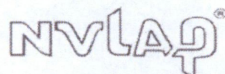


CALIBRATION CERTIFICATE

Virginia Department of Agriculture and Consumer Services



Office of Weights & Measures • Metrology Lab
600 North 5th St. Rm: 162 • Richmond, Va. 23219 • USA
Telephone: (804)786-0479 • Fax: (804)371-0206

NVLAP Lab Code 105007-0

Tested for: NCR
200 HWY 74 SOUTH
PEACHTREE CITY, GA 30269



Date Received: January 10, 2018
Date of Test: January 22, 2018
Test Number: VA-18-11081 G
Tested By: William Scott
Procedure: NISTIR 6969 SOP #8

Description of items calibrated: STAINLESS STEEL WEIGHT KIT #1085
Class: NIST HB105-1 (Class F) Condition: GOOD

MEETS CLASS F SPECIFICATION

The Standards described below have been compared with the Standards of the Commonwealth of Virginia.

Environmental condition taken during testing: Temperature: 21.0°C Humidity: 44.6%

Nominal Value	ID	As Found** (error) (mg)	As Left (error) (mg)	Tolerance (mg)	Uncertainty* (±mg)	Balance Used	ID of Standard Set Used
10 lb		-9.0	-9.0	450	58	PR5003	W10LB
10 lb	dot	38	38	450	58	PR5003	W10LB
5 lb		64	64	230	31	PR5003	W5LB
2 lb		56.0	56.0	91	12	CC1200	W2LB
2 lb	dot	26.4	26.4	91	12	CC1200	W2LB
1 lb		49.2	41.9	70	8.7	CC1200	W1LB
0.3 lb		2.05	2.05	27	3.6	MSE225S	W0.5LB
0.2 lb		-13.46	-13.46	18	2.3	MSE225S	W0.2LB
0.2 lb	dot	2.99	2.99	18	2.3	MSE225S	W0.2LB
0.1 lb		3.83	3.83	9.1	1.2	MSE225S	W0.1LB
0.1 lb	dot	4.08	4.08	9.1	1.2	MSE225S	W0.1LB
0.05 lb		3.04	3.04	4.5	0.59	MSE225S	W0.05LB
0.02 lb		-1.59	0.63	1.8	0.23	MSE225S	W0.02LB
0.02 lb	dot	0.58	0.58	1.8	0.23	MSE225S	W0.02LB
0.01 lb		0.21	0.21	1.5	0.20	MSE225S	W0.01LB
0.005 lb		-0.22	-0.22	1.2	0.17	MSE225S	W0.005LB
0.002 lb		0.14	0.14	0.87	0.13	MSE225S	W0.002LB
0.002 lb	dot	-0.42	-0.42	0.87	0.13	MSE225S	W0.002LB
0.001 lb		0.24	0.24	0.70	0.11	MSE225S	W0.001LB

**1 US pound equals 453.5924 grams.

The results of the calibration are metrological traceable to the SI. The SI of the Va lab is through the National Institute of Standards and Technology (NIST) through an unbroken chain of traceable standards and controlled processes.

* The uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

This report shall not be reproduced except in full without the written approval of the Commonwealth of Virginia Metrology Lab and may not be used to claim product endorsement by this laboratory, NVLAP, NIST, or any agencies of the Federal Government.

This certificate is issued pursuant to Virginia Code § 3.2-5604. The calibration results relate only to the calibrated items identified above.

Reviewed By:

Authorized Signature

1/26/2018
Date

5 **WM-17-426** Filed: 4/4/2018 Pages: 4
Calibration Report

United States Department of Commerce

National Institute of Standards and Technology

Certificate of Metrological Traceability For:

Virginia



This laboratory has demonstrated evidence of an unbroken chain of metrological traceability of its standards to the international system of units (SI), documented measurement uncertainties, uses documented measurement procedures, successfully completed training and proficiency tests, documented calibration intervals, submitted a quality management system, and demonstrated suitable measurement assurance for the Scope listed on this certificate.

The Office of Weights and Measures Program assesses laboratories to NIST Handbook 143 - Program Handbook for State Weights and Measures Laboratories and ISO/IEC 17025:2005.

2018 to 2019

Scope

Mass Echelon II
20 kg to 1 mg

Mass Echelon III
25 kg to 1 mg
2500 lb to 0.001 lb
8 oz to 0.03125 oz

Weight Carts
6000 lb to 3000 lb

Volume Transfer, II
10 gal to 5 gal

Tuning Forks
10 kHz to 1 kHz

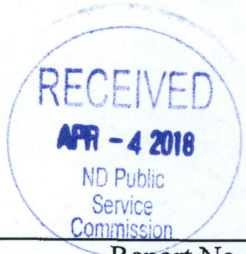
Douglas A. Olson

Douglas A. Olson, Chief
NIST Office of Weights and Measures

Effective Dates: 2018-01-01 to 2019-12-31



DEPARTMENT OF COMMERCE
WEIGHTS & MEASURES DIVISION



14305 Southcross Drive #150
Burnsville, MN 55306-7008
mn.gov/commerce/
651.539.1555 FAX 952.435.4040
An equal opportunity employer

Receipt Date: March 1, 2018
Cal. Date: March 29, 2018
Report Date: March 30, 2018

Report No.: 339038
Set Serial No.: 69090/61504
Barcode: 203348

Calibration Certificate

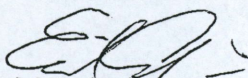
NCR
1212 AIRPORT ROAD
BISMARCK, ND 58504
Contact: DEBI WILLIAMS
Phone: 770-288-1568
PO Number: None
Procedure: NIST SOP 8
Technician ID: 19

Item(s) Submitted: AVDP Weight Kit - Class F
Manufacturer: Troemner
Weight Type: I & II
Equipment ID: None
Condition: Good
Temperature: 19.7 °C
Pressure: 740.6 mmHg
Relative Humidity: 47.3 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
10 lb		121	121	F	F	2.03	11
10 lb		239	239	F	F	2.03	11
5 lb		99.2	99.2	F	F	2.03	5.7
2 lb		25.3	25.3	F	F	2.03	2.3
2 lb		30.0	30.0	F	F	2.03	2.3
1 lb		39.0	39.0	F	F	2.03	1.2
0.3 lb		12.08	12.08	F	F	2.03	0.36
0.2 lb		6.59	6.59	F	F	2.03	0.22
0.2 lb		7.75	7.75	F	F	2.03	0.22
0.1 lb		0.78	0.78	F	F	2.03	0.14
0.1 lb		3.63	3.63	F	F	2.03	0.14
0.05 lb		2.72	2.72	F	F	2.03	0.10
0.02 lb		0.266	0.266	F	F	2.03	0.056
0.02 lb		0.749	0.749	F	F	2.03	0.056
0.01 lb		0.382	0.382	F	F	2.03	0.043
0.005 lb		0.310	0.310	F	F	2.03	0.041
0.003 lb		0.053	0.053	F	F	2.03	0.055
0.002 lb		0.317	0.317	F	F	2.03	0.030
0.001 lb		0.564	0.564	F	F	2.03	0.025

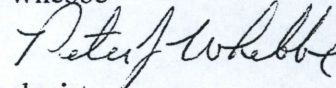
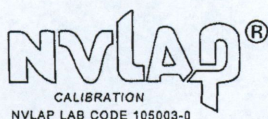
The resulting tolerance class of the weight is determined by combining the correction of the weight and the uncertainty of the measurement. The corrections given above correlate to a conventional mass scale versus 8.0 g/cm³ density and an air density of 1.2 mg/cm³ at 20 °C. The items listed above have been calibrated using the Standards of the State of Minnesota which are currently in control. These standards are traceable to the SI through NIST. Calibration processes were monitored and found to be in control. All of the tolerances and specifications were evaluated according to NIST Handbook 105-1 (1990). Uncertainty calculations contain the components in NIST SOP 8 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (k) calculated at the approximate 95.45 % confidence level. Results apply to items identified in this report only.

Erik Alfvin


Metrologist

Reviewed by:

Pete Whebbe


Metrologist


United States Department of Commerce

Rational Institute of Standards and Technology

Certificate of Metrological Traceability For:

Minnesota

This laboratory has demonstrated evidence of an unbroken chain of metrological traceability of its standards to the international system of units (SI), documented measurement uncertainties, uses documented measurement procedures, successfully completed training and proficiency tests, documented calibration intervals, submitted a quality management system, and demonstrated suitable measurement assurance for the Scope listed on this certificate.

The Office of Weights and Measures Program assesses laboratories to NIST Handbook 143 - Program Handbook for State Weights and Measures Laboratories and ISO/IEC 17025:2005.

Scope

Mass Echelon I		
20 kg to 1 mg		
50 lb to 0.001 lb		
Mass Echelon II		
20 kg to 1 mg		
1000 lb to 500 lb		
50 lb to 0.001 lb		
4 oz to 0.03125 oz		
Mass Echelon III		
50 kg to 1 mg		
5000 lb to 0.001 lb		
4 oz to 0.03125 oz		
Weight Carts		
10 000 lb to 2000 lb		
Wheel Load Weighers		
20 000 lb to 2000 lb		
Railroad Test Cars		
110 000 lb to 80 000 lb		
Volume Gravimetric, I		
20 L to 10 ml		
100 gal to 0.25 gal		
Volume Transfer, II		
1500 gal to 5 gal		
200 gal to 25 gal LPG		



2018 to 2019

Douglas A. Olson

Douglas A. Olson, Chief
NIST Office of Weights and Measures

Effective Dates: 2018-01-01 to 2019-12-31