



CERTIFICATE OF ACCREDITATION

This is to attest that

CATIIS BAHRAIN W.L.L.

OFFICE 12, BLDG 84, ROAD 8
SALMABAD 704, KINGDOM OF BAHRAIN

Calibration Laboratory CL-243

has met the requirements of AC204, *IAS Accreditation Criteria for Calibration Laboratories*, and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories*. This organization is accredited to provide the services specified in the scope of accreditation.

Effective Date August 14, 2023

Expiration Date April 1, 2025



A handwritten signature in black ink, reading "Raj Nathan".

President

SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | www.iasonline.org

CATIIS BAHRAIN W.L.L.

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Accredited to ISO/IEC 17025:2017

Effective Date August 14, 2023

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY ^{1,2} (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Dimensional			
Vernier Caliper	Up to 300 mm	7.3 µm	Using gauge block set & Accessories by comparison method (Procedure no. CAT-CP-16(M))
Micrometers	Up to 50 mm 50 mm to 250 mm	2.3 µm 6.4 µm	Using gauge block set & Accessories by comparison method (Procedure no. CAT-CP-17(M))
Height Gauge	Up to 300 mm	7.7 µm	Using gauge block set & Accessories by comparison method (Procedure no. CAT-CP-18(M))
Dial Indicators (Plunger)	Up to 25 mm	5.8 µm	Using gauge block set & Comparison Stand by comparison method (Procedure no. CAT-CP-19(M))
Mechanical			
Pressure Gauge/Indicator, Transmitter with or without indicator, recorder, switch	0 bar to 40 bar 0 bar to 700 bar	0.013 bar 0.23 bar	Using Digital pressure gauge & Pressure Pump by comparison method (Procedure no. CAT-CP-23(M))
Vacuum Gauge/Indicator, Transmitter with or without indicator, recorder, switch	-0.85 bar to 0 bar	0.002 bar	Using Digital pressure gauge & Pressure Pump by comparison method (Procedure no. CAT-CP-23(M))

* If information in this CMC is presented in non-SI units, the conversion factors stated in NIST Special Publication 811 "Guide for the Use of the International System of Units (SI)" apply.

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Mass – Standard Weights (Classes F1 & Lower class)	1 mg to 500 mg 1 g to 5 g 10 g 20 g 50 g 100 g 200 g	0.01 mg 0.014 mg 0.017 mg 0.022 mg 0.029 mg 0.084 mg 0.16 mg	Using E2 Class weights & weighing balance by comparison method (Procedure no. CAT-CP-21(M))
Mass – Standard Weights (Classes F2 & Lower Class)	500 g to 2 kg 5 kg 10 kg 20 kg	8.3 mg 10 mg 84 mg 84 mg	Using F1 Class weights & weighing balances by comparison method (Procedure no. CAT-CP-21(M))
Weighing Balance	0.01 mg to 80 g 0.0001 g to 220 g 0.001 g to 500 g	0.065 mg 0.15 mg 1.2 mg	Using E2 Class weights by comparison method (Procedure no. CAT-CP-22(M))
	0.01 g to 600 g	0.02 g	Using E2 & F1 Class weights by comparison method (Procedure no. CAT-CP-22(M))
	0.1 g to 24000 g	0.2 g	Using F1 Class weights by comparison method (Procedure no. CAT-CP-22(M))
	0.01 kg to 150 kg	33 g	Using F1 & M1 Class weights by comparison method (Procedure no. CAT-CP-22(M))
Compression Testing Machine	10 kN to 3000 kN	0.45 %	Using Load Cell with Indicator by Direct Method (CAT-CP-20(M))
Tensile Testing Machine	5 kN to 70 kN	0.21 kN	Using Load Cell with Indicator by Direct method (Procedure no. CAT-CP-20(M))
Volumetric – Micropipette / Syringes/ Pipette and Burette (Graduated / Non-graduated), Volumetric Cylinder, Beaker, Flask, etc.	10 µL to 100 µL 100 µL to 1 mL 1 mL to 10 mL 10 mL to 20 mL 20 mL to 100 ml	0.45 µL 0.60 µL 2.5 µL 8 µL 36 µL	Using Weighing balance and Distilled Water by Gravimetric method (Procedure no. CAT-CP-30 (M))

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Flow Measurement (Liquid)	55 L/min to 445 L/min	0.36 %	Using Clamp-on Ultrasonic Flow meter by direct method. (Procedure no. CAT-CP-47 (M))
Hardness Tester (Rockwell)	92.6 HRB	0.82 HRB	Using Reference Hardness Block by direct Method (Procedure no. CAT-CP-48 (M))
Thermal			
Indicator of Oven/Incubator/Water Bath/ Temperature Sources & Calibrator /Chiller/Freezer	-40 °C to 20 °C 20 °C to 50 °C 50 °C to 400 °C	0.11 °C 0.38 °C 0.46 °C	Using Class-A 4 wire RTD Sensor with High precision Digital Thermometer by comparison method (Procedure no. CAT-CP-27 (T))
Digital Thermometers, Temperature Sensor, Transmitter (RTD/ Thermocouple) with or Without Indicator	Fixed Point: -196 °C	0.058 °C	Temp sensors with indicator by Comparison method (Procedure no. CAT-CP-25 & 26 (T))
	-20 °C to 120 °C 120 °C to 600 °C 600 °C to 800 °C	0.21 °C 0.75 °C 1.3 °C	Dry block Temperature Calibrator by Direct method (Procedure no. CAT-CP-25 & 26 (T))
Relative Humidity Meter	20% RH to 85% RH (@ 25 °C)	1.7 %	Humidity Chamber by Direct method (CAT-CP-29(T))
Electrical – DC/LF			
DC Voltage Generate ³	0 mV to 200 mV 0.2 V to 20 V 20 V to 200 V 200 V to 1000 V	0.005 % + 5 µV 0.008 % + 0.05 mV 0.006 % + 1.8 mV 0.006 % + 14 mV	Using Multi product Calibrator by direct method (Procedure no. CAT-CP-01 (E))
DC Current Generate ³	0 µA to 200 µA 0.2 mA to 200 mA 0.2 A to 20 A 20 A to 1000 A	0.01 % + 0.03 µA 0.015 % 0.045 % + 0.24 mA 0.6 % + 0.25 A	Using Multi product Calibrator by direct method (Procedure no. CAT-CP-02 (E))
DC Resistance Generate ³ (FIXED VALUES)	0.189 Ω 10.198 Ω 100.2180 Ω 1.00287 kΩ 9.99976 kΩ 100.0007 kΩ 1.000018 MΩ 9.99899 MΩ 100.0320 MΩ	5.2 mΩ 4.5 mΩ 4.6 mΩ 8.7 mΩ 0.12 Ω 2.56 Ω 0.015 kΩ 0.24 kΩ 0.03 MΩ	Using Multi product Calibrator by direct method (2-wire) (Procedure no. CAT-CP-05 (E))

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MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY ^{1,2} (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
DC Resistance Generate ³ (FIXED VALUES) (cont'd.)	10.00872 Ω 100.0056 Ω 1.000072 kΩ 9.99954 kΩ 100.0007 kΩ	0.30 mΩ 0.77 mΩ 0.013 Ω 0.13 Ω 2.1 Ω	Using Multi product Calibrator by direct method (4-wire) (Procedure no. CAT-CP-05 (E))
Capacitance Generate ³ (FIXED VALUE)	(1 kHz) 10.440 nF 20.1780 nF 50.163 nF 99.66 nF 1.0070 μF	0.014 nF 0.03 nF 0.04 nF 0.08 nF 0.78 nF	Using Multi product Calibrator by direct method (Procedure no. CAT-CP-013 (E))
AC Voltage Generate ³	1 mV to 200 mV (45 Hz to 1.999 kHz) (2 kHz to 20 kHz) 0.2 V to 20 V (45 Hz to 1.999 kHz) (2 kHz to 100 kHz) 20 V to 200 V (40 Hz to 1.999 kHz) (2 kHz to 20 kHz) 200 V to 750 V (40 Hz to 1 kHz)	0.021 % + 56 μV 0.09 % + 0.23 mV 0.044 % + 0.3 mV 0.47 % + 0.8 mV 0.045 % + 15 mV 0.096 % + 17 mV 0.039 % + 100 mV	Using Multi product Calibrator by direct method (Procedure no. CAT-CP-01 (E))
AC Current Generate ³	20 μA to 200 μA (40 Hz to 1 kHz) 0.2 mA to 200 mA (40 Hz to 1 kHz) 0.2 A to 20 A (40 Hz to 1 kHz) 20 A to 1000 A (50 Hz)	0.07 % + 0.35 μA 0.077 % + 0.9 μA 0.19 % + 11 mA 0.61 % + 0.25 A	Using Multi product Calibrator with Clamp Adaptor by direct method (Procedure no. CAT-CP-02 (E))
Simulated Temperature Generate ³ Thermocouples			Using Multi product Calibrator with Thermocouple Simulator by direct method (Procedure no. CAT-CP-05 (E))
J- Type	-210 °C to 1200 °C	0.17 °C	
K- Type	-200 °C to 1370 °C	0.24 °C	
T- Type	-250 °C to 400 °C	0.14 °C	
S- Type	0 °C to 1760 °C	0.60 °C	
R- Type	0 °C to 1760 °C	0.60 °C	
B- Type	600 °C to 1820 °C	0.76 °C	
E- Type	-250 °C to 1000 °C	0.18 °C	
N- Type	-200 °C to 1300 °C	0.29 °C	

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Simulated Temperature Generate ³ Thermocouples (continued) L- Type U- Type C- Type	-200 °C to 900 °C -200 °C to 600 °C 0 °C to 2316 °C	0.39 °C 0.49 °C 0.79 °C	Using Multi product Calibrator with Thermocouple Simulator by direct method (Procedure no. CAT-CP-05 (E))
DC Voltage Measure ⁴	0 mV to 200 mV 0.2 V to 200 V 200 V to 1000 V	0.004 % + 6 µV 0.006 % + 0.3 µV 0.006 % + 13 mV	Using 6½ Digit Digital Multimeter by Direct Method (Procedure no. CAT-CP-08 (E))
AC Voltage Measure ⁴	(50 Hz) 1 mV to 200 mV @ 0.2 V to 200 V @ 50 Hz 200 V to 750 V @ 50 Hz	0.075 % + 0.1 mV 0.15 % 0.11 % + 0.31 V	Using 6½ Digit Digital Multimeter by Direct Method (Procedure no. CAT-CP-08 (E))
DC Current Measure ⁴	1 µA to 200 µA 0.2 mA to 200 mA 0.2 A to 10 A	0.054 % + 0.03 µA 0.045 % + 0.03 µA 0.18 % + 0.5 mA	Using 6½ Digit Digital Multimeter by Direct Method (Procedure no. CAT-CP-09 (E))
AC Current Measure ⁴	(50 Hz) 10 µA to 200 µA 0.2 mA to 200 mA 0.2 A to 10 A	0.055 % + 0.61 µA 0.3 % + 0.1 mA 0.23 % + 7.5 mA	Using 6½ Digit Digital Multimeter by Direct Method (Procedure no. CAT-CP-09 (E))
DC Resistance Measure ⁴	1 Ω to 50 MΩ	0.94 % + 0.01 Ω	Using 6½ Digit Digital Multimeter by Direct Method (Procedure no. CAT-CP-11 (E))
Simulated Temperature – Measure ⁴ Thermocouples J- Type K- Type T- Type S- Type R- Type B- Type E- Type N- Type L- Type U- Type C- Type	-210 °C to 1200 °C -200 °C to 1370 °C -250 °C to 400 °C 0 °C to 1760 °C 0 °C to 1760 °C 600 °C to 1820 °C -250 °C to 1000 °C -200 °C to 1300 °C -200 °C to 900 °C -200 °C to 600 °C 0 °C to 2316 °C	0.17 °C 0.24 °C 0.14 °C 0.60 °C 0.60 °C 0.76 °C 0.18 °C 0.29 °C 0.39 °C 0.49 °C 0.79 °C	Using Multi product Calibrator with Thermocouple Simulator by direct method (Procedure no. CAT-CP-12 (E))

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Time and Frequency			
Frequency Generate ³	10 to 10 kHz 10 kHz to 100 kHz 100 kHz to 1 MHz	0.00058 % 0.0007 % 0.0076 %	Using Multi product Calibrator by direct method (Procedure no. CAT-CP-03 (E))
Rotational Speed (NON-CONTACT TYPE)	30 rpm to 100 rpm 100 rpm to 500 rpm 500 rpm to 4000 rpm	0.17 rpm 0.68 rpm 1.1 rpm	Using reference Tachometer by Direct Method (Procedure no. CAT-CP-39 (M))
Chemical/Gas			
pH Meter	0 pH to 14 pH	0.023 pH	Using Standard Buffer Solutions for pH by Comparison method (Procedure no. CAT-CP-14 (C))
Conductivity Meter	Up to 2000 µS/cm	12 µS/cm	Using Standard conductivity solution by comparison method (Procedure no. CAT-CP-15 (C))
TDS Meter	Up to 1000 mg/L	6.9 mg/L	Using Standard conductivity solution by comparison method (Procedure no. CAT-CP-15 (C))
Spectrophotometer	648 nm to 218 nm	0.03 %	Using Reference Material - Holmium Glass Filter by Direct method (Procedure no. CAT-CP-56 (C))

¹The uncertainty covered by the Calibration and Measurement Capability (CMC) is expressed as the expanded uncertainty having a coverage probability of approximately 95 %. It is the smallest measurement uncertainty that a laboratory can achieve within its scope of accreditation when performing calibrations of a best existing device. The measurement uncertainty reported on a calibration certificate may be greater than that provided in the CMC due to the behavior of the calibration item and other factors that may contribute to the uncertainty of a specific calibration.

²When uncertainty is stated in relative terms (such as percent, a multiplier expressed as a decimal fraction or in scientific notation), it is in relation to instrument reading or instrument output, as appropriate, unless otherwise indicated.

³Capability is suitable for the calibration of measuring devices in the stated ranges.

⁴Capability is suitable for the calibration of devices intended to generate the indicated quantity in the stated ranges.