Steve Troxler
Commissioner

North Carolina Department of Agriculture and Consumer Services
Standards Division
Standards Laboratory

Stephen Benjamin
Director

NC Standards Laboratory Calibration Certificate

Submitted by:	Porter Scales 1721 Lake Wheeler Rd. Raleigh, NC 27603	**Date of Test:** **Test Number:** **P.O. Number:** **Page Number:**	4/24/2017 NC1704-166-W 17148 1 of 3

General Description:	One set of 2 weights
Set Serial Number:	LB 107
Manufacturer:	Rice Lake
Material:	Stainless Steel

Item(s) Tested and Approved:

# of Items	Nominal	Description	Tolerance	Measurement Uncertainty	*k* Coverage Factor	Serial Number(s) (Listed alphabetically)
1	25 lb	Weight	NIST Class F	140 mg	2.02	none
1	10 lb	Weight	NIST Class F	54 mg	2.02	none

Tolerance: At the time of test, the above weights fall within the tolerance listed. Compliance to design specifications only applies to the tolerance class listed above.

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NVLAP Lab Code 200495-0

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Traceability: This certificate has been issued under the authority of the North Carolina Department of Agriculture & Consumer Services, Standards Division, pursuant to Chapters 81A and 119 of the General Statutes of the State of North Carolina. The items described above have been compared with the standards of the State of North Carolina, and are traceable to the National Institute of Standards and Technology, NIST via the test number above, and to the SI via NIST. All tests were performed at the North Carolina Standards Laboratory, 4040 District Drive, Raleigh, North Carolina 27607. Environmental conditions are maintained at a temperature of 18 °C to 27 °C and a relative humidity of 50 % ± 10 %.

Test Data: Actual test results for this calibration are reported on the attached NCDA&CS Standards Laboratory Test Data Sheet Supplement for NC Test Number NC1704-166-W. The complete report must include both this certificate and the data sheet supplement. The reported test results apply only to the items listed above.

Uncertainty Statement: The measurement uncertainty is calculated according to JCGM 100:2008, GUM 1995 with minor corrections, First edition, September 2008, "Evaluation of measurement data – Guide to the expression of uncertainty in measurement." The uncertainty reported is *k* (refer to the table above for *k* value) times the root sum square of the type A and B uncertainties, which represents a confidence level of 95.45 %. Uncertainty components evaluated include balance standard deviations, mass standard uncertainties, drift uncertainties, sensitivity uncertainties, bias, and absence of air buoyancy corrections.

Magnetism: These weights have not been tested for magnetic properties. Since the effects are difficult to quantify, no magnetism components are included in the uncertainty budget. Weights are screened for magnetism only if erratic balance behavior is observed during calibration. If a significant magnetic field is found, the weight is rejected.

Condition of Item(s) Upon Receipt:

Good	Artifacts display some wear or other degradation.

Test Method Used:

NC SOP 8, *Medium Accuracy Calibration of Mass Standards by Modified Substitution (August 2016 Ed)*, based on NISTIR 6969, "*Selected Laboratory and Measurement Practices and Procedures to Support Basic Mass Calibrations (2014 Ed)*"- SOP No. 8, *Medium Accuracy Calibration of Mass Standards by Modified Substitution (June 2015 Ed).*
*Any deviations from or additions to the SOP have been reviewed and approved for use by laboratory management. These deviations are documented and filed in the laboratory files.

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Standards Used:

Standards are continuously monitored by a measurement control program. Artifacts are recalibrated if drift, damage, wear or other detrimental condition is noted. Balances are used for comparisons only. No calibration is required.

Working Standard	Working Standard Set Serial Number	Working Standard Test Number	Working Standard Calibration Date	Balance Used
25 lb ws	NCDA 261	OBS 17-0701	12-20-2016	CC50002
10 lb ws	NCDA 261	NC1701-019-WD	1-12-2017	CCE5003

Next Appointment Scheduled for:

4/25/2018

We would appreciate feedback on your recent experience with our laboratory. Please complete our short online survey at www.ncagr.com/standard/survey.

Nicholas Cercone — Metrologist

4/24/17 — Date

Approved By

4/25/2017 — Date

Laboratory Manager: Sharon Woodard Quality Manager: Robert Rogers
Metrologists: Van Hyder, Ashley Lessard, Sherry Teachey, Nicholas Cercone

Original Certificate has the NCDA Seal Embossed Above

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NCDA&CS Standards Laboratory Test Data Sheet Supplement for the Test Number Listed Below

Company Name:	Porter Scales			**NC Test No:**	NC1704-166-W
Address:	1721 Lake Wheeler Rd.				
City, State, Zip:	Raleigh, NC 27603			**Purchase Order No:**	17148
General Description:	One set of 2 weights	**Manufacturer:**	Rice Lake	**Date Scheduled:**	April 21, 2017
Representative:	Tommy Albright	**Phone:**	(919) 828-1750	**Date Received:**	April 24, 2017
Set Serial Number:	LB 107	**Return Via:**	p/u	**Date Tested:**	April 24, 2017
Material:	Stainless Steel	**Ship Charges:**	$0.00	**Date Returned:**	April 25, 2017
Condition of Weights:	Good			**Next Appointment:**	April 25, 2018

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Environmental Conditions at Time of Test		
	Beginning	Ending
Temperature (°C)	20.6	20.9
Relative Humidity (%)	54	59
Barometric Pressure (mmHg)	745.2	744.9

	Weight Information		Tolerance Information		Balance Readings		Approximate Error									
Line No	Serial Number	Nominal Mass	Tolerance Class	Full Tolerance	Before Adjustment	After Adjustment	As Found	In Tol?	As Left	In Tolerance?	Uncertainty	Working Standard	Wk Std Cal Date	Balance Used	Standard Correction
1	none	25 lb	NIST Class F	1.1 g	0.325 g	— g	320 mg	Appd	320 mg	Approved	140 mg	25 lb ws	12-20-2016	CC50002	-1.65 mg
2	none	10 lb	NIST Class F	0.45 g	0.109 g	— g	104 mg	Appd	104 mg	Approved	54 mg	10 lb ws	1-12-2017	CCE5003	-5.34116 mg
3				----	?	----	---- mg	?	---- mg	?	---- mg	----	----	----	---- mg
4				----	?	----	---- mg	?	---- mg	?	---- mg	----	----	----	---- mg

The "As Found" value for the weight reflects the condition of the weights as they were delivered for test. This condition does not necessarily represent the "As Used" condition of the weights if they have been cleaned, painted, or damaged in shipment.

These weights have not been tested for magnetic properties. Since the effects are difficult to quantify, no magnetism components are included in the uncertainty budget. Weights are screened for magnetism only if erratic balance behavior is observed during calibration. If a significant magnetic field is found, the weight is rejected.

This data sheet has been issued under the authority of the North Carolina Department of Agriculture & Consumer Services, Standards Division, pursuant to Chapters 81A and 119 of the General Statutes of the State of North Carolina.

Date	Metrologist	Work Completed	Date	Metrologist	Work Completed
4/24/2017	ngc	Received and tested weights			
4/25/2017		Returned weights			

Weights Approved
2
Weights Adjusted
0
Weights Rejected
0

METROLOGIST: Nicholas Cone Date: 4/24/17 RECEIVED BY: Susan J. Riggs Date: 4.25.17 RETURNED BY: _____