



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

GUILDLINE INSTRUMENTS LIMITED
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CALIBRATION

Valid To: February 29, 2016

Certificate Number: 2906.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations¹:

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range ³	CMC ^{2,4} (±)	Comments
DC Resistance – Generate and Measure			
Fixed Decade Points	1 μΩ 10 μΩ 100 μΩ 1 mΩ 10 mΩ 100 mΩ	0.03 % 100 μΩ/Ω 15 μΩ/Ω 5.0 μΩ/Ω 3.0 μΩ/Ω 0.5 μΩ/Ω	Guidline DC comparator bridges 9975 and 6622, Guidline high current range extenders 9923 and 6623A, Guidline resistance standards 9330, 9334, 9334A, 6634, and 6634TS, oil bath, air bath
	1 Ω 10 Ω 100 Ω 1 kΩ 10 kΩ 100 kΩ 1 MΩ 10 MΩ 100 MΩ	0.32 μΩ/Ω 0.35 μΩ/Ω 0.4 μΩ/Ω 0.35 μΩ/Ω 0.32 μΩ/Ω 0.47 μΩ/Ω 4.0 μΩ/Ω 5.0 μΩ/Ω 18 μΩ/Ω	Guidline DC comparator bridge 6622, Guidline resistance standards 9330, 9334, 9334A, 6634, and 6634TS, oil bath, air bath

Parameter/Equipment	Range ³	CMC ^{2,4} (±)	Comments
DC Resistance – Generate and Measure (cont)			
Fixed Decade points	1 GΩ 10 GΩ 100 GΩ 1 TΩ 10 TΩ 100 TΩ 1 PΩ 10 PΩ	30 μΩ/Ω 60 μΩ/Ω 0.012 % 0.018 % 0.024 % 0.05 % 1.0 % 10 %	Resistance substitution method, Guildline 6520 and 6530 teraohmmeter, Guildline standard resistors 9334, 9336, and 9337, air bath
DC Resistance – Measure, Decade Ranges	(1 to 10) μΩ (10 to 100) μΩ 100 μΩ to 1 mΩ (1 to 10) mΩ (10 to 100) mΩ 100 mΩ to 1 Ω (1 to 10) Ω (10 to 100) Ω 100 Ω to 1 kΩ (1 to 10) kΩ (10 to 100) kΩ 100 kΩ to 1 MΩ (1 to 10) MΩ (10 to 100) MΩ 100 MΩ to 1 GΩ 100 MΩ to 1 GΩ (1 to 10) GΩ (10 to 100) GΩ 100 GΩ to 1 TΩ (1 to 10) TΩ (10 to 100) TΩ 100 TΩ to 1 PΩ	0.03 % 0.01 % 16 μΩ/Ω 5.5 μΩ/Ω 3.5 μΩ/Ω 0.6 μΩ/Ω 0.35 μΩ/Ω 0.35 μΩ/Ω 0.42 μΩ/Ω 0.42 μΩ/Ω 0.5 μΩ/Ω 3.5 μΩ/Ω 5.0 μΩ/Ω 18 μΩ/Ω 30 μΩ/Ω 60 μΩ/Ω 0.012 % 0.018 % 0.024 % 0.05 % 0.15 % 2.0 %	Guildline DC comparator bridges 9975 and 6622, Guildline high current range extenders 9923 and 6623A, Guildline resistance standards 9330, 9334, 9334A, 6634, and 6634TS, oil bath, air bath Guildline DC comparator bridge 6622, Guildline resistance standards 9330, 9334, 9334A, 6634, and 6634TS, oil bath, air bath Guildline 6520 teraohmmeter, Guildline standard resistances 9336 and 9337, air bath

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
DC Current – Generate	100 fA to 1 pA (1 to 10) pA (10 to 100) pA 100 pA to 1 nA (1 to 10) nA (10 to 100) nA 100 nA to 1 µA (1 to 10) µA (10 to 100) µA 100 µA to 1 mA (1 to 10) mA (10 to 100) mA 100 mA to 1 A	0.15 % 0.3 % 0.15 % 0.15 % 0.15 % 0.06 % 0.03 % 0.02 % 0.015 % 0.01 % 0.01 % 0.015 % 0.03 %	Guildline standard resistances 9336 and 9337, Fluke 5700A, air bath Fluke 5700A
DC Current – Measure	100 fA to 1 pA (1 to 10) pA (10 to 100) pA 100 pA to 1 nA (1 to 10) nA (10 to 100) nA 100 nA to 1 µA (1 to 10) µA (10 to 100) µA 100 µA to 1 mA (1 to 10) mA (10 to 100) mA 100 mA to 1 A	7.0 % 1.5 % 0.15 % 0.04 % 0.04 % 0.03 % 0.03 % 0.03 % 0.015 % 0.01 % 0.01 % 0.015 % 0.03 %	Guildline 6520 and 6530 teraohmmeter, Datron 1271 DMM
DC Voltage – Generate and Measure	(10 to 100) mV 100 mV to 1 V (1 to 10) V (10 to 100) V (100 to 1000) V	90 µV/V 20 µV/V 15 µV/V 20 µV/V 20 µV/V	Datron 1271 DMM, Fluke 5700A

¹ This laboratory offers commercial calibration service.

² 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.

³ Where ranges are not specified, CMC stated is for the cardinal points only.

⁴ In the statement of CMC, the value is defined as the percentage of reading.



American Association for Laboratory Accreditation

Accredited Laboratory

A2LA has accredited

GUILDLINE INSTRUMENTS LIMITED

Smiths Falls, Ontario, CANADA

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 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 13th day of May 2014.



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

President & CEO
For the Accreditation Council
Certificate Number 2906.01
Valid to February 29, 2016
Revised on December 18, 2015

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