



Louisiana Department of Agriculture Forestry

Mike Strain DVM, Commissioner Agro-Consumer Services,
5825 Florida Blvd Ste 5000, Baton Rouge LA 70806 (225) 925-3780 Fax: 225-923-4877



Submitted by: Coastal Rail Scale, LLC.
7834 Lake St.
Lake Charles, LA 70605

Certificate Number: LA23-789
Date Received: 11/28/2023
Date of Calibration: 11/29-30/2023
Date of Report: 12/1/2023

Certificate of Calibration

For Items:
72-1000 lb weights

Procedure: The mass calibrations described herein were made following the procedure of NISTIR 6969, SOP 8 (Rev. 2019) modified substitution weighing method. The artifacts listed were assessed for compliance with the Maximum Permissible Error (MPE) stated in NIST HB 105-1 (1990 ed. NIST Class F). The results are indicated in the measurement results table.

Traceability Statement: The artifacts listed on this Certificate of Calibration have been compared to the state of Louisiana's mass reference standards which are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST.) The standards used are part of a comprehensive measurement assurance program for ensuring continued accuracy and metrological traceability within the level of uncertainty reported by this laboratory.

Uncertainty Statement: The expanded uncertainty presented in this report is consistent with and determined by using the ISO Guide to the Expression of Uncertainty in Measurement (2008). The combined uncertainty is obtained by using the root-sum-square method to include both Type A uncertainty components (assuming normal distribution) and Type B uncertainty components. The combined uncertainty is then multiplied by a coverage factor *k* (indicated in the measurement results) which expresses the expanded uncertainty with a confidence level of approximately 95.45 percent.

Treatment of artifacts: Artifacts were placed in mass lab overnight prior to calibration to reach thermal equilibrium. All calibrations were performed at the Louisiana Department of Agriculture State Metrology Laboratory.

Terminology:

- a. Conventional mass – the value of mass of the result of weighing a body in air; in accordance with OIML D 28. For a weight taken at a reference temperature of 20 °C, the conventional mass is the mass of a reference weight of a density of 8000 kg/m³ which it balances in air of a reference density of 1.2 kg/m³. (OIML R111-1: 2004)
- b. Conventional mass correction – mass values are traditionally expressed by two numbers, one being the nominal mass of the weight, and the second being a correction. The mass of the weight is the assigned nominal value plus the assigned correction. Positive corrections indicate the weight embodies more mass than is indicated by the assigned nominal value. Negative corrections indicate that the weight embodies less mass than is indicated by the assigned nominal value. The correction is equivalent to the error. (ASTM E617-18)
- c. Uncertainty – non-negative parameter characterizing the dispersion of the quantity values being attributed to a measurand; based on the information used. (VIM JCGM 200:2012)
- d. Maximum Permissible Error – the maximum amount by which the sum of the conventional mass of the weight, its deviation from nominal value, and its associated uncertainty is allowed to deviate from the assigned nominal value. (ASTM E617-18)

This calibration certificate is compliant with ISO/IEC 17025:2017 and with NIST Special Publication 811.

We value customer feedback. Please scan the QR code at the top of the page to take our customer satisfaction survey.

Jennifer Adair
Metrologist
(225) 922-2907 Lab
(225) 923-4877 Fax
jadair@ldaf.state.la.us

The certificate number is a unique identifier for referencing measurement traceability for artifacts identified on this certificate only. This report shall not be reproduced, except in full, without the written approval of Louisiana Department of Agriculture & Forestry Weights and Measures Division. **This report is valid for one year from date of calibration. Items must have a current NIST traceable certificate of calibration before being used in the state of Louisiana.**



Louisiana Department of Agriculture Forestry

Mike Strain DVM, Commissioner Agro-Consumer Services,
5825 Florida Blvd Ste 5000, Baton Rouge LA 70806 (225) 925-3780 Fax: 225-923-4877



Environmental conditions:	Initial	Final
Relative Humidity (%):	44.3	43.7
Temperature (°C):	22.3	22.7
Pressure (mmHg):	767.5	763.5

Certificate Number: LA23-789
Date Received: 11/28/2023
Date of Calibration: 11/29-30/2023
Date of Report: 12/1/2023

Condition of artifacts: Acceptable

1 lb = 453.59237 g

Measurement Results:

Nominal Mass	ID	Conventional Mass Correction as found (g)	Conventional Mass Correction as left (g)	Uncertainty (g)	MPE (g)	Within MPE?	k-factor
1000 lb	BRC041	-12.0	-12.0	9.1	45	Pass	2.04
1000 lb	BRC054	-30.0	-30.0	9.1	45	Pass	2.04
1000 lb	BRC022	-2.9	-2.9	9.1	45	Pass	2.04
1000 lb	BRC029	-26.2	-26.2	9.1	45	Pass	2.04
1000 lb	BRC062	50.9	3.2	9.1	45	Pass	2.04
1000 lb	BRC043	19.8	19.8	9.1	45	Pass	2.04
1000 lb	BRC003	-0.3	-0.3	9.1	45	Pass	2.04
1000 lb	BRC040	-3.5	-3.5	9.1	45	Pass	2.04
1000 lb	BRC030	7.2	7.2	9.1	45	Pass	2.04
1000 lb	BRC028	17.8	17.8	9.1	45	Pass	2.04
1000 lb	BRC039	-10.9	-10.9	9.1	45	Pass	2.04
1000 lb	BRC071	9.7	9.7	9.1	45	Pass	2.04
1000 lb	BRC037	5.0	5.0	9.1	45	Pass	2.04
1000 lb	BRC008	14.1	14.1	9.1	45	Pass	2.04
1000 lb	BRC013	79.7	12.0	9.1	45	Pass	2.04
1000 lb	BRC001	-12.1	-12.1	9.1	45	Pass	2.04
1000 lb	BRC047	4.6	4.6	9.1	45	Pass	2.04
1000 lb	BRC050	-26.6	-26.6	9.1	45	Pass	2.04
1000 lb	BRC051	-44.9	-2.0	9.1	45	Pass	2.04
1000 lb	BRC021	-21.0	-21.0	9.1	45	Pass	2.04
1000 lb	BRC045	6.1	6.1	9.1	45	Pass	2.04
1000 lb	BRC026	12.9	12.9	9.1	45	Pass	2.04
1000 lb	BRC056	39.4	20.7	9.1	45	Pass	2.04
1000 lb	BRC027	-21.1	-21.1	9.1	45	Pass	2.04
1000 lb	BRC072	-3.8	-3.8	9.1	45	Pass	2.04
1000 lb	BRC007	15.7	15.7	9.1	45	Pass	2.04
1000 lb	BRC065	49.3	-14.4	9.1	45	Pass	2.04

The certificate number is a unique identifier for referencing measurement traceability for artifacts identified on this certificate only. This report shall not be reproduced, except in full, without the written approval of Louisiana Department of Agriculture & Forestry Weights and Measures Division. This report is valid for one year from date of calibration. Items must have a current NIST traceable certificate of calibration before being used in the state of Louisiana.



Louisiana Department of Agriculture Forestry

Mike Strain DVM, Commissioner Agro-Consumer Services,
5825 Florida Blvd Ste 5000, Baton Rouge LA 70806 (225) 925-3780 Fax: 225-923-4877



<u>Environmental conditions:</u>	Initial	Final
Relative Humidity (%):	44.3	43.7
Temperature (°C):	22.3	22.7
Pressure (mmHg):	767.5	763.5

Certificate Number: LA23-789
Date Received: 11/28/2023
Date of Calibration: 11/29-30/2023
Date of Report: 12/1/2023

Condition of artifacts: Acceptable

1 lb = 453.59237 g

Measurement Results:

Nominal Mass	ID	Conventional Mass Correction as found (g)	Conventional Mass Correction as left (g)	Uncertainty (g)	MPE (g)	Within MPE?	k-factor
1000 lb	BRC067	29.0	29.0	9.1	45	Pass	2.04
1000 lb	BRC068	-23.0	-23.0	9.1	45	Pass	2.04
1000 lb	BRC034	-33.2	-33.2	9.1	45	Pass	2.04
1000 lb	BRC014	5.9	5.9	9.1	45	Pass	2.04
1000 lb	BRC004	-13.3	-13.3	9.1	45	Pass	2.04
1000 lb	BRC023	-18.7	-18.7	9.1	45	Pass	2.04
1000 lb	BRC017	-21.8	-21.8	9.1	45	Pass	2.04
1000 lb	BRC044	-21.3	-21.3	9.1	45	Pass	2.04
1000 lb	BRC058	-34.1	-34.1	9.1	45	Pass	2.04
1000 lb	BRC005	-30.2	-30.2	9.1	45	Pass	2.04
1000 lb	BRC061	10.8	10.8	9.1	45	Pass	2.04
1000 lb	BRC069	-16.6	-16.6	9.1	45	Pass	2.04
1000 lb	BRC020	-25.9	-25.9	9.1	45	Pass	2.04
1000 lb	BRC019	-6.2	-6.2	9.1	45	Pass	2.04
1000 lb	BRC015	-30.1	-30.1	9.1	45	Pass	2.04
1000 lb	BRC002	-22.0	-22.0	9.1	45	Pass	2.04
1000 lb	BRC049	-22.3	-22.3	9.1	45	Pass	2.04
1000 lb	BRC018	9.8	9.8	9.1	45	Pass	2.04
1000 lb	BRC046	-52.0	-17.3	9.1	45	Pass	2.04
1000 lb	BRC009	-40.8	-16.3	9.1	45	Pass	2.04
1000 lb	BRC066	-25.3	-25.3	9.1	45	Pass	2.04
1000 lb	BRC064	-6.6	-6.6	9.1	45	Pass	2.04
1000 lb	BRC033	-3.1	-3.1	9.1	45	Pass	2.04
1000 lb	BRC048	-40.7	-10.3	9.1	45	Pass	2.04
1000 lb	BRC006	-45.6	-1.8	9.1	45	Pass	2.04
1000 lb	BRC060	-7.3	-7.3	9.1	45	Pass	2.04
1000 lb	BRC035	-3.3	-3.3	9.1	45	Pass	2.04

The certificate number is a unique identifier for referencing measurement traceability for artifacts identified on this certificate only. This report shall not be reproduced, except in full, without the written approval of Louisiana Department of Agriculture & Forestry Weights and Measures Division. This report is valid for one year from date of calibration. Items must have a current NIST traceable certificate of calibration before being used in the state of Louisiana.



Louisiana Department of Agriculture Forestry

Mike Strain DVM, Commissioner Agro-Consumer Services,
5825 Florida Blvd Ste 5000, Baton Rouge LA 70806 (225) 925-3780 Fax: 225-923-4877



Environmental conditions:	Initial	Final
Relative Humidity (%):	44.3	43.7
Temperature (°C):	22.3	22.7
Pressure (mmHg):	767.5	763.5

Certificate Number: LA23-789
Date Received: 11/28/2023
Date of Calibration: 11/29-30/2023
Date of Report: 12/1/2023

Condition of artifacts: Acceptable

1 lb = 453.59237 g

Measurement Results:

Nominal Mass	ID	Conventional Mass Correction as found (g)	Conventional Mass Correction as left (g)	Uncertainty (g)	MPE (g)	Within MPE?	k-factor
1000 lb	BRC032	-10.1	-10.1	9.1	45	Pass	2.04
1000 lb	BRC031	-47.3	-13.3	9.1	45	Pass	2.04
1000 lb	BRC012	-5.5	-5.5	9.1	45	Pass	2.04
1000 lb	BRC042	8.4	8.4	9.1	45	Pass	2.04
1000 lb	BRC070	-31.5	-31.5	9.1	45	Pass	2.04
1000 lb	BRC011	-44.8	-17.9	9.1	45	Pass	2.04
1000 lb	BRC057	13.6	13.6	9.1	45	Pass	2.04
1000 lb	BRC025	0.5	0.5	9.1	45	Pass	2.04
1000 lb	BRC063	19.2	19.2	9.1	45	Pass	2.04
1000 lb	BRC010	-20.5	-20.5	9.1	45	Pass	2.04
1000 lb	BRC024	10.4	10.4	9.1	45	Pass	2.04
1000 lb	BRC038	-51.4	-10.3	9.1	45	Pass	2.04
1000 lb	BRC052	6.1	6.1	9.1	45	Pass	2.04
1000 lb	BRC059	20.5	20.5	9.1	45	Pass	2.04
1000 lb	BRC016	73.8	-11.1	9.1	45	Pass	2.04
1000 lb	BRC055	-1.8	-1.8	9.1	45	Pass	2.04
1000 lb	BRC053	4.6	4.6	9.1	45	Pass	2.04
1000 lb	BRC036	11.3	11.3	9.1	45	Pass	2.04

The certificate number is a unique identifier for referencing measurement traceability for artifacts identified on this certificate only. This report shall not be reproduced, except in full, without the written approval of Louisiana Department of Agriculture & Forestry Weights and Measures Division. This report is valid for one year from date of calibration. Items must have a current NIST traceable certificate of calibration before being used in the state of Louisiana.