Certificate No: 153

Test

MARO ELEKTRONIK
Silvanerweg 6

55559 Bretzenheim

Cert # XXXX

Mass Calibration Certificate

Customer Information

Customer Name:	Maro Elektronik	*City:*	Bretzenheim
Address:	Silvanerweg 6	*State / Province:*	D
Purchase Order:		*Zip / Postal Code:*	55559

Measurement and Test Equipment Identification

Serial Number:	MR-1234	*Date Received:*	01/31/2011
Manufacturer:	Maro	*Condition:*	Good
		Tolerance Class:	ASTM 6
Asset number:			

Environmental Conditions

Temperature:	20,673 ℃	*Relative Humidity:*	49,655 *%RH*
Barometric Pressure:	987,6723 *hPa*	*Air Density:*	1,1660 *kg/m^3*

The standards used to perform this calibration are traceable to NIXX through Maro traceability number: XXXXX

This certificate is issued in accordance with the conditions granted by A2XX under Certificate number XXXXX, which is based on ISO/IEC17025. A2XX has assessed the measurement capability of the laboratory and its traceability to recognized national standards. All uncertainties in this certificate are reported at a 95% (k=2) confidence factor.

Calibration Date:	2011-02	*Next Calibration Due:*	02/09/2012
Calibration Technician:	R. Maro	*Signature:*	_____
			Metrology Specialist
			02/09/2011 Date

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As Found Data

Nominal Value&Suffix		Serial Number		True Mass (g)	Conv. Mass (g)	Uncertainty (mg, k = 2)	Tolerance (mg)	Density (g/cm³)
1 kg		MR-1234		1000,08477	+1000,09356	0,13	100	8,498
500 g		MR-1234		500,01620	+500,02060	0,06	50	8,498
200 g	*	MR-1234	OOT	200,02443	+200,02619	0,04	20	8,498
200 g		MR-1234		200,01312	+200,01488	0,03	20	8,498
100 g		MR-1234	OOT	100,01737	+100,01825	0,03	10	8,498
50 g		MR-1234	OOT	49,79498	+49,79542	0,20	7	8,498
20 g	*	MR-1234	OOT	20,00882	+20,00899	0,01	3	8,498
20 g		MR-1234	OOT	20,00467	+20,00484	0,01	3	8,498
10 g		MR-1234	OOT	10,01391	+10,01400	0,01	2	8,498
5 g		MR-1234	OOT	5,00711	+5,00716	0,01	2	8,498
2 g	*	MR-1234	OOT	2,002172	+2,002190	0,003	2,0	8,498
2 g		MR-1234		2,001390	+2,001407	0,002	2,0	8,498
1 g		MR-1234	OOT	1,002811	+1,002820	0,003	2,0	8,498

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As Left Data

Nominal Value&Suffix		Serial Number		True Mass (g)	Conv. Mass (g)	Uncertainty (mg, k = 2)	Tolerance (mg)	Density (g/cm³)
1 kg		MR-1234		+1000,08477	+1000,09356	0,13	100	8,498
500 g		MR-1234		+500,01620	+500,02060	0,06	50	8,498
200 g	*	MR-1234	OOT	+200,02443	+200,02619	0,04	20	8,498
200 g		MR-1234		+200,01312	+200,01488	0,03	20	8,498
100 g		MR-1234	OOT	+100,01737	+100,01825	0,03	10	8,498
50 g		MR-1234	OOT	+49,79498	+49,79542	0,20	7	8,498
20 g	*	MR-1234	OOT	+20,00882	+20,00899	0,01	3	8,498
20 g		MR-1234	OOT	+20,00467	+20,00484	0,01	3	8,498
10 g		MR-1234	OOT	+10,01391	+10,01400	0,01	2	8,498
5 g		MR-1234	OOT	+5,00711	+5,00716	0,01	2	8,498
2 g	*	MR-1234	OOT	+2,002172	+2,002190	0,003	2,0	8,498
2 g		MR-1234		+2,001390	+2,001407	0,002	2,0	8,498

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Comparators Used

#	Equipment Used	Serial Number	Equipment Type	Calibration Due
#6 :	a5XL	AB16731	Automated Mass Comparator	06/30/2012
11# :	a200XL	AB16733	Automated Mass Comparator	06/30/2012
15# :	a1000	AB16732	Automated Mass Comparator	06/30/2012

Comments

No Remarks

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Definitions

Nominal Value - The value as labeled on the weight or defined by shape in accordance with OIML R111 for milligram weights. The number within the parentheses after the nominal value is the serial number of the set to which the weight belongs.

True Mass - The mass value of the weight if measured in a vacuum.

Conventional Mass - For a mass at 20 °C, "Conventional Mass" is the mass of a reference standard of density 8000 kg/m³ which it balances in air with a density of 1.2 kg/m³. This value should be referenced when testing the accuracy of a weighing device using any of the nominal values contained in this certificate. The As Found results will equal the As Left in cases where no adjustment or replacement was required.

Uncertainty - All Uncertainty values are reported at 95% confidence level (k=2) . The uncertainty value does not include a component for the affects due to magnetism.

Tolerance - The acceptable range of deviation (positive and negative) from the nominal value, including the uncertainty, as defined by ASTM and OIML for the respective classes.

Density - The assumed density of the material used by the manufacturer.

Calibration Process - The Maro procedure used to obtain the measurement results. All procedures are based on SOPs as defined in NIST Handbook 145. The same process is used to obtain the As Found and As Left results.

OOT - The As Found measurement result combined with the uncertainty exceeded the tolerance for the specified weight class.

A - Weight was adjusted after As Found testing to within the appropriate tolerance class.

R - The received weight was replaced due to an out of tolerance condition and the weight was not adjustable or the weight for this nominal value was missing.