

CALIBRATION LABORATORIES

NVLAP LAB CODE 600105-0

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) Notes 1,2

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty <small>Note 3</small>	Remarks
MECHANICAL			
MASS (20/M08)			
Metric	30 kg	25 mg	Echelon II
	25 kg	27 mg	
	20 kg	12 mg	
	10 kg	13 mg	
	5 kg	8.2 mg	
	3 kg	2.1 mg	
	2 kg	1.2 mg	
	1 kg	0.30 mg	
	500 g	0.23 mg	
	300 g	0.18 mg	
	200 g	85 µg	
	100 g	58 µg	
	50 g	57 µg	
	30 g	54 µg	
	20 g	24 µg	
	10 g	18 µg	
	5 g	8.3 µg	
	3 g	19 µg	
	2 g	3.0 µg	
	1 g	4.1 µg	
	500 mg	8.8 µg	
	300 mg	4.7 µg	
	200 mg	3.9 µg	

2022-05-05 through 2023-03-31
 Effective dates



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

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
Avoirdupois	100 mg	2.6 µg	Echelon II
	50 mg	2.1 µg	
	30 mg	2.1 µg	
	20 mg	1.4 µg	
	10 mg	1.9 µg	
	5 mg	2.8 µg	
	3 mg	2.3 µg	
	2 mg	1.3 µg	
	1 mg	2.4 µg	
	1000 lb	2.6 g	
	500 lb	1.8 g	
	50 lb	15 mg	
	25 lb	4.5 mg	
	10 lb	2.8 mg	
	5 lb	0.70 mg	
	3 lb	0.38 mg	
	2 lb	0.25 mg	
	1 lb	0.14 mg	
	0.5 lb	67 µg	
	0.3 lb	59 µg	
	0.2 lb	48 µg	
	0.1 lb	42 µg	
	0.05 lb	16 µg	
	0.03 lb	20 µg	
	0.02 lb	15 µg	
	0.01 lb	13 µg	
	0.005 lb	7.7 µg	
	0.003 lb	2.2 µg	
	0.002 lb	5.7 µg	
	0.001 lb	2.9 µg	
	8 oz	67 µg	
	4 oz	86 µg	
2 oz	63 µg		
1 oz	65 µg		
½ oz	36 µg		

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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
Metric	¼ oz	13 µg	Echelon III
	1/8 oz	20 µg	
	1/16 oz	5.1 µg	
	1/32 oz	5.0 µg	
	0.5 oz	36 µg	
	0.2 oz	11 µg	
	0.1 oz	11 µg	
	0.05 oz	7.0 µg	
	30 kg	0.38 g	
	25 kg	0.32 g	
	20 kg	0.26 g	
	10 kg	0.13 g	
	5 kg	61 mg	
	3 kg	41 mg	
	2 kg	24 mg	
	1 kg	12 mg	
	500 g	6.0 mg	
	300 g	3.9 mg	
	200 g	2.4 mg	
	100 g	1.2 mg	
	50 g	0.84 mg	
	30 g	0.68 mg	
	20 g	0.36 mg	
	10 g	0.24 mg	
	5 g	0.24 mg	
	3 g	0.28 mg	
	2 g	0.24 mg	
	1 g	0.24 mg	
	500 mg	0.12 mg	
	300 mg	0.14 mg	
	200 mg	0.12 mg	
	100 mg	0.12 mg	
	50 mg	21 µg	
	30 mg	20 µg	
	20 mg	15 µg	
10 mg	13 µg		

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

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
Avoirdupois	5 mg	11 µg	Echelon III
	3 mg	10 µg	
	2 mg	8.4 µg	
	1 mg	7.5 µg	
	1000 lb	6.0 g	
	500 lb	3.2 g	
	50 lb	0.27 g	
	25 lb	0.13 g	
	20 lb	0.11 g	
	15 lb	87 mg	
	10 lb	55 mg	
	7.5 lb	42 mg	
	5 lb	27 mg	
	3 lb	24 mg	
	2 lb	11 mg	
	1 lb	5.3 mg	
	0.5 lb	2.8 mg	
	0.3 lb	2.2 mg	
	0.2 lb	1.1 mg	
	0.1 lb	0.81 mg	
	0.05 lb	0.54 mg	
	0.03 lb	0.54 mg	
	0.02 lb	0.28 mg	
	0.01 lb	0.17 mg	
	0.005 lb	0.11 mg	
	0.003 lb	0.12 mg	
	0.002 lb	0.11 mg	
	0.001 lb	0.11 mg	
	8 oz	2.7 mg	
	4 oz	1.3 mg	
2 oz	0.66 mg		
1 oz	0.39 mg		
½ oz	0.28 mg		
¼ oz	0.18 mg		
1/8 oz	0.11 mg		

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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks		
Weight Carts	1/16 oz	0.11 mg			
	1/32 oz	61 µg			
	0.5 oz	0.33 mg			
	0.2 oz	0.15 mg			
	0.1 oz	0.15 mg			
	0.05 oz	0.12 mg			
	5000 lb	0.14 kg			
	4000 lb	0.14 kg			
	3000 lb	0.14 kg			
	Wheel Load Weighers	40 000 lb		70 lb	Paired scales
30 000 lb		85 lb			
20 000 lb		83 lb			
10 000 lb		42 lb			
20 000 lb		37 lb			
15 000 lb		70 lb			
10 000 lb		37 lb			
5000 lb		62 lb			
VOLUME and Density (20/M12)					
Volume		1000 gal	34 in ³	Volume Transfer	
	500 gal	17 in ³			
	300 gal	11 in ³			
	100 gal	3.3 in ³			
	50 gal	1.5 in ³			
	25 gal	0.83 in ³			
	15 gal	0.52 in ³			
	5 gal	0.23 in ³			
	25 gal	0.65 in ³	Gravimetric		
	15 gal	0.44 in ³			
	5 gal	0.14 in ³			
	100 gal	8.5 in ³	LPG		
	25 gal	1.7 in ³			



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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
	750 gal 500 gal 400 gal 100 gal 50 gal 15 gal 5 gal	48 in ³ 28 in ³ 23 in ³ 5.5 in ³ 2.9 in ³ 0.71 in ³ 0.26 in ³	Field Calibrations
TIME & FREQUENCY			
FREQUENCY DISSEMINATION (20/F01)			
Tuning Forks 1000 Hz to 7000 Hz	2544.4 Hz 3649.3 Hz 4738.0 Hz 3211.7 Hz 5900.8 Hz 6966.3 Hz 1093.1 Hz 1731.3 Hz 2514.3Hz	0.49 Hz 0.91 Hz 0.81 Hz 0.92 Hz 0.92 Hz 1.4 Hz 0.35 Hz 0.63 Hz 0.55 Hz	K band Ka Band X band
THERMODYNAMIC			
LABORATORY THERMOMETERS, DIGITAL AND ANALOG (20/T03)			
Digital Thermometers	-20 °F to 120 °F -20 °C to 100 °C	0.11 °F 0.069 °C	Comparison to PRT Comparison to PRT
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 with a level of confidence of approximately 95 %, typically using a coverage factor of $k = 2$. However, laboratories may report a coverage factor different than $k = 2$ to achieve the 95 % level of confidence. 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.5. 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.

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