



CALIBRATION LABORATORIES

NVLAP LAB CODE 200649-0

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
MECHANICAL			
NVLAP Code: 20/M08 MASS Metric	20 kg	5.2 mg	Echelon I
	10 kg	2.4 mg	
	5 kg	3.0 mg	
	3 kg	1.9 mg	
	2 kg	0.44 mg	
	1 kg	61 µg	
	500 g	33 µg	
	300 g	25 µg	
	200 g	20 µg	
	100 g	18 µg	
	50 g	11 µg	
	30 g	7.9 µg	
	20 g	6.8 µg	
	10 g	5.7 µg	
	5 g	4.2 µg	
	3 g	3.4 µg	
	2 g	3.2 µg	
	1 g	3.4 µg	
	500 mg	2.5 µg	
	300 mg	2.3 µg	
200 mg	2.2 µg		

2012-07-01 through 2013-06-30

Effective dates

For the National Institute of Standards and Technology



**National Voluntary
Laboratory Accreditation Program**



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Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) <small>Note 3</small>	Remarks
	100 mg	1.2 µg	Echelon II
	50 mg	1.1 µg	
	30 mg	1.1 µg	
	20 mg	1.1 µg	
	10 mg	0.89 µg	
	5 mg	0.80 µg	
	3 mg	0.79 µg	
	2 mg	0.77 µg	
	1 mg	0.28 µg	
	30 kg	22 mg	
	25 kg	12 mg	
	20 kg	9.5 mg	
	10 kg	2.4 mg	
	5 kg	3.5 mg	
	4 kg	2.7 mg	
	3 kg	2.6 mg	
	2 kg	0.62 mg	
	1 kg	94 µg	
	500 g	79 µg	
	400 g	83 µg	
	300 g	76 µg	
	200 g	75 µg	
	100 g	23 µg	
	50 g	17 µg	
	30 g	16 µg	
	20 g	15 µg	
	10 g	11 µg	
	5 g	3.9 µg	
	3 g	3.1 µg	
	2 g	2.8 µg	
	1 g	2.8 µg	
	500 mg	1.6 µg	
	300 mg	1.2 µg	
	200 mg	1.0 µg	
	100 mg	0.75 µg	

W. R. M. L.

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Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) <small>Note 3</small>	Remarks
Avoirdupois	50 mg	0.55 μg	Echelon II
	30 mg	0.52 μg	
	20 mg	0.48 μg	
	10 mg	0.58 μg	
	5 mg	0.42 μg	
	3 mg	0.39 μg	
	2 mg	0.36 μg	
	1 mg	0.38 μg	
	50 lb	28 mg	
	30 lb	17 mg	
	25 lb	14 mg	
	20 lb	11 mg	
	10 lb	5.4 mg	
	5 lb	2.7 mg	
	3 lb	1.7 mg	
	2 lb	0.10 mg	
	1 lb	82 μg	
	0.5 lb	79 μg	
	0.3 lb	76 μg	
	0.2 lb	22 μg	
0.1 lb	23 μg		
0.05 lb	17 μg		
0.03 lb	16 μg		
0.02 lb	8.3 μg		
0.01 lb	6.1 μg		
0.005 lb	4.2 μg		
0.003 lb	3.4 μg		
0.002 lb	3.3 μg		
0.001 lb	3.4 μg		
Metric	50 kg	140 mg	Echelon III
	30 kg	140 mg	
	25 kg	54 mg	
	20 kg	53 mg	
	10 kg	52 mg	

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Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) <small>Note 3</small>	Remarks
	8 kg	7.9 mg	
	5 kg	6.9 mg	
	3 kg	6.5 mg	
	2 kg	2.6 mg	
	1 kg	2.2 mg	
	500 g	1.6 mg	
	400 g	1.6 mg	
	300 g	1.6 mg	
	200 g	1.6 mg	
	100 g	1.6 mg	
	50 g	1.6 mg	
	30 g	82 µg	
	20 g	82 µg	
	10 g	82 µg	
	5 g	89 µg	
	3 g	89 µg	
	2 g	89 µg	
	1 g	89 µg	
	500 mg	89 µg	
	300 mg	6.4 µg	
	200 mg	6.4 µg	
	100 mg	6.4 µg	
	50 mg	6.3 µg	
	30 mg	6.3 µg	
	20 mg	6.3 µg	
	10 mg	6.3 µg	
	5 mg	6.3 µg	
	3 mg	6.3 µg	
	2 mg	6.3 µg	
	1 mg	6.3 µg	
Avoirdupois	100 lb	170 mg	Echelon III
	50 lb	76 mg	
	30 lb	61 mg	
	25 lb	61 mg	
	20 lb	59 mg	

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Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) <small>Note 3</small>	Remarks
	10 lb	8.4 mg	
	5 lb	3.5 mg	
	3 lb	2.9 mg	
	2 lb	2.7 mg	
	1 lb	1.7 mg	
	0.5 lb	1.7 mg	
	0.3 lb	1.7 mg	
	0.2 lb	1.7 mg	
	0.1 lb	0.13 mg	
	0.05 lb	0.13 mg	
	0.03 lb	0.13 mg	
	0.02 lb	96 µg	
	0.01 lb	82 µg	
	0.005 lb	82 µg	
	0.003 lb	82 µg	
	0.002 lb	82 µg	
	0.001 lb	82 µg	
	4 oz	1.7 mg	
	2 oz	1.7 mg	
	1 oz	0.14 mg	
	1/2 oz	0.14 mg	
	1/4 oz	98 µg	
	1/8 oz	82 µg	
	1/16 oz	82 µg	
	1/32 oz	82 µg	
	0.20 oz	98 µg	
	0.10 oz	82 µg	
	0.05 oz	82 µg	
	0.02 oz	82 µg	
	0.01 oz	82 µg	

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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