



**National Voluntary  
Laboratory Accreditation Program**



**SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005**

**National Standards of Puerto Rico**

281 Jesus T. Pintero Avenue  
P.O. Box 11936  
Rio Piedras, PR 00922-1936  
Mr. Denio Hernandez Osorio  
Phone: 787-765-5564 Fax: 787-751-5920  
E-mail: denio@inscointernational.com

**CALIBRATION LABORATORIES**

**NVLAP LAB CODE 200454-0**

*NVLAP Code:* 20/A01                      ANSI/NCSL Z540-1-1994; Part 1                      Compliant

**MECHANICAL**

*NVLAP Code:* 20/M08  
Mass

<i>Nominal Value</i> <sup>note 6</sup>	<i>Best Uncertainty</i> ( $\pm$ ) <sup>note 1</sup>	<i>Remarks</i>
20 kg	5.7 mg	Echelon I
10 kg	1.5 mg	Echelon I
5 kg	0.75 mg	Echelon I
3 kg	0.75 mg	Echelon I
2 kg	0.24 mg	Echelon I
1 kg	49 $\mu$ g	Echelon I
500 g	28 $\mu$ g	Echelon I
300 g	28 $\mu$ g	Echelon I
200 g	19 $\mu$ g	Echelon I
100 g	15 $\mu$ g	Echelon I
50 g	9.6 $\mu$ g	Echelon I
30 g	9.6 $\mu$ g	Echelon I
20 g	6.0 $\mu$ g	Echelon I
10 g	4.3 $\mu$ g	Echelon I
5 g	1.7 $\mu$ g	Echelon I
3 g	1.7 $\mu$ g	Echelon I

2009-07-01 through 2010-06-30

*Effective dates*

*Sally S. Bruce*

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2 g	1.2 µg	Echelon I
1 g	1.0 µg	Echelon I
500 mg	0.58 µg	Echelon I
300 mg	0.58 µg	Echelon I
200 mg	0.44 µg	Echelon I
100 mg	0.43 µg	Echelon I
50 mg	0.51 µg	Echelon I
30 mg	0.51 µg	Echelon I
20 mg	0.42 µg	Echelon I
10 mg	0.47 µg	Echelon I
5 mg	0.41 µg	Echelon I
3 mg	0.41 µg	Echelon I
2 mg	0.20 µg	Echelon I
1 mg	0.26 µg	Echelon I
20 kg	5.5 mg	Echelon II
10 kg	1.9 mg	Echelon II
5 kg	0.80 mg	Echelon II
3 kg	0.80 mg	Echelon II
2 kg	0.37 mg	Echelon II
1 kg	48 µg	Echelon II
500 g	30 µg	Echelon II
300 g	30 µg	Echelon II
200 g	22 µg	Echelon II
100 g	21 µg	Echelon II
50 g	10 µg	Echelon II
30 g	10 µg	Echelon II
20 g	7.1 µg	Echelon II
10 g	6.1 µg	Echelon II
5 g	2.7 µg	Echelon II
3 g	2.7 µg	Echelon II
2 g	2.6 µg	Echelon II
1 g	2.6 µg	Echelon II
500 mg	3.2 µg	Echelon II
300 mg	3.2 µg	Echelon II

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200 mg	1.8 µg	Echelon II
100 mg	2.7 µg	Echelon II
50 mg	2.0 µg	Echelon II
30 mg	2.0 µg	Echelon II
20 mg	2.1 µg	Echelon II
10 mg	1.9 µg	Echelon II
5 mg	1.7 µg	Echelon II
3 mg	1.7 µg	Echelon II
2 mg	1.5 µg	Echelon II
1 mg	1.5 µg	Echelon II

### Single Substitution

20 kg	5.7 mg	Echelon III
10 kg	1.7 mg	Echelon III
5 kg	0.79 mg	Echelon III
3 kg	0.79 mg	Echelon III
2 kg	0.27 mg	Echelon III
1 kg	51 µg	Echelon III
500 g	35 µg	Echelon III
300 g	35 µg	Echelon III
200 g	32 µg	Echelon III
100 g	22 µg	Echelon III
10 g	4.7 µg	Echelon III
5 g	3.1 µg	Echelon III
3 g	3.1 µg	Echelon III
2 g	1.3 µg	Echelon III
1 g	1.9 µg	Echelon III

### Modified Substitution

50 kg	14 mg	Echelon III
30 kg	14 mg	Echelon III
20 kg	14 mg	Echelon III
10 kg	1.8 mg	Echelon III
5 kg	1.4 mg	Echelon III
3 kg	1.2 mg	Echelon III

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2 kg	1.2 mg	Echelon III
1 kg	1.2 mg	Echelon III
500 g	0.12 mg	Echelon III
300 g	0.12 mg	Echelon III
200 g	0.12 mg	Echelon III
100 g	0.12 mg	Echelon III
50 g	0.12 mg	Echelon III
30 g	10 µg	Echelon III
20 g	7.3 µg	Echelon III
10 g	6.0 µg	Echelon III
5 g	5.3 µg	Echelon III
3 g	18 µg	Echelon III
2 g	18 µg	Echelon III
1 g	18 µg	Echelon III
500 mg	18 µg	Echelon III
300 mg	6.1 µg	Echelon III
200 mg	6.0 µg	Echelon III
100 mg	6.0 µg	Echelon III
50 mg	6.0 µg	Echelon III
30 mg	6.0 µg	Echelon III
20 mg	6.0 µg	Echelon III
10 mg	6.0 µg	Echelon III
5 mg	6.0 µg	Echelon III
3 mg	6.0 µg	Echelon III
2 mg	6.0 µg	Echelon III
1 mg	6.0 µg	Echelon III

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## CALIBRATION LABORATORIES

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### THERMODYNAMIC

**NVLAP Code:** 20/T03

Liquid in Glass Thermometers *note 2*

<b>Range in °C</b>	<b>Best Uncertainty (±) in mk <i>note 1</i></b>
-80 to -40	52.2
-40 to -20	52.9
-20 to 0	54.9
0 ( Ice Point )	52.2
0 to 50	55.1
50 to 150	53.4
150 to 200	53.4
200 to 250	54.9

**NVLAP Code:** 20/T04

Platinum Resistance Thermometers by Comparison *note 3*

<b>Range in °C</b>	<b>Best Uncertainty (±) in mk <i>note 1</i></b>
-196 to -80	9.6
-80 to -40	5.7
-40 to -20	10.3
-20 to 0	17.9
0.01	2.0
0 to 50	18.8
50 to 100	18.8
100 to 200	13.0
200 to 250	18.4
250 to 420	29.7

**NVLAP Code:** 20/T07

Resistance Thermometry – ITS 90 Fixed Point

<b>Value in °C</b>	<b>Best Uncertainty (±) in mk <i>note 1</i></b>	<b>Remarks</b>
419.527	8.8	Zn FP
231.928	7.2	Sn FP

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156.5985	4.8	In FP
0.01 ( TPW )	2.0	H <sub>2</sub> O TP
-38.8344	2.8	Hg TP
-189.3442	9.6	Liq. LN2

**NVLAP Code:** 20/T06  
Thermocouples <sup>note 4</sup>

<b>Range in °C</b>	<b>Best Uncertainty (±) in mk <sup>note 1</sup></b>
-196 to -80	29.9
-80 to -40	21.2
-40 to -20	21.4
-20 to 0	45.0
0 ( Ice Point )	15.4
0 to 50	127.2
50 to 100	139.4
100 to 200	125.2
200 to 250	124.3
250 to 420	626.2
420 to 800	1645
800 to 1100	1575

**NVLAP Code:** 20/T08  
Digital Thermometer <sup>note 5</sup>

<b>Range in °C</b>	<b>Best Uncertainty (±) in mk <sup>note 1</sup></b>
-196 to -80	42.8
-80 to -40	42.0
-40 to -20	42.9
-20 to 0	58.6
0 (Ice Point)	40.5
0 to 50	51.7
50 to 100	76.9
100 to 200	46.4
200 to 250	44.1

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250 to 420	49.8
420 to 800	1522
800 to 1100	1446

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1. Represents an expanded uncertainty using a coverage factor,  $k = 2$ , at an approximate level of confidence of 95 %.
  2. Uncertainty components for DUT repeatability, resolution, and drift at ice point are calculated at time of test; for the purpose of this scope, typical values were used.
  3. Uncertainty components for DUT repeatability, resolution, and hysteresis are calculated at time of test; for the purpose of this scope, typical values were used.
  4. Uncertainty components for DUT repeatability, resolution, and inhomogeneity are calculated at time of test; for the purpose of this scope, typical values were used.
  5. Uncertainty components for DUT repeatability, resolution, and hysteresis are calculated at time of test; for the purpose of this scope, typical values were used.
  6. Calibration of mass values other than those listed are available at higher uncertainties.

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