



CALIBRATION LABORATORIES

NVLAP LAB CODE 200421-0

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

<p>Indiana Division of Weights and Measures 2525 North Shadeland Avenue, Suite D3 Indianapolis, IN 46219-1791 Mr. Larry J. Stump Phone: 317-356-7078 Fax: 317-351-2877 E-mail: lstump@isdh.in.gov URL: http://www.in.gov/isdh/23288.htm</p>	<p>Parameter(s) of Accreditation Dimensional Time and Frequency Mechanical Thermodynamic</p> <p>This laboratory is compliant to ANSI/NCSL Z540-1-1994; Part 1. (NVLAP Code: 20/A01)</p>
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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) Notes 1,2

Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) <small>Note 3</small>	Remarks
TIME and FREQUENCY			
NVLAP Code: 20/F02 TIME DISSEMINATION Stop Watches	3 h	0.17 s	
MECHANICAL			
NVLAP Code: 20/M08 MASS Metric	30 kg 25 kg 20 kg 10 kg 5 kg 4 kg 3 kg 2 kg 1 kg 500 g 300 g 200 g 100 g 92.82 g 50 g 30 g 20 g 10 g	10 mg 32 mg 14 mg 14 mg 5.4 mg 5.4 mg 3.9 mg 4.3 mg 0.70 mg 0.26 mg 0.23 mg 0.18 mg 50 µg 40 µg 47 µg 28 µg 24 µg 25 µg	Echelon II

2012-01-01 through 2012-12-31
 Effective dates

David E. Alderson
 For the National Institute of Standards and Technology



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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) ^{Note 3}	Remarks		
	5 g	11 µg			
	3 g	6.8 µg			
	2 g	12 µg			
	1 g	9.0 µg			
	500 mg	3.6 µg			
	300 mg	4.5 µg			
	200 mg	4.2 µg			
	100 mg	2.7 µg			
	50 mg	1.9 µg			
	30 mg	1.4 µg			
	20 mg	1.8 µg			
	10 mg	2.0 µg			
	5 mg	1.3 µg			
	3 mg	4.8 µg			
	2 mg	1.1 µg			
	1 mg	1.1 µg			
	Avoirdupois	50 lb		15 mg	Echelon II
		30 lb		19 mg	
		25 lb		8.0 mg	
		20 lb		3.8 mg	
10 lb		3.6 mg			
5 lb		2.4 mg			
3 lb		2.7 mg			
2 lb		0.3 mg			
1 lb		0.81 mg			
0.5 lb		0.08 mg			
0.3 lb		0.13 mg			
0.25 lb		70 µg			
0.2 lb		67 µg			
0.1 lb	50 µg				
0.05 lb	19 µg				
0.03 lb	18 µg				
0.02 lb	18 µg				
0.01 lb	7.2 µg				

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) ^{Note 3}	Remarks	
Metric	0.005 lb	5.7 μ g	Echelon III – Double Substitution	
	0.003 lb	5.4 μ g		
	0.002 lb	5.2 μ g		
	0.001 lb	9.3 μ g		
	500 μ lb	3.4 μ g		
	500 kg	5.1 g		Echelon III
	250 kg	2.6 g		
	200 kg	1.8 g		
	60 kg	1.4 g		
	1000 kg	8.0 g		
	500 kg	8.0 g		
	250 kg	3.0 g		
	200 kg	2.4 g		
	100 kg	6.3 g		
	60 kg	0.33 g		
	50 kg	0.62 g		
	30 kg	0.01 g		
	25 kg	0.40 g		
	20 kg	0.32 g		
	10 kg	15 mg		
	5 kg	15 mg		
	4 kg	16 mg		
	3 kg	5.6 mg		
	2 kg	5.5 mg		
	1 kg	4.5 mg		
	500 g	5.1 mg		
	464.08 g	5.7 mg		
	300 g	6.3 mg		
	200 g	0.19 mg		
	185.63 g	0.47 mg		
	100 g	0.17 mg		
	92.82 g	0.15 mg		
	50 g	0.14 mg		

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) Notes 1,2

Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) <small>Note 3</small>	Remarks	
Avoirdupois	30 g	1.7 mg	Echelon III – Double Substitution	
	20 g	44 µg		
	10 g	84 µg		
	5 g	36 µg		
	3 g	43 µg		
	2 g	20 µg		
	1 g	12 µg		
	500 mg	11 µg		
	300 mg	14 µg		
	200 mg	12 µg		
	100 mg	15 µg		
	50 mg	6.4 µg		
	30 mg	11 µg		
	20 mg	4.1 µg		
	10 mg	4.5 µg		
	5 mg	6.3 µg		
	3 mg	7.5 µg		
	2 mg	2.6 µg		
	1 mg	3.8 µg		
	1000 lb	2.3 g		Echelon III – Double Substitution
	500 lb	1.6 g		
	250 lb	0.4 g		
	6000 lb	68 g		Echelon III- Weight Carts
	5000 lb	104 g		
	3000 lb	28 g		
	2500 lb	27 g		
	5000 lb	104 g		Echelon III
	3000 lb	28 g		
2500 lb	27 g			
2000 lb	13 g			
1000 lb	6.8 g			

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**National Voluntary
Laboratory Accreditation Program**



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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) Notes 1,2

Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) <small>Note 3</small>	Remarks
	500 lb	2.9 g	
	250 lb	4.4 g	
	200 lb	4.7 g	
	100 lb	0.60 g	
	50 lb	0.40 g	
	30 lb	0.18 g	
	25 lb	0.20 g	
	20 lb	0.33 g	
	10 lb	6.5 mg	
	5 lb	13 mg	
	4 lb	13 mg	
	3 lb	10 mg	
	2 lb	4.6 mg	
	1 lb	7.1 mg	
	0.5 lb	7.3 mg	
	0.03 lb	0.42 mg	
	0.25 lb	0.20 mg	
	0.2 lb	0.13 mg	
	0.1 lb	0.10 mg	
	0.05 lb	0.09 mg	
	0.03 lb	0.05 mg	
	0.02 lb	65 µg	
	0.01 lb	19 µg	
	0.005 lb	37 µg	
	0.003 lb	30 µg	
	0.002 lb	42 µg	
	0.001 lb	10 µg	
	2 oz	0.27 mg	
	1 oz	0.19 mg	
	0.5 oz	0.15 mg	
	0.25 oz	0.10 mg	
	0.125 oz	74 µg	
	0.0625 oz	90 µg	
	0.0313 oz	93 µg	

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Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) <small>Note 3</small>	Remarks
NVLAP Code: 20/M12 VOLUME and DENSITY Volume	1000 gal	78 in ³	Volume Transfer
	100 gal	4.7 in ³	Volume Transfer LP Volume Transfer
	100 gal	7.7 in ³	
	50 gal	2.4 in ³	
	25 gal	1.0 in ³	
	15 gal	0.53 in ³	
	5 gal	0.25 in ³	Gravimetric
	5 gal	0.00034 gal	
	1 gal	0.0035 gal	
	100 gal	1.6 in ³	Internal Calibration Volume Transfer (20 x 5 gal) (10 x 5 gal)
50 gal	3.7 in ³		
THERMODYNAMIC			
NVLAP Code: 20/T03 LABORATORY THERMOMETERS, DIGITAL and ANALOG Laboratory Thermometers	100 °C	0.15 °C	Liquid in Glass
	90 °C	0.08 °C	
	80 °C	0.05 °C	
	30 °C	0.16 °C	
	20 °C	0.12 °C	
	0 °C	0.065 °C	
END			

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Notes

Note 1: A Calibration and Measurement Capability (CMC) is a description of the best result of a calibration or measurement (result with the smallest uncertainty of measurement) that is available to the laboratory's customers under normal conditions, when performing more or less routine calibrations of nearly ideal measurement standards or instruments. The CMC is described in the laboratory's scope of accreditation by: the measurement parameter/device being calibrated, the measurement range, the uncertainty associated with that range (see note 3), and remarks on additional parameters, if applicable.

Note 2: Calibration and Measurement Capabilities are traceable to the national measurement standards of the U.S. or to the national measurement standards of other countries and are thus traceable to the internationally accepted representation of the appropriate SI (Système International) unit.

Note 3: The uncertainty associated with a measurement in a CMC is an expanded uncertainty using a coverage factor, $k = 2$, with a level of confidence of approximately 95 %. Units for the measurand and its uncertainty are to match. Exceptions to this occur when marketplace practice employs mixed units, such as when the artifact to be measured is labeled in non-SI units and the uncertainty is given in SI units (Example: 5 lb weight with uncertainty given in mg).

Note 3a: The uncertainty of a specific calibration by the laboratory may be greater than the uncertainty in the CMC due to the condition and behavior of the customer's device and specific circumstances of the calibration. The uncertainties quoted do not include possible effects on the calibrated device of transportation, long term stability, or intended use.

Note 3b: As the CMC represents the best measurement results achievable under normal conditions, the accredited calibration laboratory shall not report smaller uncertainty of measurement than that given in a CMC for calibrations or measurements covered by that CMC.

Note 3c: As described in Note 1, CMCs cover calibrations and measurements that are available to the laboratory's customers under *normal conditions*. However, the laboratory may have the capability to offer special tests, employing special conditions, which yield calibration or measurement results with lower uncertainties. Such special tests are not covered by the CMCs and are outside the laboratory's scope of accreditation. In this case, NVLAP requirements for the labeling, on calibration reports, of results outside the laboratory's scope of accreditation apply. These requirements are set out in Annex A.1.h. of NIST Handbook 150, Procedures and General Requirements.

Note 4: Uncertainties associated with field service calibration may be greater as they incorporate on-site environmental contributions, transportation effects, or other factors that affect the measurements. (This note applies only if marked in the body of the scope.)

Note 5: Values listed with percent (%) are percent of reading or generated value unless otherwise noted.

Note 6: NVLAP accreditation is the formal recognition of specific calibration capabilities. Neither NVLAP nor NIST guarantee the accuracy of individual calibrations made by accredited laboratories.

Note 7: See [NIST Handbook 150](#) for further explanation of these notes.

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