



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

LAW CALIBRATION, LLC.
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CALIBRATION

Valid To: May 31, 2018

Certificate Number: 2398.01

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/Equipment	Range	CMC ^{2,5} (\pm)	Comments
Calipers ³	Up to 30 in	(370 + 10L) μ in	Caliper master/gage blocks/length standards
Dial Indicators ³	Up to 6 in	16 μ in	Gage blocks
Digital Indicators ³	Up to 6 in	31 μ in + 0.6R	Gage blocks
Height Gages & Linear Scales ³	Up to 40 in	(160 + 21L) μ in	Gage blocks & length standards
Micrometers ³	Up to 12 in	(50 + 10L) μ in	Gage blocks & length standards

II. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ^{2,4} (\pm)	Comments
AC Voltage – Measure, 60 Hz Only	(0 to 2) mV (0 to 200) mV	0.13 mV 1.1 mV	Fluke 8842A

Parameter/Equipment	Range	CMC ^{2,4} (\pm)	Comments
AC Voltage – Measure, 60 Hz Only (cont)	(0 to 1) V (1 to 2) V (2 to 20) V (20 to 200) V (200 to 700) V	0.006 mV 0.011 V 0.11 V 1.1 V 4.4 V	Fluke 8842A
AC Current – Measure, 60 Hz Only	(0 to 200) mA 200 mA to 2 A	1.2 mA 12 mA	Fluke 8842A
DC Voltage – Measure	(0 to 20) mV (20 to 200) mV 200 mV to 2 V (2 to 20) V (20 to 200) V (200 to 1000) V	0.0058 mV 5.1 μ V + 0.08 μ V/mV 0.0001 V 0.0011 V 0.011 V 0.075 V	Fluke 8842A
DC Current – Measure	(0 to 200) mA 200 mA to 2 A	0.17 mA 2.4 mA	Fluke 8842A
Resistance –Measure	(0 to 20) Ω (20 to 200) Ω 200 Ω to 2 k Ω (2 to 20) k Ω (20 to 200) k Ω 200 k Ω to 2 M Ω (2 to 20) M Ω	0.012 % + 4.0 m Ω 0.010 % + 4.0 m Ω 80 $\mu\Omega/\Omega$ 80 $\mu\Omega/\Omega$ 0.010 % + 30 Ω 0.027 % + 300 Ω 0.042 % + 400 Ω	Fluke 8842A
Electrical Simulation of Thermocouples ³ –			
Type J	(-210 to 0) $^{\circ}$ C (0 to 1200) $^{\circ}$ C	0.73 $^{\circ}$ C 0.51 $^{\circ}$ C	Fluke 5500A
Type K	(-200 to 0) $^{\circ}$ C (0 to 1372) $^{\circ}$ C	0.73 $^{\circ}$ C 0.51 $^{\circ}$ C	
Type T	(-250 to 0) $^{\circ}$ C (0 to 400) $^{\circ}$ C	0.73 $^{\circ}$ C 0.51 $^{\circ}$ C	

III. Mechanical

Parameter/Equipment	Range	CMC ² (±)	Comments
Pressure ³ – Pneumatic	(0 to 100) psi (100 to 200) psi (200 to 300) psi (300 to 400) psi (400 to 500) psi	0.13 psi 0.24 psi 0.36 psi 0.47 psi 0.56 psi	Pressure calibrator
Mass – ASTM E617 Class 2 to 7; OIML Class F1, F2, M1 & M2	(1 to 50) mg (100 to 500) mg 1 g 2 g 3 g 5 g 10 g 20 g 30 g 50 g 100 g 200 g 300 g 500 g 1 kg	0.0038 mg 0.0043 mg 0.0043 mg 0.0048 mg 0.011 mg 0.0087 mg 0.015 mg 0.017 mg 0.042 mg 0.075 mg 0.091 mg 0.18 mg 0.35 mg 1.3 mg 1.3 mg	Direct comparison using NIST double substitution weighing design with ASTM E617 Class 1 reference standards
NIST 105-1 Class F	2 kg 5 kg 10 kg 20 kg 25 kg 0.45 kg (1 lb) 9.1 kg (20 lb) 11.34 kg (25 lb) 22.68 kg (50 lb)	20 mg 150 mg 230 mg 230 mg 230 mg 30 mg 260 mg 230 mg 230 mg	Verification per NIST HB 105-1 acceptance & maintenance tolerances with ASTM Class 1 and NIST 105-1 Class F reference standards
Vacuum ³ – Pneumatic	0.09 mm·Hg 0.19 mm·Hg 0.47 mm·Hg 0.93 mm·Hg 1.87 mm·Hg 46.66 mm·Hg 93.32 mm·Hg	0.073 mm·Hg 0.086 mm·Hg 0.084 mm·Hg 0.11 mm·Hg 0.11 mm·Hg 0.10 mm·Hg 0.32 mm·Hg	Vacuum/pressure calibrator



Parameter/Equipment	Range	CMC ^{2,5} (±)	Comments
Balances & Scales ³ (cont) –			
Fixed Points	700 lb 800 lb 900 lb 1000 lb 1500 lb 2000 lb (> 2000 to 8000) lb	1.4 oz (39 g) 1.6 oz (45 g) 1.8 oz (50 g) 2.0 oz (56 g) 2.3 oz (64 g) 3.4 oz (94 g) 0.21 lb (94 g) + 0.60R	Direct comparison with NIST Class F weights per NIST HB 44 By substitution with NIST Class F weights per NIST HB 44

IV. Thermodynamic

Parameter/Equipment	Range	CMC ² (±)	Comments
Temperature –			Comparison with Fluke/Hart digital thermometer readout and PRT probe:
Ice Point	0 °C	0.019 °C	ASTM E563-97
Measuring Equipment	(-20 to 0) °C (0 to 130) °C (200 to 230) °C (300 to 500) °C (> 500 to 600) °C	0.019 °C 0.027 °C 0.032 °C 0.073 °C 1.0 °C	NIST SP 250-23 and monitored temperature baths and dry well
Fixed Point	-78 °C	0.023 °C	

¹ This laboratory offers commercial calibration service and field 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. CMC's 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 and this laboratory meets A2LA R104 – *General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these calibrations. 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 with the Fluke 8842A series of instruments. This capability is suitable for the calibration of the devices intended to measure the stated 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, L is the numerical value of the nominal length of the device measured in inches. In the statement of CMC, R is the numerical value of the resolution of the device in micrometers.

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Accredited Laboratory

A2LA has accredited

LAW CALIBRATION, LLC

Saco, ME

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 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 10th day of March 2016.

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President and CEO
For the Accreditation Council
Certificate Number 2398.01
Valid to May 31, 2018
Revised April 26, 2018

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