



World Class Accreditation

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 8 January 2009*).

Presented this 16<sup>th</sup> day of March 2010.



  
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President & CEO

For the Accreditation Council  
Certificate Number 2398.01  
Valid to February 29, 2012

*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

Q.C. SERVICES, INC.  
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 Harrison, ME 04040  
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CALIBRATION

Valid To: February 29, 2012

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 calibrations<sup>1</sup>:

I. Chemical

Parameter/Equipment	Range	CMC <sup>2,3</sup> (±)	Comments
pH Meter	± 177.48 mVdc 0 mVdc	0.037 mV 0.0095 mV	Fluke 8842A

II. Dimensional

Parameter/Equipment	Range	CMC <sup>2,5</sup> (±)	Comments
Calipers	(0 to 30) in	370 µin + 10L	Caliper master/gage blocks/length standards
Dial Indicators	(0 to 4) in	16 µin	Gage blocks
Digital Indicators	(0 to 4) in	31 µin + 0.6R	Gage blocks

Parameter/Equipment	Range	CMC <sup>2,5</sup> (±)	Comments
Optical Comparators – Measuring Scopes	(0 to 30) in	180 μin (4.8 microns)	Glass scale
Height Gages & Linear Scales	(0 to 40) in	44 μin + 14L	Gage blocks & length standards
Micrometers	(0 to 12) in	50 μin + 10L	Gage blocks & length standards

### III. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC <sup>2,4</sup> (±)	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 0.0001 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

*Peter Abney*

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Resistance – Generate & Source  Fixed Values	1 Ω 10 Ω 100 Ω 1 kΩ 10 kΩ 100 kΩ 1 MΩ	0.0034 Ω 0.00067 Ω 0.067 Ω 0.67 Ω 0.0067 kΩ 0.067 kΩ 0.00067 MΩ	YSI 3166 Resistance calibration set
Electrical Simulation of Thermocouples and RTD's <sup>3</sup>  Type K, J, and T  RTD	-210 °C (0 to 1371) °C  (-195 to 815) °C	0.7 °C 0.4 °C  0.4 °C	Micromite II temperature simulator (ITS-90)

#### IV. Mechanical

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Pressure <sup>3</sup> – 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

*Peter Abney*



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

*Peter Meyer*

V. Thermodynamic

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Temperature – Measuring Equipment			
Ice Point	0 °C	0.014 °C	ASTM E563-97
Generate	-20 °C to 130°C 200 °C 300 °C 400 °C 500 °C	0.049 °C 0.21 °C 0.44 °C 0.52 °C 0.70 °C	By comparison NIST SP250-23 with temperature baths and dry well temperature standards
Fixed Point	-78°C	0.049 °C	

<sup>1</sup> This laboratory offers commercial calibration service and field calibration service.

<sup>2</sup> Calibration and Measurement Capability (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. Calibration and Measurement Capabilities 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.

<sup>3</sup> 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.

<sup>4</sup> 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.

<sup>5</sup> 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 microinches.

