



CALIBRATION LABORATORIES

NVLAP LAB CODE 200791-0

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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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
DIMENSIONAL			
<p>NVLAP Code: 20/D13 SURVEYING RODS and TAPES Surveying Rods and Tapes</p>	<p>1 ft 2 ft 3 ft 4 ft 5 ft 6 ft 7 ft 8 ft 9 ft 10 ft 20 ft 30 ft 40 ft 50 ft 60 ft 70 ft 80 ft 90 ft 100 ft</p>	<p>0.00077 ft 0.00077 ft 0.00076 ft 0.00078 ft 0.00080 ft 0.00081 ft 0.00082 ft 0.00081 ft 0.00081 ft 0.00087 ft 0.00084 ft 0.00094 ft 0.00093 ft 0.00097 ft 0.0014 ft 0.0013 ft 0.0013 ft 0.0013 ft 0.0018 ft</p>	<p>Tape to Tape</p>

2013-01-01 through 2013-12-31

Effective dates

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Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) ^{Note 3}	Remarks
TIME and FREQUENCY			
NVLAP Code: 20/F02 TIME DISSEMINATION Time Dissemination	3 h	0.073 s	GPS Time Receiver
MECHANICAL			
NVLAP Code: 20/M08 MASS Metric	2 kg	2.6 mg	Echelon II
	1 kg	1.0 mg	
	500 g	0.48 mg	
	200g	0.20 mg	
	100 g	0.10 mg	
	50 g	55 µg	
	20 g	21 µg	
	10 g	13 µg	
	5 g	9 µg	
	2 g	3.9 µg	
	1 g	3.5 µg	
	500 mg	3.2 µg	
	200 mg	2.8 µg	
	100 mg	2.7 µg	
	50 mg	2.7 µg	
	20 mg	0.84 µg	
	10 mg	0.85 µg	
	5 mg	0.86 µg	
	2 mg	0.52 µg	
	1 mg	0.53 µg	
	30 kg	95 mg	Echelon III
	25 kg	87 mg	
	20 kg	84 mg	
	10 kg	22 mg	
	5 kg	19 mg	
	3 kg	12 mg	
	2 kg	3.9 mg	
	1 kg	0.58 mg	

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Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) <small>Note 3</small>	Remarks
	500 g	0.43 mg	
	300 g	0.46 mg	
	200 g	0.46 mg	
	100 g	76 µg	
	50 g	60 µg	
	30 g	58 µg	
	20 g	57 µg	
	10 g	57 µg	
	5 g	120 µg	
	3 g	120 µg	
	2 g	120 µg	
	1 g	120 µg	
	500 mg	36 µg	
	300 mg	36 µg	
	200 mg	8.8 µg	
	100 mg	5.3 µg	
	50 mg	4.8 µg	
	30 mg	4.6 µg	
	20 mg	4.6 µg	
	10 mg	4.6 µg	
	5 mg	5.1 µg	
	3 mg	5.1 µg	
	2 mg	5.1 µg	
	1 mg	5.1 µg	
Avoirdupois	30 lb	25 mg	Echelon III
	20 lb	19 mg	
	10 lb	20 mg	
	5 lb	8 mg	
	4 lb	2.8 mg	
	3 lb	1.3 mg	
	2 lb	1.2 mg	
	1 lb	0.40 mg	
	0.5 lb	0.46 mg	
	0.3 lb	0.13 mg	
	0.2 lb	76 µg	

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Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) ^{Note 3}	Remarks
	0.1 lb	59 μ g	
	0.05 lb	57 μ g	
	0.03 lb	56 μ g	
	0.02 lb	56 μ g	
	0.01 lb	120 μ g	
	0.005 lb	120 μ g	
	0.003 lb	120 μ g	
	0.002 lb	120 μ g	
	0.001 lb	39 μ g	
	8 oz	0.46 mg	
	4 oz	0.21 mg	
	2 oz	0.10 mg	
	1 oz	68 μ g	
	1/2 oz	60 μ g	
	1/4 oz	57 μ g	
	1/8 oz	120 μ g	
	1/16 oz	120 μ g	
	1/32 oz	120 μ g	
	0.5 oz	60 μ g	
	0.3 oz	57 μ g	
	0.2 oz	57 μ g	
	0.1 oz	120 μ g	
	0.05 oz	120 μ g	
	0.03 oz	120 μ g	
	0.02 oz	110 μ g	
	0.01 oz	37 μ g	
	1000 lb	6.6 g	Echelon III Frasier Balance
	500 lb	3.7 g	
	50 lb	0.29 g	Echelon III Lab
	25 lb	0.16 g	

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Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) ^{Note 3}	Remarks
Field calibrations Available ^{Note 4}	50 lb 25 lb	0.36 g 0.36 g	Echelon III
NVLAP Code: 20/M12 VOLUME and DENSITY Volume			
	1000 gal	63 in ³	Volume Transfer, 100 gal Standard
	500 gal	33 in ³	100 gal Standard
	300 gal	19 in ³	100 gal Standard
	200 gal	13 in ³	100 gal Standard
	100 gal	7.2 in ³	100 gal Standard
	50 gal	2.7 in ³	50 gal Standard
	50 gal	2.0 in ³	5 gal Slicker
	5 gal	0.22 in ³	5 gal Slicker
	1 gal	0.17 in ³	1 gal Conical Slicker
Field calibrations Available ^{Note 4}	500 gal 300 gal 200 gal 100 gal 50 gal 5 gal	25 in ³ 16 in ³ 11 in ³ 5.4 in ³ 2.7 in ³ 0.31 in ³	Volume Transfer, 50 gal Standard 50 gal Standard 50 gal Standard 50 gal Standard 50 gal Standard 5 gal Slicker
	20 L 2 L 1 L 500 mL 200 mL 100 mL 5 gal 1 gal 1/2 gal 1 quart 1 pint 1/2 pint 1 gill	2.9 mL 0.32 mL 0.45 mL 0.074 mL 0.059 mL 0.039 mL 2.8 mL 0.38 mL 0.31 mL 0.15 mL 0.12 mL 0.062 mL 0.065 mL	Gravimetric

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THERMODYNAMIC			
NVLAP Code: 20/T03 LABORATORY THERMOMETERS, DIGITAL and ANALOG Laboratory Thermometers	32 °F to 59 °F	0.14 °F	Liquid Bath with RTD
	60 °F to 89 °F	0.13 °F	
	90 °F to 119 °F	0.13 °F	
	120 °F	0.12 °F	
	0 °C to 15 °C	0.078 °C	Liquid Bath with RTD
	15.56 °C to 31.67 °C	0.071 °C	
	32.22 °C to 48.33 °C	0.071 °C	
	48.89 °C	0.068 °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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