



THE AMERICAN ASSOCIATION FOR
LABORATORY ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

Q.C. SERVICES, INC.

Harrison, 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 the requirements of ANSI/NCSL Z540-1-1994 and any additional program requirements in the field of calibration. 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 18 June 2005*).

Presented this 20th day of May 2008.

A handwritten signature in black ink, appearing to read "Peter Mlynski", written over a horizontal line.

President
For the Accreditation Council
Certificate Number 2398.01
Valid to February 28, 2010



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

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

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CALIBRATION

Valid To: February 28, 2010

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	Best Uncertainty ² (\pm)	Comments
Calipers ⁵	(0 to 30) in	370 μ in + 10L	Caliper master/gage blocks/length standards
Dial Indicators ⁵	(0 to 4) in	16 μ in	Gage blocks
Digital Indicators ⁵	(0 to 4) in	31 μ in + 0.6R	Gage blocks
Height Gages & Linear Scales ⁵	(0 to 40) in	44 μ in + 14L	Gage blocks and length standards
Micrometers ⁵	(0 to 12) in	50 μ in + 10L	Gage blocks/length standards

Parameter/Equipment	Range	Best Uncertainty ² (±)	Comments
Optical Comparators – Measuring Scopes	(0 to 30) in	180 μin (4.8 microns)	Glass scale

II. Thermodynamic

Parameter/Equipment	Range	Best Uncertainty ² (±)	Comments
Temperature – Measuring Equipment			
Ice Point	0 °C	0.014 °C	ASTM E563-97
Fixed Points	0 °C	0.023 °C	By comparison NIST SP250-23 with temperature baths and dry well temperature standards
	20 °C	0.046 °C	
	50 °C	0.045 °C	
	100 °C	0.070 °C	
	130 °C	0.049 °C	
	200 °C	0.21 °C	
	300 °C	0.44 °C	
	400 °C	0.52 °C	
	500 °C	0.70 °C	

III. Mechanical

Parameter/Equipment	Range	Best Uncertainty 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

Parameter/Equipment	Range	Best Uncertainty ² (±)	Comments
Balances & Scales ³ –	(1 to 200) mg	0.003 mg	Class 1 weights direct comparison
Fixed Points	500 mg	0.005 mg	
	1 g	0.006 mg	
	2 g	0.005 mg	
	5 g	0.008 mg	
	10 g	0.010 mg	
	20 g	0.019 mg	
	50 g	0.037 mg	
	100 g	0.071 mg	
	120 g	0.090 mg	
	150 g	0.11 mg	
	180 g	0.14 mg	
	200 g	0.15 mg	
	300 g	0.19 mg	
	400 g	0.29 mg	
	500 g	0.18 mg	
	600 g	0.23 mg	
	700 g	0.29 mg	
	800 g	0.39 mg	
	900 g	0.60 mg	
	1 kg	0.91 mg	
	2 kg	2.5 mg	
	4 kg	5.4 mg	
	5 kg	6.3 mg	
	6 kg	8.4 mg	
	10 kg	580 mg	
	20 kg	580 mg	
	30 kg	580 mg	
	50 lb	0.11 oz (2.9 g)	Class F weights direct comparison HB44
	100 lb	0.20 oz (5.6 g)	
	200 lb	0.43 oz (12 g)	
	300 lb	0.60 oz (17 g)	
	400 lb	0.82 oz (23 g)	
	500 lb	0.99 oz (28 g)	
	600 lb	1.2 oz (34 g)	
	700 lb	1.4 oz (39 g)	
	800 lb	1.6 oz (45 g)	
	900 lb	1.8 oz (50 g)	
	1000 lb	2.0 oz (56 g)	
	1500 lb	2.3 oz (64 g)	
	2000 lb	3.4 oz (94 g)	
	≥ 2000 lb	94 g + 0.6R	

IV. Electrical – DC/Low Frequency

Parameter/Equipment	Range	Best Uncertainty ^{2,4} (\pm)	Comments
AC Voltage – Measure 60 Hz only	(0 to 2) mV (0 to 200) mV (0 to 1) V (1 to 2) V (2 to 20) V (20 to 200) V (200 to 700) V	0.13 mV 1.1 mV 0.006 mV 0.011 V 0.11 V 1.1 V 1.4 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 0.020 mV 0.00010 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 – Generate & Source Fixed Values	1 Ω 10 Ω 100 Ω 1 k Ω 10 k Ω 100 k Ω 1 M Ω	0.0034 Ω 0.00067 Ω 0.067 Ω 0.0067 k Ω 0.067 k Ω 0.00067 M Ω	YSI 3166 Resistance calibration set
Electrical Simulation of Thermocouples and RTD's ³ Type K, J, and T RTD	-210 $^{\circ}\text{C}$ (0 to 1371) $^{\circ}\text{C}$ (-195 to 815) $^{\circ}\text{C}$	0.7 $^{\circ}\text{C}$ 0.4 $^{\circ}\text{C}$ 0.40 $^{\circ}\text{C}$	Micromite II temperature simulator (ITS-90)

V. Chemical

Parameter/Equipment	Range	Best Uncertainty ^{2,3} (\pm)	Comments
pH Meter –	± 177.48 mVdc 0 mVdc	0.037 mV 0.0095 mV	Fluke 8842A, and mV calibration of meter and buffer solution validation of meter with probe
with Probe	4 pH 7 pH 10 pH	0.015 pH 0.015 pH 0.015 pH	pH buffer solutions

¹ This laboratory offers commercial and on-site calibration service.

² “Best Uncertainty” 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 of nearly ideal measuring equipment. Best uncertainties represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The best uncertainty of a specific calibration performed by the laboratory may be greater than the best uncertainty due to the behavior of the customer’s device and to influences from the circumstances of the specific calibration.

³ On-site calibration is available for this parameter. The uncertainties achievable on a customer's site can normally be expected to be larger than the Best Measurement Capabilities (BMC) that the accredited laboratory has been assigned as Best Uncertainty 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 uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the calibration uncertainty being larger than the BMC.

The best uncertainty stated for calibrations performed in the laboratory is applicable for calibrations performed on-site.

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. Best measurement uncertainties 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 best uncertainty, L is the numerical value of the nominal length of the device measured in inches. In the statement of best uncertainty, R is the numerical value of the resolution of the device in microinches.