



CERTIFICATE OF ACCREDITATION

ANSI National Accreditation Board
11617 Coldwater Road, Fort Wayne, IN 46845 USA

This is to certify that

Gore Laboratories, Inc.
10 Northern Blvd., Suite 5
Amherst, NH 03031

has been assessed by ANAB and meets the requirements of international standard

ISO/IEC 17025:2005

and national standard

ANSI/NCSL Z540-1-1994 (R2002)

while demonstrating technical competence in the field of

CALIBRATION

Refer to the accompanying Scope of Accreditation for information regarding the types of activities to which this accreditation applies

AC-1322
Certificate Number


ANAB Approval

Certificate Valid Through: 04/14/2020
Version No. 006 Issued: 02/12/2019



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. 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).



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005
AND ANSI/NCSL Z540-1-1994 (R2002)

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CALIBRATION

Valid to: **April 14, 2020**

Certificate Number: **AC-1322**

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
DC Voltage - Source	Up to 220 mV 220 mV to 2.2 V (2.2 to 11) V (11 to 22) V (22 to 220) V 220 V to 1.1 kV	10 μ V/V + 0.6 μ V 7.4 μ V/V + 1 μ V 4.8 μ V/V + 3.5 μ V 4.8 μ V/V + 6.5 μ V 6.2 μ V/V + 80 μ V 7.8 μ V/V + 0.5 mV	Direct Comparison using a characterized Fluke5700A Multiproduct Calibrator
	10 V	2 μ V/V	Direct transfer techniques performed utilizing a Fluke 732B DC Reference Standard
DC Voltage - Measure	(0 to 100) mV 100 mV to 1 V (1 to 10) V (10 to 100) V 100 V to 1 kV	5.6 μ V/V + 2 μ V 5.1 μ V/V + 2 μ V 4.6 μ V/V + 3 μ V 6.5 μ V/V + 30 μ V 5 μ V/V + 0.1 mV	HP 3458A characterized DMM
DC Current - Source	Up to 220 μ A 220 μ A to 2.2 mA (2.2 to 22) mA (22 to 220) mA	76 μ A/A + 8 nA 42 μ A/A + 8 nA 42 μ A/A + 80 nA 52 μ A/A + 0.8 μ A	Direct Comparison using a characterized Fluke5700A Multiproduct Calibrator
	220 mA to 2.2 A (2.2 to 11) A	73 μ A/A + 25 μ A 0.48 mA/A + 0.48 mA	Direct Comparison using a characterized Fluke 5700A Multiproduct Calibrator and Fluke 5725A Amplifier



Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
DC Current - Measure	(10 to 100) μ A 100 μ A to 1 mA (1 to 10) mA (10 to 100) mA 100 mA to 1 A	20 μ A/A + 0.8 nA 20 μ A/A + 5 nA 20 μ A/A + 50 nA 35 μ A/A + 0.5 μ A 0.1 mA/A + 10 μ A	HP 3458A Opt 002 characterized DMM
Resistance - Source	1 Ω 1.9 Ω 10 Ω 19 Ω 100 Ω 190 Ω 1 k Ω 1.9 k Ω 10 k Ω 19 k Ω 100 k Ω 190 k Ω 1 M Ω 1.9 M Ω 10 M Ω 19 M Ω 100 M Ω	82 $\mu\Omega/\Omega$ 81 $\mu\Omega/\Omega$ 23 $\mu\Omega/\Omega$ 22 $\mu\Omega/\Omega$ 14 $\mu\Omega/\Omega$ 14 $\mu\Omega/\Omega$ 10 $\mu\Omega/\Omega$ 10 $\mu\Omega/\Omega$ 9.9 $\mu\Omega/\Omega$ 9.9 $\mu\Omega/\Omega$ 11 $\mu\Omega/\Omega$ 11 $\mu\Omega/\Omega$ 16 $\mu\Omega/\Omega$ 17 $\mu\Omega/\Omega$ 32 $\mu\Omega/\Omega$ 39 Ω/Ω 0.1 m Ω/Ω	Direct Comparison using a characterized Fluke5700A Multiproduct Calibrator
Resistance - Source Individual Values	1 Ω 10 k Ω	8 $\mu\Omega/\Omega$ 4.1 $\mu\Omega/\Omega$	Direct Comparison to Primary Resistors Fluke 742A-1 Fluke 742A-10k
Resistance – Source (In 100 m Ω Steps) (In 1 Ω Steps) (In 10 Ω Steps) (In 100 Ω Steps) (In 1 k Ω Steps) (In 10 k Ω Steps) (In 100 k Ω Steps) (In 1 M Ω Steps)	100 m Ω to 1 Ω (1 to 10) Ω (10 to 100) Ω 100 Ω to 1 k Ω (1 to 10) k Ω (10 to 100) k Ω 100 k Ω to 1 M Ω (1 to 11) M Ω	10 m Ω/Ω + 40 m Ω 1.2 m Ω/Ω + 40 m Ω 0.3 m Ω/Ω + 40 m Ω 0.3 m Ω/Ω + 40 m Ω 0.3 m Ω/Ω + 40 m Ω 0.3 m Ω/Ω + 40 m Ω 0.3 m Ω/Ω + 40 m Ω 0.3 m Ω/Ω + 40 m Ω	Direct Comparison using a ESI DB-877 incremental decade resistor.

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Resistance - Measure	Up to 10 Ω (10 to 100) Ω 100 Ω to 1 k Ω (1 to 10) k Ω (10 to 100) k Ω 100 k Ω to 1 M Ω (1 to 10) M Ω (10 to 100) M Ω 100 M Ω to 1 G Ω	18 $\mu\Omega/\Omega + 50 \mu\Omega$ 13 $\mu\Omega/\Omega + 0.5 \text{ m}\Omega$ 11 $\mu\Omega/\Omega + 0.5 \text{ m}\Omega$ 11 $\mu\Omega/\Omega + 5 \text{ m}\Omega$ 11 $\mu\Omega/\Omega + 50 \text{ m}\Omega$ 15 $\mu\Omega/\Omega + 2 \Omega$ 53 $\mu\Omega/\Omega + 0.1 \text{ k}\Omega$ 0.5 $\text{m}\Omega/\Omega + 1 \text{ k}\Omega$ 5 $\text{m}\Omega/\Omega + 10 \text{ k}\Omega$	HP 3458A Opt 002 characterized DMM
AC Voltage - Source	Up 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 (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 (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	1.5 mV/V + 4.5 μV 2.1 mV/V + 4.5 μV 1.4 mV/V + 4.5 μV 1.8 mV/V + 4.5 μV 2.2 mV/V + 7 μV 3.5 mV/V + 13 μV 6.7 mV/V + 25 μV 11 mV/V + 25 μV 0.78 mV/V + 5 μV 0.45 mV/V + 5 μV 0.29 mV/V + 5 μV 0.6 mV/V + 5 μV 1 mV/V + 7 μV 1.8 mV/V + 12 μV 2.5 mV/V + 25 μV 4.6 mV/V + 25 μV 0.63 mV/V + 13 μV 0.24 mV/V + 8 μV 0.12 mV/V + 8 μV 0.34 mV/V + 8 μV 0.85 mV/V + 25 μV 1.1 mV/V + 25 μV 1.8 mV/V + 35 μV 3.6 mV/V + 80 μV	Direct Comparison using a characterized Fluke5700A Multiproduct Calibrator



Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Voltage - Source	220 mV to 2.2 V		Direct Comparison using a characterized Fluke5700A Multiproduct Calibrator
	(10 to 20) Hz	0.37 mV/V + 80 μV	
	(20 to 40) Hz	0.15 mV/V + 25 μV	
	40 Hz to 20 kHz	81 μV/V + 6 μV	
	(20 to 50) kHz	0.14 mV/V + 16 μV	
	(50 to 100) kHz	0.26 mV/V + 70 μV	
	(100 to 300) kHz	0.5 mV/V + 0.13 mV	
	(300 to 500) kHz	1.1 mV/V + 0.35 mV	
	500 kHz to 1 MHz	2.6 mV/V + 0.85 mV	
	(2.2 to 22) V		
	(10 to 20) Hz	0.51 mV/V + 0.8 mV	
	(20 to 40) Hz	0.14 mV/V + 0.25 mV	
	40 Hz to 20 kHz	82 μV/V + 60 μV	
	(20 to 50) kHz	0.14 mV/V + 0.16 mV	
	(50 to 100) kHz	0.27 mV/V + 0.35 mV	
	(100 to 300) kHz	0.58 mV/V + 1.5 mV	
	(300 to 500) kHz	1.4 mV/V + 4.3 mV	
	500 kHz to 1 MHz	3.2 mV/V + 8.5 mV	
	(22 to 220) V		
	(10 to 20) Hz	0.57 mV/V + 8 mV	
(20 to 40) Hz	0.16 mV/V + 2.5 mV		
40 Hz to 20 kHz	0.92 mV/V + 0.8 mV		
(20 to 50) kHz	0.23 mV/V + 3.5 mV		
(50 to 100) kHz	0.51 mV/V + 8 mV		
220 V to 1.1 kV			
50 Hz to 1 kHz	0.11 mV/V + 4 mV		
(1 to 20) kHz	0.13 mV/V + 6 mV		
(20-30) kHz	0.36 mV/V + 11 mV		
(220 to 750) V			
(30 to 50) kHz	0.36 mV/V + 11 mV		
(50 to 100) kHz	1.3 mV/V + 45 mV		
AC Voltage - Measure	(1 to 10) mV		HP 3458A Opt 002 characterized DMM
	(1 to 40) Hz	0.3 mV/V + 3 μV	
	40 Hz to 1 kHz	0.21 mV/V + 1.1 mV	
	(1 to 20) kHz	0.33 mV/V + 1.1 mV	
	(20 to 50) kHz	1 mV/V + 1.1 mV	
	(50 to 100) kHz	5 mV/V + 1.1 mV	
(100 to 300) kHz	40 mV/V + 2 mV		



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Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Voltage - Measure	(10 to 100) mV		HP 3458A Opt 002 characterized DMM
	(1 to 40) Hz	72 $\mu\text{V}/\text{V} + 4 \mu\text{V}$	
	40 Hz to 1 kHz	82 $\mu\text{V}/\text{V} + 2 \mu\text{V}$	
	(1 to 20) kHz	0.15 mV/V + 2 μV	
	(20 to 50) kHz	0.3 mV/V + 2 μV	
	(50 to 100) kHz	0.81 mV/V + 2 μV	
	(100 to 300) kHz	3 mV/V + 10 μV	
	100 mV to 1 V		
	(1 to 40) Hz	72 $\mu\text{V}/\text{V} + 40 \mu\text{V}$	
	40 Hz to 1 kHz	75 $\mu\text{V}/\text{V} + 20 \mu\text{V}$	
	(1 to 20) kHz	0.14 mV/V + 20 μV	
	(20 to 50) kHz	0.3 mV/V + 20 μV	
	(50 to 100) kHz	0.8 mV/V + 20 μV	
	(100 to 300) kHz	3 mV/V + 0.1 mV	
	(1 to 10) V		
	(1 to 40) Hz	88 $\mu\text{V}/\text{V} + 0.4 \text{ mV}$	
	40 Hz to 1 kHz	75 $\mu\text{V}/\text{V} + 0.2 \text{ mV}$	
	(1 to 20) kHz	0.14 mV/V + 0.2 mV	
	(20 to 50) kHz	0.3 mV/V + 0.2 mV	
	(50 to 100) kHz	0.8 mV/V + 0.2 mV	
	(100 to 300) kHz	3 mV/V + 1 mV	
	(10 to 100) V		
	(1 to 40) Hz	0.2 mV/V + 4 mV	
	40 Hz to 1 kHz	0.2 mV/V + 2 mV	
(1 to 20) kHz	0.2 mV/V + 2 mV		
(20 to 50) kHz	0.35 mV/V + 2 mV		
(50 to 100) kHz	1.2 mV/V + 2 mV		
(100 to 300) kHz	4 mV/V + 10 mV		
(100 to 700) V			
(1 to 40) Hz	0.4 mV/V + 40 mV		
40 Hz to 1 kHz	0.4 mV/V + 20 mV		
(1 to 20) kHz	0.6 mV/V + 20 mV		
(20 to 50) kHz	1.2 mV/V + 20 mV		
(50 to 100) kHz	3 mV/V + 20 mV		



Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Current - Source	Up to 220 μ A		Direct Comparison using a characterized Fluke5700A Multiproduct Calibrator
	(10 to 20) Hz	0.68 mA/A + 25 nA	
	(20 to 40) Hz	0.35 mA/A + 20 nA	
	40 Hz to 1 kHz	0.14 mA/A + 16 nA	
	(1 to 5) kHz	0.58 mA/A + 40 nA	
	(5 to 10) kHz	1.6 mA/A + 80 nA	
	220 μ A to 2.2 mA		
	(10 to 20) Hz	0.64 mA/A + 40 nA	
	(20 to 40) Hz	0.38 mA/A + 35 nA	
	40 Hz to 1 kHz	0.14 mA/A + 35 nA	
	(1 to 5) kHz	0.55 mA/A + 0.4 μ A	
	(5 to 10) kHz	1.4 mA/A + 0.8 μ A	
	(2.2 to 22) mA		
	(10 to 20) Hz	0.64 mA/A + 0.4 μ A	
	(20 to 40) Hz	0.38 mA/A + 0.35 μ A	
40 Hz to 1 kHz	0.14 mA/A + 0.35 μ A		
(1 to 5) kHz	0.55 mA/A + 4 μ A		
(5 to 10) kHz	1.4 mA/A + 8 μ A		
(22 to 220) mA			
(10 to 20) Hz	0.64 mA/A + 4 μ A		
(20 to 40) Hz	0.38 mA/A + 3.5 μ A		
40 Hz to 1 kHz	0.26 mA/A + 3.5 μ A		
(1 to 5) kHz	0.55 mA/A + 40 μ A		
(5 to 10) kHz	1.4 mA/A + 80 μ A		
220 mA to 2.2 A			
20 Hz to 1 kHz	0.56 mA/A + 35 μ A		
(1 to 5) kHz	0.69 mA/A + 80 μ A		
(5 to 10) kHz	7.5 mA/A + 0.16 mA		
(2.2 to 11) A		Direct Comparison using a characterized Fluke 5700A Multiproduct Calibrator with 5725A Amplifier	
40 Hz to 1 kHz	0.57 mA/A + 0.17 mA		
(1 to 5) kHz	0.94 mA/A + 0.38 mA		
(5 to 10) kHz	3.3 mA/A + 0.75 mA		
AC Current - Measure	(5 to 100) μ A		HP 3458A Opt 002 characterized DMM
	(10 to 20) Hz	4 mA/A + 30 nA	
	(20 to 45) Hz	1.5 mA/A + 30 nA	
	(45 to 100) Hz	0.61 mA/A + 30 nA	
	100 Hz to 1 kHz	0.61 mA/A + 30 nA	



Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment		
AC Current - Measure	100 μ A to 1 mA (10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	4 mA/A + 0.2 μ A 1.5 mA/A + 0.2 μ A 0.61 mA/A + 0.2 μ A 0.31 mA/A + 0.2 μ A	HP 3458A Opt 002 characterized DMM		
	(1 to 10) mA (10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	4 mA/A + 2 μ A 1.5 mA/A + 2 μ A 0.61 mA/A + 2 μ A 0.33 mA/A + 2 μ A			
	(10 to 100) mA (10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	4 mA/A + 20 μ A 1.5 mA/A + 20 μ A 0.61 mA/A + 20 μ A 0.32 mA/A + 20 μ A			
	100 mA to 1 A (10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	4 mA/A + 0.2 mA 1.6 mA/A + 0.2 mA 0.81 mA/A + 0.2 mA 1 mA/A + 0.2 mA			
	Capacitance - Source 1 kHz	50 pF to 1.111 15 μ F		5.2 mF/F + 5 pF	General Radio 1412-BC Decade Capacitance Standard
		10 nF		0.55 mF/F	General Radio 1409-L Fixed Capacitance Standard
		100 nF		0.55 mF/F	General Radio 1409-T Fixed Capacitance Standard
		500 nF		0.55 mF/F	General Radio 1409-X Fixed Capacitance Standard
		1 μ F		0.55 mF/F	General Radio 1409-Y Fixed Capacitance Standard
	Capacitance – Source 1 kHz (1 μ F Steps)	(1 to 10) μ F		2.5 mF/F	General Radio 1424-A Stepped (RSS) Capacitance Standard



Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Capacitance - Measure 20 Hz to 150 kHz	(1 to 10) pF 100 pF 1 nF 10 nF to 10 μF	20 mF/F + 0.02 pF 1 mF/F + 0.02 pF 1.1 mF/F 0.2 mF/F	Direct comparison using a Electro Scientific Industries 2160 Video Bridge
Inductance - Source 1 kHz	1 mH	1.2 mH/H	General Radio 1482-E Fixed Inductor Standard
	10 mH	1.2 mH/H	General Radio 1482-H Fixed Inductor Standard
	100 mH	1.3 mH/H	General Radio 1482-L Fixed Inductor Standard
Inductance - Measure 20 Hz to 150 kHz	100 μH 1 mH to 10 H 100 H	1 mH/H + 0.02 μH 0.5 mH/H 1 mH/H	Direct comparison using a Electro Scientific Industries 2160 Video Bridge
Electrical Simulation of RTDs	(-200 to 0) °C (0 to 850) °C	0.006 % of reading + 0.1 °C 0.025 % of reading + 0.1 °C	Beamex MC5 Multifunction Calibrator
Measurement of PRT Simulators	(-200 to 0) °C (0 to 850) °C	0.006 % of reading + 0.06 °C 0.025 % of reading + 0.06 °C	Direct source of 2, 3 & 4- wire RTD type
Oscilloscopes Voltage Amplitude 1M Ω Load - DC or 1 kHz 50 Ω Load - DC or 1 kHz Deflection Error Readout High Amplitude Output 50 Ω Load Risetime Fast Rise Output, 50 Ω Load 100 mVp-p to 1 Vp-p	200 μVp-p to 100 Vp-p 100 μV/Vp-p to 5 Vp-p ± 7.5 % 100 Hz to 1 MHz 1 Hz to 1 MHz	2.5 mV/V + 1 μV 2.5 mV/V + 1 μV 1.2 mV/V 40 ms/s 0.4 s/s	Direct comparison using a PG506A calibration generator
Oscilloscopes Time Markers Marker Spacing	1 ns to 5 s	2.6 μs/s	Direct comparison using a TG501A Time Mark Generator
Oscilloscopes Leveled Sinewave	500 mV to 5.5 Vp-p 250 kHz to 100 MHz (100 to 250) MHz 5 mV to 550 mVp-p 250 kHz to 50 MHz (50 to 100) MHz (100 to 250) MHz	40 mV/V 45 mV/V 20 mV/V 23 mV/V 35 mV/V	Direct comparison using a SG 503 Sine-Wave Generator



Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Oscilloscopes Leveled Sinewave	500 mV to 5.5 Vp-p (100 to 250) MHz	40 mV/V	Direct comparison using a SG 504 Sine-Wave Generator
Waveform Characteristics Measure Amplitude Parameters Time Parameters	100 μ V/Vp-p to 5 Vp-p Risetimes \geq 3.2 ns	10 mV/V 0.48 ms/s + 20 ps	Direct comparison using a Digitizing Oscilloscope
Electrical Simulation of Thermocouples	Type B (200° to 500) °C (500 to 800) °C (800 to 1 820) °C Type R (-50 to 0) °C (0 to 150) °C (150 to 1 400) °C (1 400 to 1 768) °C Type S (-50 to 0) °C (0 to 50) °C (50 to 1 500) °C (1 500 to 1 768) °C Type E (-200 to 0) °C (0 to 600) °C (600 to 990) °C Type J (-200 to 0) °C (0 to 1 200) °C Type K (-200 to 0) °C (0 to 1 000) °C (1 000 to 1 372) °C Type N (-200 to -100) °C (-100 to 0) °C (0 to 750) °C (750 to 1 300) °C	2 °C 0.8 °C 0.9 °C 1.1 °C 0.8 °C 0.5 °C 0.6 °C 1.1 °C 0.8 °C 0.7 °C 0.8 °C 0.08 % of reading + 0.17 °C 0.015 % of reading + 0.17 °C 0.026 % of reading + 0.1 °C 0.7 % of reading + 0.18 °C 0.02 % of reading + 0.18 °C 0.1 % of reading + 0.2 °C 0.02 % of reading + 0.2 °C 0.03 % of reading + 0.1 °C 0.2 % of reading + 0.1 °C 0.05 % of reading + 0.25 °C 0.01 % of reading + 0.25 °C 0.03 % of reading + 0.1 °C	Direct comparison using a Beamex MC5 Multifunction Calibrator
Electrical Simulation of Thermocouples	Type T (-250 to -200) °C (-200 to 0) °C (0 to 390) °C	0.8 °C 0.1 % of reading + 0.2 °C 0.01 % of reading + 0.2 °C	Direct comparison using a Beamex MC5 Multifunction Calibrator

Length – Dimensional metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Outside Micrometers ¹	(0.05 to 1) in. (>1 to 24) in.	(16 + 0.7L) μin (212 + 3.2L) μin	Direct comparison using steel gage blocks
Calipers ¹	(0.05 to 4) in. (>4 to 8) in. (>8 to 24) in. (>24 to 30) in.	(116 + 0.7L) μin (147 + 1.7L) μin (246 + 4.7L) μin (284 + 5.2L) μin	
Height Gages ¹	(0.05 to 4) in. (>4 to 8) in. (>8 to 24) in.	(146 + 0.7L) μin (118 + 1.7L) μin (420 + 4.7L) μin	

Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Torque	(15 to 200) ozf in	0.28 % of reading	Direct comparison on a CDI 5000-ST Torque Monitor with 5000-ST / 2000-400-02 Torque Cell (CW & CCW)
	(4 to 50) in lb (30 to 400) in lb (80 to 1000) in lb (20 to 250) ft lb	0.26% of reading 0.28% of reading 0.28% of reading 0.29% of reading	Direct comparison on a CDI 5000-ST Torque Monitor 5000-ST / 2000-5-02 Torque Cell (CW & CCW)
Scales and Balances	200 mg to 1000 gm (>1 to 10) kg	5 μg/g 0.5 mg/gm	Direct application of Class 2 Mass
	(>10 to 25) kg	5 g/g	Direct application of Class 3 Mass
Pressure	(0 to 50) psig (50 to 250) psig (250 to 1 000) psig	0.014 psi 0.07 psi 0.27 psi	Direct comparison using Ashcroft ATE-100 Calibrator with ASQ-2 Modules with Air or Nitrogen



Thermodynamic

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Temperature - Source	0 °C (Ambient to 400) °C	0.02 °C 0.19 °C	Comparison using a standard platinum RTD with & Dri-block Calibrator or ice bath, ISOTECH T100-450 SPRT with Hart Scientific 1502A Indicator
Temperature - Measure	0 °C (Ambient to 400) °C	0.02 °C 0.19 °C	

Time and Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Frequency - Source	0.001 Hz to 20 MHz	60 pHz/Hz + 15 µHz	Comparison using a HP 3325B Frequency Generator
Frequency - Measure	0.1 Hz to 3 GHz	24 pHz/Hz + 15 µHz	Comparison using a HP 53131A Opt 030 Counter

Calibration and Measurement Capability (CMC) is expressed in terms of the measurement parameter, measurement range, expanded uncertainty of measurement and reference standard, method, and/or equipment. The expanded uncertainty of measurement is expressed as the standard uncertainty of the measurement multiplied by a coverage factor of 2 ($k=2$), corresponding to a confidence level of approximately 95%.

Notes:

1. L = length in inches.
2. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1322.



 Vice President

