

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200904-0

Masy Systems, Inc.
Pepperell, MA

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

CALIBRATION LABORATORIES

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2011-04-01 through 2012-03-31

Effective dates



Dally S. Bruce

For the National Institute of Standards and Technology



**National Voluntary
Laboratory Accreditation Program**



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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CALIBRATION LABORATORIES

NVLAP LAB CODE 200904-0

ELECTROMAGNETICS - DC/LOW FREQUENCY

NVLAP Code: 20/E05
DC Resistance – Measure ^{Note 2}

<i>Range</i>	<i>Best Uncertainty (±) ^{note 1}</i>	<i>Remarks</i>
100 Ω (ICAL Module)	910 μΩ	Hart Super Thermometer II
DC Resistance – Generate ^{Note 2}		
(0 to 100) Ω	5.8 μΩ/Ω + 0.17 μΩ	Precision Resistors
(100 to 400) Ω	5.8 μΩ/Ω + 0.59 μΩ	Precision Resistors
10 kΩ	58 mΩ	Precision Resistors

NVLAP Code: 20/E06
DC Voltage – Measure ^{Note 2}

<i>Range</i>	<i>Best Uncertainty (±) ^{note 1}</i>	<i>Remarks</i>
(0 to 100) mV	8.0 μV/V + 1.2 μV	Agilent 3458A
(0.1 to 1) V	6.9 μV/V + 1.3 μV	Agilent 3458A
(1 to 10) V	6.9 μV/V + 2.7 μV	Agilent 3458A
(10 to 100) V	9.2 μV/V + 46 μV	Agilent 3458A

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DC Voltage – Generate ^{Note 2}

<i>Range</i>	<i>Best Uncertainty (±) ^{note 1}</i>	<i>Remarks</i>
(0 to 100) mV	14 μV/V + 2.7 μV	Krohn-Hite 523
(0.1 to 1) V	13 μV/V + 3.8 μV	Krohn-Hite 523
(1 to 10) V	13 μV/V + 23 μV	Krohn-Hite 523

THERMODYNAMICS

NVLAP Code: 20/T03

Temperature Device calibration by comparison to High Quality PRT ^{Note 2}

<i>Range in °C</i>	<i>Best Uncertainty (±) ^{note 1}</i>	<i>Remarks</i>
-196 to 0	0.02 mK/K + 12 mK	LN ₂ or Refrigerated Liquid Bath
0 to 420	0.05 mK/K + 12 mK	Heated Fluid or Salt Bath

Temperature Measure ^{Note 2}

-196 to 0	18 mK	Digital Thermometer with PRT
0 to 420	0.06 mK/K + 17 mK	Digital Thermometer with PRT

NVLAP Code: 20/T07

Resistance Thermometry

SPRT calibration by Fixed Point Cells

<i>Range in °C</i>	<i>Best Uncertainty (±) in mK ^{note 1}</i>	<i>Remarks</i>
-189.3442 (ArTP)	2.4	Argon Triple Point Cell
-38.8344 (HgTP)	1.6	Mercury Triple Point Cell
0.010 (H ₂ OTP)	1.1	Water Triple Point Cell
231.928 (SnFP)	2.1	Tin Freezing Point Cell
419.527 (ZnFP)	3.5	Zinc Freezing Point Cell

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IRTD calibration by comparison to SPRT

-196	6.2	LN ₂ Bath
0	4.1	Liquid Bath
100	4.6	Heated Fluid Bath
400	8.3	Salt Bath

High Quality PRT calibration by comparison to SPRT

-196	6.1	LN ₂ Bath
-39	4.1	Refrigerated Liquid Bath
0.01(H ₂ OTP)	1.1	Water Triple Point Cell
232	5.9	Heated Fluid Bath
420	19	Salt Bath

PRT calibration by comparison to High Quality PRT

-196	16	LN ₂ Bath
-39	12	Refrigerated Liquid Bath
0	12	Liquid Bath
157	15	Heated Fluid Bath
232	15	Heated Fluid Bath
420	32	Salt Bath

NVLAP Code: 20/T08

Type T Ultra Premium Thermocouple

0	43	Liquid Bath
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1. Represents an expanded uncertainty using a coverage factor, $k = 2$, at an approximate level of confidence of 95 %.
2. On-Site calibrations available for this measurement area.

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