comments
AC Current – Measure (cont)			
(10 to 100) µA	(20 to 45) Hz (45 to 100) Hz (0.1 to 5) kHz (5 to 20) kHz	0.17 % + 0.032 µA 0.069 % + 0.022 µA 0.069 % + 0.022 µA 0.069 % + 0.022 µA	Long scale DMM
(100 to 1000) µA	(20 to 45) Hz (45 to 100) Hz (0.1 to 5) kHz (5 to 20) kHz	0.17 % + 0.27 µA 0.069 % + 0.17 µA 0.035 % + 0.14 µA 0.069 % + 0.17 µA	
(1 to 10) mA	(20 to 45) Hz (45 to 100) Hz (0.1 to 5) kHz (5 to 20) kHz	0.17 % + 2.7 µA 0.069 % + 1.7 µA 0.035 % + 1.4 µA 0.069 % + 1.7 µA	
(10 to 100) mA	(20 to 45) Hz (45 to 100) Hz (0.1 to 5) kHz (5 to 20) kHz	0.17 % + 27 µA 0.069 % + 17 µA 0.035 % + 14 µA 0.069 % + 17 µA	
(100 to 1000) mA	(20 to 45) Hz (45 to 100) Hz (0.1 to 5) kHz (5 to 20) kHz	0.19 % + 290 µA 0.092 % + 190 µA 0.12 % + 220 µA 0.35 % + 450 µA	

Parameter/Equipment	Range	CMC[2, 7] (±)	Comments
Electrical Simulation of Thermocouple Temperature Indicators[3]–			
Type E	(-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1000) °C	0.35 °C 0.16 °C 0.15 °C 0.16 °C 0.16 °C	Multifunction calibrator
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 0.16 °C 0.15 °C 0.16 °C 0.26 °C	
Type K	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1000) °C (1000 to 1372) °C	0.25 °C 0.17 °C 0.16 °C 0.21 °C 0.34 °C	
Type N	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 410) °C (410 to 1300) °C	0.29 °C 0.19 °C 0.17 °C 0.17 °C 0.21 °C	
Type R	(0 to 250) °C (250 to 400) °C (400 to 1000) °C (1000 to 1767) °C	0.40 °C 0.26 °C 0.25 °C 0.29 °C	
Type S	(0 to 250) °C (250 to 1000) °C (1000 to 1400) °C (1400 to 1767) °C	0.33 °C 0.27 °C 0.27 °C 0.33 °C	
Type T	(-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C	0.44 °C 0.20 °C 0.16 °C 0.09 °C	

Parameter/Equipment	Range	CMC[2, 7] (±)	Comments
Electrical Simulation of RTD Temperature Indicators[3] – PT 385 100 Ω	(-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	0.035 °C 0.035 °C 0.048 °C 0.061 °C 0.068 °C 0.081 °C 0.15 °C	Multifunction calibrator
Signal Conditioner Amplifiers	10 Hz to 10 kHz Charge Voltage	 0.05 % 0.02 %	Function generator DMM & capacitor

Parameter/Range	Frequency	CMC[2, 4, 7] (±)	Comments
AC Voltage – Measure			
(0 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	0.17 % + 1 µV 0.074 % + 1 µV 0.042 % + 1 µV 0.082 % + 1 µV 0.12 % + 1.3 µV 0.23 % + 2.1 µV 0.26 % + 4.1 µV 0.50 % + 4.1 µV	AC measurement standard
(2.2 to 7) 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	0.086 % + 1 µV 0.037 % + 1 µV 0.021 % + 1 µV 0.041 % + 1 µV 0.061 % + 1.3 µV 0.12 % + 2.1 µV 0.14 % + 4.1 µV 0.36 % + 4.3 µV	
(7 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	0.030 % + 1 µV 0.019 % + 1 µV 0.011 % + 1 µV 0.021 % + 1 µV 0.031 % + 1.3 µV 0.82 % + 2.2 µV 0.10 % + 4.2 µV 0.26 % + 4.6 µV	

Parameter/Range	Frequency	CMC[2, 4, 7] (±)	Comments
AC Voltage – Measure (cont)			
(22 to 70) 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	0.024 % + 1 µV 0.013 % + 1 µV 0.007 % + 1 µV 0.013 % + 1.1 µV 0.026 % + 1.4 µV 0.053 % + 2.4 µV 0.068 % + 4.5 µV 0.13 % + 4.9 µV	AC measurement standard
(70 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	0.021 % + 1.1 µV 0.0089 % + 1 µV 0.0044 % + 1 µV 0.0074 % + 1.2 µV 0.016 % + 1.6 µV 0.028 % + 2.6 µV 0.040 % + 4.9 µV 0.12 % + 6.7 µV	
(220 to 700) 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	0.021 % + 2.1 µV 0.0078 % + 1.2 µV 0.0038 % + 1 µV 0.0056 % + 1.4 µV 0.0084 % + 18 µV 0.021 % + 3.5 µV 0.034 % + 6.4 µV 0.12 % + 12 µV	

Parameter/Range	Frequency	CMC[2, 4, 7] (±)	Comments
AC Voltage – Measure (cont)			
(0.7 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	0.020 % + 4.4 µV 0.0066 % + 1.5 µV 0.0024 % + 1 µV 0.0046 % + 1.1 µV 0.0071 % + 1.7 µV 0.016 % + 4.4 µV 0.026 % + 6.8 µV 0.090 % + 27 µV	AC measurement standard
(2.2 to 7) 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	0.020 % + 1.4 µV 0.0070 % + 1 µV 0.0024 % + 1 µV 0.0046 % + 1 µV 0.0071 % + 1 µV 0.016 % + 1.5 µV 0.026 % + 3.3 µV 0.090 % + 11 µV	
(7 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	0.022 % + 4.9 µV 0.0081 % + 1.8 µV 0.0037 % + 1 µV 0.0057 % + 1.3 µV 0.0087 % + 1.9 µV 0.022 % + 4.9 µV 0.047 % + 10 µV 0.15 % + 34 µV	
(22 to 70) 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	0.022 % + 16 µV 0.0082 % + 5.8 µV 0.0044 % + 3.1µV 0.0066 % + 4.6 µV 0.011 % + 7.8 µV 0.022 % + 16 µV 0.051 % + 36 µV 0.15 % + 110 µV	

Parameter/Range	Frequency	CMC[2, 4, 5, 7] (±)	Comments
AC Voltage – Measure (cont)			
(70 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	0.022 % + 49 µV 0.0082 % + 18 µV 0.0043 % + 10 µV 0.0080 % + 18 µV 0.011 % + 25 µV 0.026 % + 58 µV 0.070 % + 160 µV	AC measurement standard
(220 to 700) V	(10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz	0.022 % + 160 µV 0.017 % + 82 µV 0.0051 % + 36 µV 0.015 % + 110 µV 0.085 % + 600 µV	
(700 to 1000) V	(10 to 20) Hz (20 to 40) Hz 40 Hz to 20 kHz (20 to 50) kHz (50 to 100) kHz	0.022 % + 220 µV 0.012 % + 120 µV 0.0048 % + 50 µV 0.015 % + 150 µV 0.085 % + 850 µV	
(1 to 10) kV (10 to 50) kV	60 Hz 60 Hz	0.08 % + 1.4 V 0.09 % + 6.6 V	HV voltmeter & HV probe
AC Current – Generate			
300 A 600 A 1000A 300 A 600 A 1000A	50/60 Hz 50/60 Hz 50/60 Hz 400 Hz 400 Hz 400 Hz	0.36 % 0.35 % 0.36 % 0.84 % 0.83 % 0.83 %	Current coil & calibrator

Parameter/Range	Frequency	CMC[2, 4, 7] (±)	Comments
AC Current[3]– Generate			
(10 to 220) µA	(10 to 20) Hz (20 to 40) Hz (0.04 to 1) kHz (1 to 5) kHz (5 to 10) kHz	0.025 % + 17 nA 0.016 % + 11 nA 0.010 % + 9.3 nA 0.028 % + 13 nA 0.11 % + 68 nA	Multifunction calibrators & trans conductance amplifiers
(0.22 to 2.2) mA	(10 to 20) Hz (20 to 40) Hz (0.04 to 1) kHz (1 to 5) kHz (5 to 10) kHz	0.025 % + 96 nA 0.016 % + 71 nA 0.010 % + 59 nA 0.020 % + 160 nA 0.11 % + 890 nA	
(2.2 to 22) mA	(10 to 20) Hz (20 to 40) Hz (0.04 to 1) Hz (1 to 5) kHz (5 to 10) kHz	0.025 % + 960 nA 0.016 % + 710 nA 0.012 % + 280 nA 0.022 % + 500 nA 0.11 % + 7400 nA	
(22 to 220) mA	(10 to 20) Hz (20 to 40) Hz (0.04 to 1) kHz (1 to 5) kHz (5 to 10) kHz	0.025 % + 9.6 µA 0.016 % + 7.1 µA 0.010 % + 4.9 µA 0.020 % + 8.0 µA 0.11 % + 34 µA	
(0.22 to 2.2) A	(0.02 to 1) kHz (1 to 5) kHz (5 to 10) kHz	0.024 % + 89 µA 0.045 % + 180 µA 0.70 % + 1.7 mA	
(2.2 to 11) A	(40 to 1000) Hz (1 to 5) kHz (5 to 10) kHz	0.046 % + 0.22 mA 0.095 % + 0.48 mA 0.36 % + 1.1 mA	
(11 to 20.5) A	(45 to 100) Hz (0.1 to 1) kHz (1 to 5) kHz	0.12 % + 5.1 mA 0.15 % + 5.2 mA 0.30 % + 5.1 mA	
(20 to 100) A	(45 to 1000) Hz	0.15 % + 100 mA	

Parameter/Equipment	Range	CMC[2, 4, 5, 7] (±)	Comments
Oscilloscopes[3] –			
DC:			
50 Ω	(1 to 25) mV (25 to 110) mV (0.11 to 2.2) V (2.2 to 6.6) V	0.15 % + 40 µV 0.15 % + 40 µV 0.15 % + 40 µV 0.15 % + 40 µV	Multifunction calibrator oscilloscope option
1 MΩ	(1 to 25) mV (25 to 110) mV (0.11 to 2.2) V (2.2 to 11) V (11 to 130) V	0.07 % + 40 µV 0.07 % + 40 µV 0.07 % + 40 µV 0.07 % + 40 µV 0.07 % + 40 µV	
Square Wave:			
50 Ω Peak-Peak	(1 to 25) mV (25 to 110) mV (0.11 to 2.2) V (2.2 to 6.6) V	0.15 % + 40 µV 0.15 % + 40 µV 0.15 % + 40 µV 0.15 % + 40 µV	
1 MΩ Peak-Peak	(1 to 25) mV (25 to 110) mV (0.11 to 2.2) V (2.2 to 11) V (11 to 130) V	0.11 % + 40 µV 0.11 % + 40 µV 0.11 % + 40 µV 0.11 % + 40 µV 0.11 % + 40 µV	
Level Sine Wave – Vpp:			
50 kHz Reference	50 kHz to 100 MHz (100 to 300) MHz (300 to 600) MHz	0.8 % + 100 µV 1.3 % + 100 µV 2.0 % + 100 µV	RF source
	10 Hz to 10 MHz (10 to 125) MHz (125 to 300) MHz 300 MHz to 1.4 GHz (1.4 to 3) GHz (3 to 4) GHz	0.6 % 0.6 % 1.2 % 2.9 % 3.5 % 5.9 %	
Time Marker	5 s to 50 ms (20 to100) ms (50 to 20) ns 10 ns (5 to 2) ns	15 µs/s 3.4 µs/s 3.4 µs/s 3.4 µs/s 3.4 µs/s	Multifunction calibrator with oscilloscope option

III. Mechanical

Parameter/Equipment	Range	CMC[2, 4, 7] (±)	Comments
Vibration Transducers Sensitivity	5 Hz 10Hz (20 to 100) Hz (100, 159.2) Hz (200 to 920) Hz 1000 Hz (2 to 5) kHz	2.5 % 1.5 % 1.3 % 0.6 % 1.1 % 1.5 % 1.7 %	By comparison with reference accelerometer

IV. Time & Frequency

Parameter/Equipment	Range	CMC[2, 6, 7] (±)	Comments
Frequency – Measuring Equipment & Measure, Fixed Point	10 MHz	5×10^{-11} Hz/Hz	Rubidium frequency standard with GPS
Frequency[3] –			
Measure	1 Hz to 40 GHz	1×10^{-9} Hz/Hz + 0.1 mHz	Frequency counters
Measuring Equipment	1 Hz to 50 GHz	1×10^{-9} Hz/Hz + 1 Hz	Frequency synthesizers

[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) 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 measurands stated are generated using the indicated instrument (see Comments). This capability is suitable for the calibration of the devices intended to measure the measurand in the ranges indicated. 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] In the statement of CMC, the value is defined as the percentage of reading.

[6] 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.

[7] The contributions from the "best existing device", such as resolution and repeatability of the unit under calibration, are not included in the CMC uncertainties claim.

[8] This scope meets A2LA's *P112 Flexible Scope Policy*.

Accredited Laboratory

A2LA has accredited

NAVAIR TECHNOLOGIES INC.

Mississauga, ON, 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 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 26th day of February 2025.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 5941.01
Valid to September 30, 2026

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