CERTIFICATE OF ACCREDITATION

This is to attest

ALFANAR CALIBRATION LABORATORY

1765, OTHMAN ALRADY ST. ALREMAL AREA
RIYADH, 11632, SAUDI ARABIA

Calibration Laboratory CL-198

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 November 14, 2024

IAS ACCREDITED

International Accreditation Service
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SCOPE OF ACCREDITATION

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ALFANAR CALIBRATION LABORATORY

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Accredited to ISO/IEC 17025:2017 *Effective Date November 14, 2024*

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 280 mm	17 µm	Calibration Procedure No - ACL/LAB/CAL.P/21 Gauge Block Set -Grade 0 by direct method
External Micrometers	up to 250 mm	6.9 µm	Calibration Procedure No - ACL/LAB/CAL.P/20 Gauge Block Set- Grade 0 & Standard Bar by direct method
Mechanical			
Weights	1 g 2 g 5 g 10 g 20 g 50 g 100 g 200 g 500 g 1000 g 2000 g 5000 g 10000 g 20000 g	0.13 mg 0.22 mg 0.20 mg 0.25 mg 0.31 mg 0.43 mg 0.60 mg 1.4 mg 4.1 mg 6.0 mg 59 mg 65 mg 83 mg 140 mg	Calibration Procedure No – ACL/LAB/CAL.P/18 F1 Weight Set and weighing balance by comparison method
Balance	up to 220 g 200 g to 1500 g 2000 g to 5000 g 5000 g to 8000 g	0.80 mg 6.1 mg 5.7 g 12 g	Calibration Procedure No – ACL/LAB/CAL.P/17

** 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.*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
	8000 g to 20000 g	23 g	F1 Weight Set by direct method
Pressure measuring/sourcing devices	Up to 100 bar 100 bar to 200 bar 200 bar to 400 bar 400 bar to 600 bar 600 bar to 800 bar 800 bar to 1000 bar 1000 bar to 1200 bar	82 mbar 0.20 bar 0.24 bar 0.35 bar 0.47 bar 0.58 bar 0.70 bar	Calibration Procedure No – ACL/LAB/CAL.P/11 Digital Pressure Gauge by comparison method
	1 bar to 12 bar 12 bar to 36 bar 36 bar to 42 bar 42 bar to 60 bar 60 bar to 240 bar 240 bar to 1200 bar	6.6 mbar 18 mbar 21 mbar 30 mbar 97 mbar 0.36 bar	Calibration Procedure No – ACL/LAB/CAL.P/11 Dead Weight Tester by direct method
Torque Sensors	1.2 N·m to 3 N·m 3 N·m to 15 N·m 15 N·m to 21 N·m 21 N·m to 25 N·m	0.0038 N·m 0.029 N·m 0.032 N·m 0.057 N·m	Calibration Procedure No – ACL/LAB/CAL.P/ 15 250 mm Beam and Weights by direct method
	25 N·m to 84 N·m 84 N·m to 800 N·m 800 N·m to 1000 N·m 1000 N·m to 1500 N·m	0.033 N·m 0.081 N·m 0.50 N·m 0.20 N·m	Calibration Procedure No – ACL/LAB/CAL.P/ 15 1000 mm Beam and Weights by direct method
Torque Wrench	5 N·m to 10 N·m 10 N·m to 15 N·m 15 N·m to 25 N·m 25 N·m to 60 N·m 60 N·m to 100 N·m 100 N m to 300 N m 300 N·m to 500 N m 500 N m to 600 N m 600 N m to 1000 N m 1000 N m to 1200 N m	0.029 N·m 0.092 N·m 0.16 N·m 0.35 N·m 0.58 N·m 1.7 N·m 2.9 N·m 3.5 N·m 5.8 N·m 7.0 N·m	Calibration Procedure No – ACL-LAB-CAL.P-14 Torque Wrench Calibrator by direct method
Sound Level Meter (@ 1 kHz)	94 dB 114 dB	0.83 dB 1.3 dB	Calibration Procedure No - ACL-LAB-CAL.P-23 Sound Level Calibrator by direct method
Thermal			
Temperature - Measure[4]	-80 °C to 150 °C 150 °C to 650 °C	0.60 °C 0.75 °C	Calibration Procedure No – ACL-LAB-CAL.P-13/13A /13B

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
			SPRT & High Precision Multimeter by comparison method
Electrical – DC/LF			
DC Voltage - Measure[4]	0 mV to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V 200 V to 1000 V	3.1 µV 15 µV 0.12 mV 2.1 mV 12 mV	Calibration Procedure No – ACL-LAB-CAL.P-02 Reference Multimeter by direct method
DC Current – Measure[4]	0 µA to 200 µA 200 µA to 2 mA 2 mA to 20 mA 20 mA to 200 mA 200 mA to 2 A 2 A to 20 A 20 A to 50 A 50 A to 100 A 100 A to 200 A 200 A to 500 A 500 A to 800 A	24 nA 100 nA 1 µA 18 µA 0.48 mA 13 mA 0.6 A 1.1 A 2.3 A 5.3 A 9.6 A	Calibration Procedure No - ACL-LAB-CAL.P-01 Reference Multimeter & Clamp Meter by direct method
AC Voltage - Measure[4]	(60 Hz) 0 mV to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V 200 V to 1000 V (1 kHz) 0 mV to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V 200 V to 1000 V	 38 µV 0.23 mV 2.2 mV 23 mV 0.16 V 35 µV 0.21 mV 2.0 mV 21 mV 0.16 V	Calibration Procedure No - ACL-LAB-CAL.P-04 Reference Multimeter by direct method
AC Current - Measure[4]	(60 Hz) 0 µA to 200 µA 200 µA to 2 mA 2 mA to 20 mA 20 mA to 200 mA 200 mA to 2 A 2 A to 20 A 20 A to 50 A 50 A to 100 A 100 A to 200 A 200 A to 500 A	 0.08 µA 0.5 µA 5 µA 51 µA 0.88 mA 11 mA 0.6 A 1.1 A 2.3 A 5.3 A	Calibration Procedure No - ACL-LAB-CAL.P-05 Reference Multimeter by direct method

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
AC Current - Measure[4] (cont'd.)	500 A to 800 A (1 kHz) 0 µA to 200 µA 200 µA to 2 mA 2 mA to 20 mA 20 mA to 200 mA 200 mA to 2 A 2 A to 20 A	8.3 A 0.07 µA 0.5 µA 5 µA 51 µA 0.87 mA 11 mA	
DC Resistance - Measure[4]	0 Ω to 2 Ω 0 Ω to 20 Ω 0 Ω to 200 Ω 0 kΩ to 2 kΩ 0 kΩ to 20 kΩ 0 kΩ to 200 kΩ 0 MΩ to 2 MΩ 0 MΩ to 20 MΩ 0 MΩ to 200 MΩ	0.2 mΩ 0.23 mΩ 1.9 mΩ 19 mΩ 0.18 Ω 2 Ω 26 Ω 590 Ω 59 kΩ	Calibration Procedure No - ACL-LAB-CAL.P-03 Reference Multimeter by direct method
DC Voltage - Generate[3]	0 mV to 330 mV 330 mV to 3.3 V 3.3 V to 33 V 33 V to 330 V 330 V to 1000 V	0.13 µV 2 µV 0.023 mV 0.91 mV 3.3 mV	Calibration Procedure No - ACL-LAB-CAL.P-07 Reference Multimeter and Multifunction Calibrator by comparison method
DC Current - Generate[3]	0 mA to 3.3 mA 3.3 mA to 33 mA 33 mA to 330 mA 330 mA to 2.2 A 2.2 A to 11 A	0.90 µA 6.1 µA 100 µA 0.88 mA 12 mA	Calibration Procedure No - ACL-LAB-CAL.P-06 Reference Multimeter and Multifunction Calibrator by comparison method
AC Voltage - Generate[3]	(60 Hz and 1 kHz) 1 mV to 33 mV 33 mV to 330 mV 0.33 V to 3.3 V 3.3 V to 33 V 33 V to 330 V 330 V to 1000 V	 2 µV 49 µV 0.4 mV 5 mV 64 mV 161 mV	Calibration Procedure No - ACL-LAB-CAL.P-10 Reference Multimeter and Multifunction Calibrator by comparison method
AC Current - Generate[3]	(60 Hz) 0.03 mA to 0.33 mA 0.33 mA to 3.3 mA 3.3 mA to 33 mA 33 mA to 330 mA 0.33 A to 2.2 A 2.2 A to 11 A	 0.9 µA 4.7 µA 13 µA 0.32 mA 5.1 mA 30 mA	Calibration Procedure No - ACL-LAB-CAL.P-09 Multifunction Calibrator by direct method

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
	(1 kHz) 0.03 mA to 0.33 mA 0.33 mA to 3.3 mA 3.3 mA to 33 mA 33 mA to 330 mA 0.33 A to 2.3 A 2.3 A to 11 A	 0.9 µA 4.7 µA 50 µA 0.33 mA 5.1 mA 41 mA	
DC Resistance - Generate[3]	0 Ω to 11 Ω 11 Ω to 33 Ω 33 Ω to 110 Ω 110 Ω to 330 Ω 330 Ω to 1.1 kΩ 1.1 kΩ to 3.3 kΩ 3.3 kΩ to 11 kΩ 11 kΩ to 33 kΩ 33 kΩ to 110 kΩ 110 kΩ to 330 kΩ 330 kΩ to 1.1 MΩ 1.1 MΩ to 3.3 MΩ 3.3 MΩ to 11 MΩ 11 MΩ to 33 MΩ 33 MΩ to 110 MΩ 110 MΩ to 330 MΩ	12 mΩ 23 mΩ 34 mΩ 53 mΩ 0.20 Ω 0.90 Ω 2.0 Ω 3.6 Ω 22 Ω 46 Ω 0.22 kΩ 0.56 kΩ 8.5 kΩ 34 kΩ 0.65 MΩ 2.7 MΩ	Calibration Procedure No - ACL-LAB-CAL.P-08 Multifunction Calibrator by direct method
AC High Voltage Source	1 kV to 5 kV 5 kV to 10 kV 10 kV to 20 kV 20 kV to 40 kV 40 kV to 50 kV 50 kV to 70 kV 70 kV to 85 kV	0.056 kV 0.11 kV 0.22 kV 0.45 kV 0.56 kV 0.78 kV 0.95 kV	Calibration Procedure No - CalACL-LAB-CAL.P-26 High Voltage Divider by direct method
Time and Frequency			
Tachometer (Non– Contact)	500 rpm to 1000 rpm 1000 rpm to 10000 rpm 10000 rpm to 50000 rpm 50000 rpm to 90000 rpm	1.6 rpm 7.2 rpm 31 rpm 54 rpm	Calibration Procedure No - ACL-LAB-CAL.P-24 Digital Tachometer & Stroboscope by Comparison method
Timer / Stopwatch	1 s to 100 s 100 s to 3600 s	0.034 s 0.58 s	Standard gas mixture ACL-LAB-CAL.P-27 Frequency Counter Timer by direct/ comparison method
Chemical/Gas			
Multi-Gas Detector	Carbon Monoxide 99.9 ppm Oxygen 18.95 %	5 % 2 %	Calibration Procedure No - ACL-LAB-CAL.P-25

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
	Hydrogen Sulfide 23.51 ppm Methane 1.26 % N-Pentane 0.3487 %	5 % 2 % 2 %	Standard gas mixture by direct method

[1]The 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.

[2]When 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.

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

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