National Voluntary Laboratory Accreditation Program

CALIBRATION LABORATORIES **NVLAP LAB CODE 600105-0**

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

State of Alaska Metrology Laboratory 12050 Industry Way Bldg O, Suite 6 Anchorage, AK 99515-3593 Mr. Garret L. Brown Phone: 907-365-1233 E-mail: garret.brown@alaska.gov	**Field(s) of Accreditation** Mechanical Time & Frequency Thermodynamic

CALIBRATION AND MEASUREMENT CAPABILITIES (CMC)[Notes 1,2]

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty [Note 3]	Remarks
MECHANICAL			
MASS (20/M08)			
Metric	30 kg 25 kg 20 kg 10 kg 5 kg 3 kg 2 kg 1 kg 500 g 300 g 200 g 100 g 50 g 30 g 20 g 10 g 5 g 3 g 2 g 1 g 500 mg 300 mg 200 mg	25 mg 24 mg 16 mg 11 mg 7.9 mg 3.7 mg 1.2 mg 0.28 mg 0.22 mg 0.18 mg 82 µg 56 µg 58 µg 54 µg 24 µg 17 µg 8.6 µg 21 µg 2.8 µg 3.8 µg 8.8 µg 4.9 µg 2.5 µg	Echelon II

2023-03-06 through 2024-03-31
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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC)[Notes 1,2]

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty [Note 3]	Remarks
	100 mg	2.6 µg	
	50 mg	2.3 µg	
	30 mg	2.5 µg	
	20 mg	1.4 µg	
	10 mg	1.8 µg	
	5 mg	3.5 µg	
	3 mg	2.6 µg	
	2 mg	1.7 µg	
	1 mg	3.0 µg	
Avoirdupois	1000 lb	2.8 g	Echelon II
	500 lb	1.9 g	
	50 lb	8.7 mg	
	25 lb	5.9 mg	
	10 lb	1.7 mg	
	5 lb	0.84 mg	
	3 lb	0.80 mg	
	2 lb	0.25 mg	
	1 lb	0.12 mg	
	0.5 lb	70 µg	
	0.3 lb	61 µg	
	0.2 lb	43 µg	
	0.1 lb	36 µg	
	0.05 lb	35 µg	
	0.03 lb	15 µg	
	0.02 lb	13 µg	
	0.01 lb	4.0 µg	
	0.005 lb	3.3 µg	
	0.003 lb	2.8 µg	
	0.002 lb	4.3 µg	
	0.001 lb	3.3 µg	
	8 oz	70 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
	¼ oz	13 µg	
	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	
Metric	30 kg	0.37 g	Echelon III
	25 kg	0.31 g	
	20 kg	0.25 g	
	10 kg	0.13 g	
	5 kg	60 mg	
	3 kg	40 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	0.85 mg	
	30 g	0.67 mg	
	20 g	0.37 mg	
	10 g	0.24 mg	
	5 g	0.24 mg	
	3 g	0.27 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	20 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
	5 mg	11 µg	
	3 mg	10 µg	
	2 mg	8.2 µg	
	1 mg	12 µg	
Avoirdupois	1000 lb	6.1 g	Echelon III
	500 lb	3.3 g	
	50 lb	0.27 g	
	25 lb	0.13 g	
	20 lb	0.11 g	
	15 lb	86 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	2.7 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
	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	
Weight Carts	5000 lb	0.14 kg	
	4000 lb	0.14 kg	
	3000 lb	0.14 kg	
Wheel Load Weighers	40 000 lb	91 lb	Paired scales
	30 000 lb	98 lb	
	20 000 lb	76 lb	
	10 000 lb	44 lb	
	20 000 lb	41 lb	
	15 000 lb	67 lb	
	10 000 lb	39 lb	
	5000 lb	48 lb	
VOLUME and Density (20/M12)			
Volume	1000 gal	38 in^3	Volume Transfer
	500 gal	19 in^3	
	300 gal	11 in^3	
	100 gal	3.7 in^3	
	50 gal	1.6 in^3	
	25 gal	0.80 in^3	
	15 gal	0.53 in^3	
	5 gal	0.22 in^3	
	25 gal	0.66 in^3	Gravimetric
	15 gal	0.44 in^3	
	5 gal	0.14 in^3	
	100 gal	9.0 in^3	LPG
	25 gal	1.7 in^3	

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC)[Notes 1,2]

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty [Note 3]	Remarks
	750 gal	40 in^3	Field Calibrations
	500 gal	24 in^3	
	400 gal	19 in^3	
	100 gal	4.7 in^3	
	50 gal	2.4 in^3	
	15 gal	0.70 in^3	
	5 gal	0.30 in^3	
TIME & FREQUENCY			
FREQUENCY DISSEMINATION (20/F01)			
Tuning Forks 1000 Hz to 7000 Hz			
	2544.4 Hz	0.50 Hz	K band
	3649.3 Hz	0.79 Hz	
	4737.9 Hz	0.91 Hz	
	3211.5 Hz	0.74 Hz	Ka Band
	5900.5 Hz	1.3 Hz	
	6966.0 Hz	1.1 Hz	
	1093.1 Hz	0.31 Hz	X band
	1731.4 Hz	0.47 Hz	
	2514.2Hz	0.48 Hz	
THERMODYNAMIC			
LABORATORY THERMOMETERS, DIGITAL AND ANALOG (20/T03)			
Digital Thermometers	-20 °F to 120 °F	0.096 °F	Comparison to PRT
	-20 °C to 100 °C	0.069 °C	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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