



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

LABCAL SOLUTIONS CC
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CALIBRATION

Valid To: May 31, 2019

Certificate Number: 4067.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations^{1,4}:

I. Electrical – DC/Low Frequency

| Parameter/Equipment | Range | CMC ² (±) | Comments |
|--|------------------------------------|----------------------|------------|
| Electrical Simulation of RTD Devices ³ | | | |
| Measure (Indicators, etc.) | (-50 to 150) °C (150 to 800) °C | 0.40 K 0.45 K | LCS03/003A |
| Measuring Equipment (Transmitters, etc.) | (-50 to 150) °C (150 to 800) °C | 0.40 K 0.45 K | LCS03/003A |
| Electrical Simulation of TC Devices – Measuring Equipment ³ | | | |
| Base Metal Thermocouples (Type K, J) | (-100 to 1000) °C | 0.85 K | LCS03/003A |
| Base Metal Thermocouples (Type T) | (-100 to 350) °C | 0.85 K | LCS03/003A |

II. Mechanical

| Parameter/Equipment | Range | CMC ² (±) | Comments |
|---|--|--|---|
| Pneumatic Pressure – Measuring Equipment ³ | | | |
| Absolute Pressure | (15 to 800) kPa | 3.1 kPa | LCS13/015A |
| Gauge Pressure | (-85 to 800) kPa | 2.1 kPa | LCS03/011A |
| Differential Pressure | (0 to 250) Pa (250 to 2000) Pa | 4.0 Pa 8.0 Pa | LCS03/012A |
| Pipettes | (2 to 20) µL (20 to 100) µL (100 to 500) µL (500 to 1000) µL (1000 to 5000) µL | 0.4 µL 1.1 µL 2.0 µL 2.4 µL 5.0 µL | LCS03/017A (single channel) or LCS09/028A (multi-channel) |

III. Thermodynamics

| Parameter/Equipment | Range | CMC ² (±) | Comments |
|--|--|----------------------------|------------|
| Temperature – Measuring Equipment ³ | | | |
| Platinum Resistance Thermometers | -80 °C (-25 to 150) °C (150 to 300) °C | 0.50 K 0.34 K 0.80 K | LCS03/001A |
| Ice Point Reference | 0.0 °C | 0.12 K | LCS07/023A |

| Parameter/Equipment | Range | CMC ² (±) | Comments |
|--|--|----------------------------------|--|
| Temperature – Measuring Equipment ³ | | | |
| Liquid in Glass Thermometers | 0 °C (25 to 75) °C (75 to 200) °C (200 to 250) °C | 0.2 K 0.4 K 0.6 K 0.8 K | LCS11/029A |
| Digital Thermometers | -80 °C (-25 to 150) °C (150 to 300) °C | 0.50 K 0.34 K 0.80 K | LCS03/006A & LCS03/007A |
| Mechanical (Dial) Thermometers | -80 °C (-25 to 300) °C | 1.2 K 1.2 K | LCS03/006A |
| Temperature Loop Line | -80 °C (-25 to 150) °C (150 to 300) °C | 0.50 K 0.34 K 0.80 K | LCS03/004A & LCS08/027A |
| Temperature – Measure ³ | | | |
| Autoclaves Temperature Pressure | (20 to 150) °C (0 to 350) kPa | 0.47 K 2.1 kPa | LCS03/008A LCS03/011A & LCS13/015A |
| Time | (0 to 240) minutes | 0.5 sec | LCS03/013A |
| Environmental Chambers & Sterilizers | (-25 to 150) °C 150 to 300) °C | 0.41 K 0.80 K | LCS03/008A & LCS03/010A & LCS04/026A |
| Temperature Installations Ovens, Incubators, Stirred Water Baths, Fridges, & Freezers | (-80 to -25) °C (-25 to 150) °C (150 to 300) °C | 0.70 K 0.41 K 0.80 K | LCS03/009A & LCS03/010A & LCS04/026A & LCS10/025A |
| Temperature Loggers | (-80 to -25) °C (-25 to 150) °C (150 to 300) °C | 0.70 K 0.41 K 0.80 K | LCS03/006A & LCS11/030A & LCS13/032A |

| Parameter/Equipment | Range | CMC ^{2,3} (±) | Comments |
|--|--|--|--|
| Relative Humidity – Measuring Equipment ³ | | | |
| Digital Hygrometers (15 to 30 °C) | 10 % RH 35 % RH 50 % RH 65 % RH 75 % RH 95 % RH (30 to 90) % RH (15 to 30) °C | 1.1 % RH 1.5 % RH 1.5 % RH 1.5 % RH 2.0 % RH 2.0 % RH 3.5 % RH 0.4 °C | LCS03/018A & LCS11/030A & LCS13/032A LCS06/021A |
| Data Loggers | (30 to 90) % RH (15 to 30) °C | 3.5 % RH 0.4 °C | LCS11/030A & LCS13/032A |
| Environmental Chambers | (10 to 90) % RH | 3.7 % RH | LCS03/010A & LCS11/010A1 |

IV. Time & Frequency

| Parameter/Equipment | Range | CMC ^{2,3} (±) | Comments |
|--|----------------------|------------------------|------------|
| Rotational Speed (Contact) ³ | | | |
| Tachometers | (5 to 500) rpm | 2 rpm | LCS03/019A |
| Centrifuges | (501 to 3000) rpm | 5 rpm | |
| Rotational Speed – (Non-Contact) ³ | | | |
| Tachometers | (5 to 1000) rpm | 1 rpm | LCS05/020A |
| Centrifuges | (1001 to 50 000) rpm | 6 rpm | |
| Timers ³ | (0 to 240) minutes | 0.5 sec | LCS03/013A |

¹ This laboratory offers commercial 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 and this laboratory meets A2LA R104 – *General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these calibrations. 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 Approved signatories:

S. Chesneau: All Items
T. Singizi: Items I, II, and III
M. Phokanoka: Item II (Pipettes)

A handwritten signature in black ink, appearing to be 'L. S. Singizi', written in a cursive style.



Accredited Laboratory

A2LA has accredited

LABCAL SOLUTIONS CC

Kyalami, South Africa, AFRICA

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *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 8 January 2009*).



Presented this 18th day of September 2017.

A handwritten signature in black ink, written over a horizontal line.

President and CEO
For the Accreditation Council
Certificate Number 4067.01
Valid to May 31, 2019

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