SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

TRINIDAD AND TOBAGO BUREAU OF STANDARDS
1-2 Century Drive, Trincity Industrial Estate
Macoya, TUNAPUNA, Trinidad and Tobago
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CALIBRATION

Valid To: April 30, 2023 Certificate Number: 5800.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations[1, 5]:

I. Mechanical

Parameter/Measure	Range	CMC[2, 6] (±)	Comments
Mass – Weights and Artifacts	0.001 g 0.002 g 0.005 g 0.01 g 0.02 g 0.05 g 0.1 g 0.2 g 0.5 g 1 g 2 g 5 g 10 g 20 g 50 g 100 g 200 g 500 g 1000 g 2000 g 5000 g 10 000 g 20 000 g	0.0020 mg 0.0020 mg 0.0020 mg 0.0020 mg 0.0023 mg 0.0030 mg 0.0038 mg 0.0046 mg 0.0049 mg 0.0076 mg 0.011 mg 0.014 mg 0.017 mg 0.022 mg 0.027 mg 0.045 mg 0.085 mg 0.22 mg 0.44 mg 0.85 mg 2.3 mg 4.4 mg 40 mg	Mass comparator OIML Class F2 for 20 kg

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Parameter/Measure	Range	CMC[2] (±)	Comments
Non – Automatic, Electronic, Digital, Weighing Instruments[3]	0.5 g 1 g 2 g 5 g 10 g 20 g 50 g 100 g 200 g 500 g 1 kg 2 kg 5 kg 10 kg 20 kg 50 kg 100 kg 200 kg 500 kg 1000 kg	0.0063 mg 0.0082 mg 0.010 mg 0.014 mg 0.020 mg 0.031 mg 0.063 mg 0.12 mg 0.24 mg 0.61 mg 1.2 mg 2.4 mg 6.1 mg 12 mg 26 mg 230 mg 4 g 8.8 g 21 g 42 g	OIML Class E_1 weights, Class E_2 weights, Class F_1 weights, and Class M_1 weights OIML Class F_1 weights, and Class M_1 weights OIML Class M_1 weights
Volumetric Flasks	1 mL 2 mL 5 mL 10 mL 20 mL 25 mL 50 mL 100 mL 200 mL 250 mL 500 mL 1 L 2 L	0.0063 mL 0.0063 mL 0.0063 mL 0.0063 mL 0.010 mL 0.010 mL 0.015 mL 0.024 mL 0.035 mL 0.035 mL 0.056 mL 0.089 mL 0.13 mL	Gravimetric method
Pipettes	1 mL 2 mL 5 mL 10 mL 20 mL	0.0019 mL 0.0026 mL 0.0033 mL 0.0043 mL 0.0062 mL	Gravimetric method

Parameter/Measure	Range	CMC[2] (±)	Comments
Pipettes (cont)	25 mL 50 mL 100 mL	0.0064 mL 0.010 mL 0.14 mL	Gravimetric method

II. Thermodynamics

Parameter/Measure	Range	CMC[2] (±)	Comments
Platinum Resistance Thermometers (PRT) – Fixed Points[4] TP Mercury TP Water MP Gallium FP Tin FP Zinc FP Aluminum	 -38.8344 °C 0.01 °C 29.7646 °C 231.928 °C 419.527 °C 660.323 °C	 0.005 °C 0.003 °C 0.005 °C 0.007 °C 0.006 °C 0.011 °C	 Fixed point cells with bridge and standard resistor, with all points except the TPW being referenced with a SPRT
Temperature Indicators w/ Probes	0 °C (-20 to 100) °C (100 to 250) °C	0.033 °C 0.14 °C 0.14 °C	Reference thermometer and bath
Liquid in Glass Thermometers	0 °C (-20 to 100) °C (100 to 250) °C	0.033 °C 0.18 °C 0.18 °C	Reference thermometer and bath +1/5 scale division

[1] This laboratory offers commercial calibration service and field calibration service.

[2] Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMCs represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of k = 2. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

[3] Field calibration service is available for this calibration. Please note the actual measurement uncertainties achievable on a customer's site can normally be expected to be larger than the CMC found on the A2LA Scope. Allowance must be made for aspects such as the environment at the place of calibration and for other possible adverse effects such as those caused by transportation of the calibration equipment. The usual allowance for the actual uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the actual measurement uncertainty achievable on a customer's site being larger than the CMC.

[4] In the case of Platinum Resistance Thermometers, TP represents triple point, MP represents melting point, and FP represents freezing point of their respective materials.

[5] This scope meets *A2LA's P112 Flexible Scope Policy*.

[6] Intermediate values can be calibrated to an uncertainty interpolated from the next higher and lower values in the table.

Accredited Laboratory

A2LA has accredited

THE TRINIDAD AND TOBAGO BUREAU OF STANDARDS

Macoya, Tunapuna, Trinidad and Tobago

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets R205 – Specific Requirements: Calibration Laboratory Accreditation Program. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 19th day of May 2021.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 5800.02
Valid to April 30, 2023

For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.