THE AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

MASY SYSTEMS, INC.

Pepperell, MA

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 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 23rd day of April 2008.

President
For the Accreditation Council
Certificate Number 2438.01
Valid to April 30, 2010

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

American Association for Laboratory Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

MASY SYSTEMS, INCORPORATED
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Pepperell, MA 01463
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CALIBRATION

Valid To April 30, 2010 Certificate Number: 2438.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations[1]:

I. Electrical – DC & Low Frequency

Parameter/Equipment	Range	Best Uncertainty[2] (±)	Comments
DC Voltage – Generate [3, 4]	(0 to 100) mV 100 mV to 1 V (1 to 10) V (10 to 100) V	14 μV/V + 2.7 μV 13 μV/V + 3.8 μV 13 μV/V + 23 μV 17 μV/V + 230 μV	Krohn-Hite 523
DC Voltage – Measure [3, 4]	(0 to 100) mV 100 mV to 1 V (1 to 10) V (10 to 100) V	8.1 μV/V + 1.2 μV 6.9 μV/V + 1.3 μV 6.9 μV/V + 2.7 μV 9.2 μV/V + 46 μV	HP 3458A w/opt 002
DC Resistance – Measure [3]	(0 to 25) Ω (25 to 400) Ω (400 to 1000) Ω (1 to 2.5) kΩ (2.5 to 40) kΩ (40 to 100) kΩ (100 to 500) kΩ	2.3 μΩ/Ω + 170 μΩ 9.0 μΩ/Ω + 11 μΩ 13 μΩ/Ω + 27 μΩ 1.9 μΩ/Ω + 28 mΩ 13 μΩ/Ω + 0.34 mΩ 35 μΩ/Ω + 10 μΩ 140 μΩ/Ω + 1 μΩ	Hart Super Thermometer II

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Parameter/Equipment	Range	Best Uncertainty[2] (±)	Comments
DC Resistance Ratio – Digital Thermometry Indicators	1:4 1:1 4:1	0.2 Ω + 2 mΩ x reading	Hart Super Thermometer II
DC Resistance – Generate [4]			
Fixed Points	1 Ω 10 Ω 25 Ω 100 Ω 400 Ω 10 kΩ	5.8 μΩ 58 μΩ 230 μΩ 580 μΩ 2.8 mΩ 58 mΩ	Precision resistors
	100 Ω	910 μΩ	GE V2020, ICAL module

II. Thermodynamics

Parameter/Equipment	Range	Best Uncertainty[2] (±)	Comments
Temperature – Measuring Equipment [3, 4]	-189 °C to 0.010 °C	0.004 m°C/°C + 1.5 m°C	Hart 5699 SPRT with Hart Super
	0.010 °C to 419 °C	0.006 m°C/°C + 1.5 m°C	Thermometer II

III. Time & Frequency

Parameter/Equipment	Range	Best Uncertainty[2] (±)	Comments
Frequency – Measure [4]	(0 to 225) MHz	1 part in 10^9	HP 53131A

[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, to the environment and to influences from the circumstances of the specific calibration.

[3] Best uncertainties are stated as a part of the reading plus a floor value.

[4] On-site calibration service is available for this calibration. 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.