



CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

Accura Calibration
2834 West Kingsley Road
Garland, TX 75041

Fulfills the requirements of

ISO/IEC 17025:2017

and national standards

ANSI/NCSL Z540-1-1994 (R2002) and
ANSI/NCSL Z540.3-2006 (R2013)

In the field of

CALIBRATION

This certificate is valid only when accompanied by a current scope of accreditation document.
The current scope of accreditation can be verified at www.anab.org.

R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 01 February 2022
Certificate Number: AC-2548



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
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 17025:2017,
ANSI/NCSL Z540-1-1994 (R2002) AND ANSI/NCSL Z540.3-2006 (R2013)**

Accura Calibration
2834 West Kingsley Road
Garland, TX 75041
Dwight Martin 972-278-7878

CALIBRATION

Valid to: **February 1, 2022**

Certificate Number: **AC-2548**

Acoustics and Vibration

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Accelerometers	(7 to 10) Hz	4 % of reading	Modal Shop 9110D Workstation
	(10 to 30) Hz	3 % of reading	
	(30 to 99) Hz	1.5 % of reading	
	100 Hz	1.5 % of reading	
	(101 to 2 000) Hz	1.5 % of reading	
	(2 000 to 10 000) Hz	4 % of reading	

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Current – Clamp Meter ¹ Torroidal Clamp (45 to 65) Hz	(20 to 300) A	11 mA/A + 90 mA	Fluke 5500A/Coil, Valhalla 2575A Current Shunt, Keysight 3458A 8.5 Digit Multimeter, Current Source
	(300 to 600) A	9.8 mA/A + 90 mA	
	(600 to 1 000) A	11 mA/A + 0.09 A	
	400 Hz	19 mA/A + 0.1 A	
	200 Hz	18 mA/A + 0.1 A	
	(600 to 1 000) A	18 mA/A + 0.1 A	



ANSI National Accreditation Board

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Current – Clamp Meter ¹ Non-Torroidal Clamp (45 to 65) Hz	(20 to 300) A (300 to 600) A (600 to 1 000) A	15 mA/A + 0.9 A 14 mA/A + 0.9 A 14 mA/A + 0.9 A	Fluke 5500A/Coil, Valhalla 2575A Current Shunt, Keysight 3458A 8.5 Digit Multimeter, Current Source
400 Hz	(20 to 300) A (300 to 600) A	22 mA/A + 0.9 A 21 mA/A + 0.9 A	
200Hz	(600 to 1 000) A	22 mA/A + 0.9 A	
DC Current – Generate and Measure ¹	(0.1 to 2) mA (2 to 20) mA (20 to 200) mA (0.2 to 2) A (2 to 20) A (20 to 100) A	3.9 mA/A + 3 nA 0.41 mA/A + 30 nA 0.11 mA/A + 0.3 μA 0.2 mA/A + 3 μA 0.2 mA/A + 30 μA 0.5 mA/A + 0.3 mA	Valhalla 2575A Current Shunt, Keysight 3458A 8.5 Digit Multimeter, Current Source
Capacitance – Generate and Measure ¹	1 pF to 6.4 nF (6.4 to 100) nF 100 nF to 1.6 μF (1.6 to 100) μF	1.2 mF/F 3.8 mF/F 8.1 mF/F 5.7 mF/F	GenRad 1689M RLC Bridge, w/ Fluke 5500A Multiproduct Calibrator, GenRad 1413, 16380A Decade Capacitors
Inductance – Generate and Measure ¹ (100 Hz – 1 kHz)	1 mH to 11.11 H	2.7 mH/H	GenRad 1689M RLC Bridge, GenRad 1490D Decade Inductor
AC Resistance – Generate and Measure ¹ (1 kHz)	1 Ω to 100 kΩ	0.39 mΩ/Ω	GR 1689M RLC Bridge w/ HP 16074A Standard Set
AC Current – Generate/Measure ¹ 45 Hz to 1 kHz	(0.1 to 2) mA (2 to 20) mA (20 to 200) mA (0.2 to 2) A (2 to 20) A (20 to 100) A	4.1 mA/A + 3 nA 1.1 mA/A + 30 nA 1 mA/A + 0.3 μA 1 mA/A + 3 μA 1 mA/A + 30 μA 1 mA/A + 0.15 mA	Valhalla 2575A Current Shunt, Keysight 3458A 8.5 Digit Multimeter, Current Source
DC Power – Generate ¹	10 W to 11 kW	2.1 mW/W	Fluke 5500A Multifunction Calibrator, Keysight 3458A, 8.5 Digit Multimeter, Valhalla 2575A Current Shunt



ANSI National Accreditation Board

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Power – Generate ¹ (45 to 65) Hz	(10 to 100) mW (0.33 to 11) kW	2 mW/W 1.8 mW/W	Fluke 5500A Multiproduct Calibrator, Keysight 3458A 8.5 Digit Multimeter, Valhalla 2575A Current Shunt
DC Voltage – Generate/Measure ¹	Up to 120 mV (0.12 to 1.2) V (1.2 to 12) V (12 to 120) V (120 to 1 050) V	6.1 μ V/V + 0.3 μ V 5.1 μ V/V + 0.3 μ V 5.1 μ V/V + 0.5 μ V 7.3 μ V/V + 30 μ V 7.3 μ V/V + 0.1 mV	Keysight 3458A 8.5 Digit Multimeter w/ Multifunction Calibrator
DC High Voltage – Generate/Measure ¹	(1 to 60) kV	1.8 mV/V	Ross Engineering VD60-6.2Y-A-LB-AL High Voltage Divider w/ Keysight 3458A 8.5 Digit Multimeter
AC Voltage – Generate/Measure ¹	Up 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 12 mV 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 (0.3 to 1) MHz (1 to 2) MHz (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 (0.3 to 1) MHz	0.7 mV/V 0.36 mV/V 0.48 mV/V 1.3 mV/V 5.9 mV/V 46 mV/V 0.13 mV/V 0.11 mV/V 0.22 mV/V 0.37 mV/V 0.95 mV/V 3.6 mV/V 1.2 mV/V 17 mV/V 0.28 mV/V 0.26 mV/V 0.26 mV/V 0.43 mV/V 1.4 mV/V 4.7 mV/V 17 mV/V	Keysight 3458A 8.5 Digit Multimeter w/ Multifunction Calibrator



ANSI National Accreditation Board

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Voltage – Generate/Measure ¹	(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	0.53 mV/V 0.5 mV/V 0.73 mV/V 1.4 mV/V 3.5 mV/V	Keysight 3458A 8.5 Digit Multimeter w/ Multifunction Calibrator
AC High Voltage – Generate/Measure ¹	(1 to 60) kV 60 Hz	5.9 mV/V	Ross Engineering VD60-6.2Y-A-LB-AL High Voltage Divider w/ Keysight 3458A 8.5 Digit Multimeter
Resistance – Generate/Measure ¹	(0 to 12) Ω (12 to 120) Ω (0.12 to 1.2) kΩ (1.2 to 12) kΩ (1.2 to 120) kΩ (0.12 to 1.2) MΩ (1.2 to 12) MΩ (12 to 120) MΩ (0.12 to 1.2) GΩ	19 μΩ/ Ω + 50 μΩ 15 μΩ/ Ω + 0.5 mΩ 13 μΩ/ Ω + 0.5 mΩ 12 μΩ/ Ω + 5 mΩ 13 μΩ/ Ω + 50 μΩ 24 μΩ/ Ω + 2 Ω 65 μΩ/ Ω + 100 Ω 0.58 mΩ/ Ω + 1 kΩ 5.8 mΩ/ Ω + 10 kΩ	Keysight 3458A 8.5 Digit Multimeter w/ Multiproduct Calibrator, Decade Resistors
Oscilloscopes ^{1,2} Level Sine Wave (Relative to 50 kHz)	5 mV to 5.5 Vp-p 50 kHz to 100 MHz 50 kHz to 300 MHz 50 kHz to 600 MHz	17 mV/V + 0.1 mV 23 mV/V + 0.1 mV 46 mV/V + 0.1 mV	Fluke 5500A/SC600 Multiproduct Calibrator
Time Markers	2 ns to 20 ms 50 ms to 5 s	2.5 μs/s (25 + 1 000T) s	
Rise Time	≤300 ps	+0 ps/-102 ps	
DC Amplitude into 50 Ω load	± (1 to 24.999) mV ± (25 to 109.99) mV ± 110 mV to 2.2 V ± (2.2 to 6.6) V	2.5 mV/V + 40 μV 2.5 mV/V + 40 μV 2.5 mV/V + 40 μV 2.5 mV/V + 40 μV	
into 1M Ω load	(-130 to 130) V	0.58 mV/V + 40 μV	



ANSI National Accreditation Board

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Oscilloscopes ^{1,2} Amplitude Square Wave into 50 Ω load into 1 MΩ load	10 Hz to 1 kHz ±1 mV to 6.6 V p-p	2.7 mV/V + 40 μV	Fluke 5500A/SC600 Multiproduct Calibrator
	10 Hz to 1 kHz ± (1 m to 130) V p-p (1 to 10) kHz	1 mV/V + 40 μV	
	± (1 m to 130) V p-p	2.5 mV/V + 40 μV	
Electrical Simulation of Thermocouple Devices – Generate & Measure ¹	Type B (600 to 800) °C	0.46 °C	Fluke 5500A Multiproduct Calibrator
	(800 to 1 000) °C	0.36 °C	
	(1 000 to 1 550) °C	0.36 °C	
	(1 550 to 1 820) °C	0.39 °C	
	Type C (0 to 150) °C	0.36 °C	
	(150 to 650) °C	0.32 °C	
	(650 to 1 000) °C	0.37 °C	
	(1 000 to 1 800) °C	0.56 °C	
	(1 800 to 2 316) °C	0.9 °C	
	Type E (-250 to -100) °C	0.56 °C	
	(-100 to -25) °C	0.22 °C	
	(-25 to 350) °C	0.21 °C	
	(350 to 650) °C	0.22 °C	
	(650 to 1 000) °C	0.27 °C	
	Type J (-210 to -100) °C	0.33 °C	
	(-100 to -30) °C	0.22 °C	
	(-30 to 150) °C	0.21 °C	
	(150 to 760) °C	0.23 °C	
	(760 to 1 200) °C	0.29 °C	
	Type K (-200 to -100) °C	0.39 °C	
	(-100 to -25) °C	0.24 °C	
	(-25 to 120) °C	0.22 °C	
	(120 to 1 000) °C	0.32 °C	
	(1 000 to 1 372) °C	0.46 °C	
Type L (-200 to -100) °C	0.43 °C		
(-100 to 800) °C	0.32 °C		
(800 to 900) °C	0.23 °C		



ANSI National Accreditation Board

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment		
<p>Electrical Simulation of Thermocouple Devices – Generate & Measure¹</p>	<p>Type N (-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 410) °C (410 to 1 300) °C</p>	<p>0.46 °C 0.28 °C 0.25 °C 0.24 °C 0.33 °C</p>	<p>Fluke 5500A Multiproduct Calibrator</p>		
	<p>Type R (0 to 250) °C (250 to 400) °C (400 to 1 000) °C (1 000 to 1 767) °C</p>	<p>0.63 °C 0.41 °C 0.39 °C 0.46 °C</p>			
	<p>Type S (0 to 250) °C (250 to 1 000) °C (1 000 to 1 400) °C (1 400 to 1 767) °C</p>	<p>0.53 °C 0.42 °C 0.43 °C 0.52 °C</p>			
	<p>Type T (-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C</p>	<p>0.69 °C 0.3 °C 0.22 °C 0.2 °C</p>			
	<p>Type U (-200 to 0) °C (0 to 600) °C</p>	<p>0.62 °C 0.33 °C</p>			
	<p>Electrical Simulation of RTD Devices – Generate¹</p>	<p>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</p>		<p>0.06 °C 0.06 °C 0.07 °C 0.09 °C 0.1 °C 0.12 °C 0.23 °C</p>	<p>Fluke 5500A Multiproduct Calibrator</p>
		<p>Pt 3926 (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</p>		<p>0.06 °C 0.06 °C 0.08 °C 0.1 °C 0.11 °C 0.13 °C</p>	



ANSI National Accreditation Board

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Electrical Simulation of RTD Devices – Generate ¹	Pt 3916 (100 Ω)		Fluke 5500A Multiproduct Calibrator
	(-200 to -190) °C	0.26 °C	
	(-190 to -80) °C	0.05 °C	
	(-80 to 0) °C	0.06 °C	
	(0 to 100) °C	0.07 °C	
	(100 to 260) °C	0.08 °C	
	(260 to 300) °C	0.09 °C	
	(300 to 400) °C	0.1 °C	
	(400 to 600) °C	0.11 °C	
	(600 to 630) °C	0.23 °C	
	Pt 385 (200 Ω)		
	(-200 to -80) °C	0.05 °C	
	(-80 to 0) °C	0.05 °C	
	(0 to 100) °C	0.05 °C	
	(100 to 260) °C	0.06 °C	
	(260 to 300) °C	0.13 °C	
	(300 to 400) °C	0.14 °C	
	(400 to 600) °C	0.15 °C	
	(600 to 630) °C	0.17 °C	
	Pt 385 (500 Ω)		
	(-200 to -80) °C	0.05 °C	
	(-80 to 0) °C	0.06 °C	
	(0 to 100) °C	0.06 °C	
	(100 to 260) °C	0.07 °C	
	(260 to 300) °C	0.09 °C	
	(300 to 400) °C	0.09 °C	
	(400 to 600) °C	0.10 °C	
	(600 to 630) °C	0.12 °C	
	Pt 385 (1 000 Ω)		
	(-200 to -80) °C	0.04 °C	
(-80 to 0) °C	0.04 °C		
(0 to 100) °C	0.05 °C		
(100 to 260) °C	0.06 °C		
(260 to 300) °C	0.07 °C		
(300 to 400) °C	0.08 °C		
(400 to 600) °C	0.08 °C		
(600 to 630) °C	0.24 °C		
Ni 385 (120 Ω)			
(-80 to 0) °C	0.09 °C		
(0 to 100) °C	0.09 °C		
(100 to 260) °C	0.15 °C		



ANSI National Accreditation Board

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Electrical Simulation of RTD Devices – Generate ¹	Cu 427 (10 Ω) (-100 to 260) °C	0.31 °C	Fluke 5500A Multiproduct Calibrator

Electrical – RF/Microwave

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
RF/Microwave Power – Generate & Measure ¹	100 kHz to 4.2 GHz (-30 to +20) dBm	0.13 dB	Keysight 8482A Power Sensor, Keysight E4418B Power Meter, Signal Generator
	10 MHz to 26.5 GHz (-30 to +20) dBm	0.11 dB	Keysight 8485A Power Sensor, Keysight E4418B Power Meter, Signal Generator
	10 MHz to 18 GHz (-70 to -20) dBm	0.13 dB	Keysight 8481D Power Sensor, Keysight E4418B Power Meter, Signal Generator
Attenuation – Measure or Tuned RF Power 2.5 MHz to 18 GHz	(0 to 10) dB	0.15 dB	Keysight 8902A Measuring Receiver, Keysight 11793A Microwave Converter
	(-10 to 0) dB	0.15 dB	
	(-20 to -10) dB	0.15 dB	
	(-30 to -20) dB	0.15 dB	
	(-40 to -30) dB	0.15 dB	
	(-50 to -40) dB	0.15 dB	
	(-60 to -50) dB	0.17 dB	
	(-70 to -60) dB	0.17 dB	
	(-80 to -70) dB	0.2 dB	
	(-90 to -80) dB	0.22 dB	
	(-100 to -90) dB	0.22 dB	
	(-110 to -100) dB	0.33 dB	
	(-120 to -110) dB	0.43 dB	
(-127 to -120) dB	0.43 dB		



ANSI National Accreditation Board

Electrical – RF/Microwave

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Amplitude Modulation – Measure 150 kHz to 10 MHz 10 MHz to 1.3 GHz 10 MHz to 1.3 GHz (1.3 to 26.5) GHz (1.3 to 26.5) GHz	Rate: 50 Hz to 10 kHz Depths: 5 % to 99 % Rate: 50 Hz to 50 kHz Depths: 5 % to 99 % Rate: 20 Hz to 100 kHz Depths: Up to 99 % Rate: 20 Hz to 100 kHz Depths: 5 % to 99 % Rate: 20 Hz to 100 kHz Depths: Up to 99%	2.3 % of reading 1.2 % of reading 3.5 % of reading 1.8 % of reading 3.5 % of reading	Agilent 8902A Measuring Receiver
Frequency Modulation – Measure Carrier Frequency: 250 kHz to 10 MHz 10 MHz to 1.3 GHz	Rate: 20 Hz to 10 kHz Dev.: ≤ 40 kHz peak Rate: 20 Hz to 200 kHz Dev.: ≤ 400 kHz peak	2.3 % of reading 5.8 % of reading	Keysight 8902A Measuring Receiver
Frequency Modulation – Measure Carrier Frequency: (1.3 to 26.5) GHz	Rate: 20 Hz to 200 kHz Dev.: ≤ 400 kHz peak	5.8 % of reading	Keysight 8902A Measuring Receiver
Phase Modulation – Measure 10 MHz to 1.3 GHz 1.3 GHz to 26.5 GHz	Rate: 200 Hz 20 kHz Dev.: .1 to 400 rad Rate: 200 Hz 20 kHz Dev.: > .1 to 400 rad	3.5 % of reading 4.6 % of reading	Agilent 8902A Measuring Receiver, Keysight 11722A / 11792A Sensor Modules

Length – Dimensional Metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Height Gage ^{1,2}	(0 to 24) in	(22 + 13L) μin	Grade B Gage Blocks, Height Gage, Repeat-o-meter
Micrometer ¹	(0 to 1) in	16 μin/in	Grade B Gage Blocks
Calipers ^{1,2}	(0 to 36) in	(345 + 5L) μin	Grade B Gage Blocks

Length – Dimensional Metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Caliper – Parallelism ¹	(0.15 to 0.500) in	8.8 μin/in	Pin Gage
Pin Gages ²	(0.25 to 1.18) in	(16 + 6L) μin	Keyence LS-7010 Laser Micrometer, Master Pin Gages
	(0.002 to 0.24) in	10 μin	Keyence LS-7030 Laser Micrometer, Master Pin Gages
External Diameter ² (Pin Gages, Set Plugs, etc)	(0 to 12) in	(4.5 + 5.6L) μin	Universal Length Measuring Machine
Internal Diameter ²	(0.04 to 3) in	(9.4 + 3.2L) μin	Universal Length Measuring Machine
Radius Gages ²	(0.031 25 to 1) in	(291 to 98L) μin	Universal Length Measuring Machine
Gage Blocks ²	Up to 12 in	(1.5 + 5.7L) μin	Universal Length Measuring Machine, Master Gage Blocks

Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Laboratory Balances ¹ (0.000 1 g Resolution) (0.001 g Resolution) (0.01 g Resolution)	(0 to 60) g (0 to 210) g (0 to 3 000) g	0.22 mg 2.2 mg 22 mg	ASTM E617 Class 1 Weights and NIST Handbook 44 utilized for the calibration of the weighing system.
Industrial Scales ¹ (0.000 2 lb Resolution) (0.001 lb Resolution) (0.002 lb Resolution) (0.005 lb Resolution) (0.01 lb Resolution) (0.05 lb Resolution) (0.1 lb Resolution) (0.2 g Resolution)	(0 to 2) lb (0 to 35) lb (0 to 50) lb (0 to 100) lb (0 to 100) lb (0 to 500) lb (0 to 500) lb (0 to 25) kg	0.000 5 lb 0.003 lb 0.006 lb 0.013 lb 0.023 lb 0.12 lb 0.23 lb 0.47 g	NIST Class F Weights and NIST Handbook 44 utilized for the calibration of the weighing system.
Force Gages – Tension ¹	(1 to 110) lbf	0.06 lb	NIST Class F Weights & Hangers



ANSI National Accreditation Board

Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Durometers – Spring Force Only Types A, B, O, C, D, DO	209.04 g to 4.079 kgf	0.01 % of reading	ASTM E617 Class 1 Weights, Triple Beam Balance
Pressure – Measure/Generate ¹	Up to 5 psig	0.005 psi	Fluke 718-300 Pressure Calibrator, Fluke 700P03 Pressure Module
	(0 to 300) psig	0.059 % of reading	Fluke 718-300 Calibrator
	(1 to 2 000) psig (2 000 to 5 000) psig (5 000 to 10 000) psig	0.072 % of reading 0.063 % of reading 0.064 % of reading	Condec UPC5200A Pressure Calibrator
Torque –Tools ¹	(40 to 200) ozf·in (4 to 50) lbf·in (30 to 400) lbf·in (80 to 1 000) lbf·in (20 to 250) lbf·ft (60 to 600) lbf·ft	0.29% of reading 0.29 % of reading 0.29 % of reading 0.3 % of reading 0.34 % of reading 0.59 % of reading	Torque Transducers
Torque – Analyzers/Transducers	(40 to 200) ozf·in (4 to 50) lbf·in (30 to 400) lbf·in (80 to 1 000) lbf·in (20 to 250) lbf·ft (60 to 600) lbf·ft	0.044 % of reading 0.044 % of reading 0.044 % of reading 0.044 % of reading 0.054 % of reading 0.096 % of reading	Torque Arm, Weights, Weight Hanger, Torque Wheels

Thermodynamic

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Temperature – Generate/Measure ¹	(-25 to 420) °C	0.04 °C	Fluke Blackstack Readout, SPRT, Heat Source
	(420 to 1 200) °C	0.32°C	Fluke Blackstack Readout, Type-S Thermocouple Probe, Heat Source
Infrared Thermometers ¹	(0 to 500) °C	0.91°C	Comparison to SPRT w/ Fluke 9132A Blackbody Calibrator $\epsilon = 0.95, \lambda = (8 \text{ to } 14) \mu\text{m}$

Thermodynamic

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Humidity – Generate	(10 to 90) %RH	0.074 %RH	Thunder Scientific Chamber, Psychrometer

Time and Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Frequency – Measure/Generate	10 Hz to 26.5 GHz	50 pHz/Hz	GPS Disciplined Oscillator, Signal Generators, Universal Counters

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. On-site calibration service is available for this parameter, since on-site conditions are typically more variable than those in the laboratory, larger measurement uncertainties are expected on-site than what is reported on the accredited scope.
2. L = length in inches, T = time in seconds.
3. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-2548.



R. Douglas Leonard Jr., VP, PILR SBU