Mass Echelon III Calibration Certificate

Indiana State Dept of Health
Weights and Measures Metrology Laboratory
2525 N Shadeland Ave Bldg 30 Ent 12
Indianapolis IN 46219

Calibration No.: 17-138

Date Received: June 5, 2017

Calibration Date: June 8, 2017

Client Name: Koenig Scale Co Inc

Point of Contact (POC): Kevin Koenig

Address: 4779 E Margaret Dr

POC Phone No.: (812) 877-6121

City/State/Zip: Terre Haute IN 47803

Condition of Artifact: Fair; Light Rust or damage

Specification: NIST HB 105-1 (1990)

Manufacturer	S/N	Denomination	Class	Correct	Adjusted	Condemned	Confiscated	Total
Unknown	#4M	2 kg to 1 g	F	14	0	0	0	14
			Grand Total	14	0	0	0	14

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Denomination			Expanded Unc in mg	wt id	Conventional Mass in mg kit# (mfg) #4M (unk)	wt id	Conventional Mass in mg Adjustment	wt id	Conventional Mass Error in mg
2	kg		32		2000041				41
1	kg		15		1000029				29
500	g		9		500026				26
200	g		6.2	**1**	200008.7			**1**	8.7
200	g		6.2	**2**	200012.4			**2**	12.4
100	g		3.3		100006.4				6.4
50	g		1.4		50005.6				5.6
20	g		0.59	.	20002.74			.	2.74
20	g		0.59		20001.99				1.99
10	g		0.32		10000.46				0.46
5	g		0.23		5000.66				0.66
2	g		0.17	.	2000.49			.	0.49
2	g		0.17		2000.54				0.54
1	g		0.71		1000.27				0.27

Temp °C	RH %	BP (mmHg)		
21.6	41	740.2	Calibration Tech:	Joshua Reagin

The uncertainty is taken as the root sum square of the Type A and the Type B uncertainties multiplied by a coverage factor of 2.37 to 2.43 (k= 2.37 to 2.43) providing a confidence level of approximately 95%.

As found values above may include weights that have been altered prior to testing (painting, scraping, sanding, etc.). "As Found" values listed above are "As Delivered" and should not be considered when calculating in or out of tolerance condition at last time of use prior to calibration.

The addition of any material such as tape, labels, wire, string and/or tags to the weight voids this calibration.
Unless noted otherwise above readings are "As Found" and "As Adjusted".

The pound equivalent for the fractional ounce and the decimal pound weights listed above have been rounded. The laboratory uses 453.59237 grams per pound for all conversions.

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Traceability Statement:

The Echelon III Mass Standards of the State of Indiana are traceable to the SI and NIST through approved accredited laboratories. The calibration number (Calibration No.) identified above is the unique traceability number to be used in referencing measurement traceability for artifacts identified in this report only.

Uncertainty Statement:

The combined standard uncertainty includes uncertainties reported for the standard, uncertainties associated with the measurement process, uncertainties for any observed deviations from reference values which are less than surveillance limits (previous similar determinations have demonstrated that the maximum permissible errors are sufficiently large that buoyancy corrections are not usually significant [i.e., corrections & their uncertainty will not change the last decimal place of the reported value or uncertainty (with uncertainty reported to 2 significant digits)]. The combined standard uncertainty is multiplied by a coverage factor, k, to give the expanded uncertainty, which defines an interval with a 95.45 % level of confidence. The expanded uncertainty presented in this report is consistent with NIST Technical Note 1297. Surface Roughness and Density testing have not been performed, therefore, there are no components for the effects of such testing in the uncertainty budget.

Equipment, Standards, and Procedures Used:

Comparator(s) Used: MT PR10003, MT AX206, MT UMT5

Comparators are "Used for Comparisons Only – No Calibration Required."

Standard(s) Used: Echelon III Working Standards 2 kg to 200 g "40119", 100 g Mettler, 50 g to 1 g "701194"

Procedure (SOP) Used: SOP 8, Option B

The laboratory uses procedures developed by the National Institute of Standards and Technology (NIST).

Joshua A. Reagin

Technical Manager, Metrologist