



Pakistan National Accreditation Council

Ministry of Science & Technology

Government of Pakistan

Islamabad



Certificate of Accreditation

is awarded to

**APPLIED PHYSICS COMPUTERS AND INSTRUMENTATION
CENTRE (APC&IC)**

**Pakistan Council of Scientific & Industrial Research (PCSIR)
Laboratories Complex. Lahore 54600, Pakistan.**

in accordance with the requirements of **ISO/IEC 17025:2017**

The accreditation is subject to regular surveillance and compliance
to the requirements of PNAC.

For scope of accreditation, see **appendix**.

Accreditation Certificate Number: Lab 036




Director General

Date of Issue:
17-06-2022

Valid until
16-06-2025

 <p>PNAC Pakistan National Accreditation Council</p>	<p>ACCREDITATION DOCUMENT</p>	<p>F-06/02 Issue Date: 18/08/2020 Rev. No: 09 LAB 036</p>
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Accreditation No: LAB 036

Awarded to

**Applied Physics Computers & Instrumentation Centre (APCIC),
Pakistan Council of Scientific & Industrial Research (PCSIR)
Labs. Complex. Lahore 54600, Pakistan.**

The scope of accreditation is in accordance with the standard specifications outlined in the following page(s) of this document. The accredited scope shall be visible and legible in areas such as customer service, sample-receiving section etc and shall not mislead its users.

The accreditation was first time granted on **24-08-2006** by Pakistan National Accreditation Council.

The laboratory complies with the requirements of **ISO/IEC 17025:2017**.

The accreditation requires regular surveillance, and is valid until **16-06-2025**.

The decision of accreditation made by Pakistan National Accreditation Council implies that the organization has been found to fulfill the requirements for accreditation within the scope.

The organization however, itself is responsible for the results of performed measurements/tests.

PAKISTAN NATIONAL ACCREDITATION COUNCIL

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Calibration Laboratory.

Accreditation scope of Applied Physics Computers & Instrumentation Centre (APCIC), Pakistan Council of Scientific & Industrial Research (PCSIR) Laboratories Complex, Lahore 54600, Pakistan.


Permanent laboratory premises ☒

Field of Measurement: Volume Measurement			
Measured Quantity	Range	*Expanded Uncertainty (±)	Technique, Reference Standard, Equipment
Glassware & Volume Dispensers	1 MI	0.0010 mL	SOP: ASTM E-542 F2 Class Mass Weighing Scale
	2 MI	0.0016 mL	
	5 MI	0.0050 mL	
	10 ml	0.0080 mL	
	25 mL	0.020 mL	
	25.1 mL to 100.0 mL	0.0078 mL	
	100.1 mL to 500.0 mL	1.1 mL	
	500.0 to 1000.0 mL	6.0 mL	
	1.0 L to 5.0 L	0.0050 L	
Digital Pipettes	2 µL to 1000 µL	0.025 µL	
Field of Measurement: Masses and Weighing Balances			
Weighing Scales Class I & Below	0.0010 g to 220.0000 g	0.00010 g	SOP: OIML R111-1 R111-2 NIMT CP-301
	0.0001 kg to 20.0000 kg	0.00010 kg	
	0.10 kg to 260.0 kg	0.10 kg	
Masses F1 Class & Below	1.0 mg to 500.0 mg	0.05 mg	E2 Class Mass F2 Class Mass
	1.0000 g to 200.0000 g	0.000060 g	
	0.5000 kg to 20.0000 kg	0.000080 kg	
	30.000 kg to 50.000 kg	0.0046 kg	
Field of Measurement: Temperature Measurement			
Digital Thermometer	-50.00°C to 50.00°C	0.050°C	SOP: EURAMET cg-13 & cg-8 EA-10/11 & 13 Reference Thermometer with RTD Probe, Precision k-type Thermocouple, Temperature Controllers, Dry Well Calibrator
	50.10°C to 400.0 °C	0.20 °C	
	400.1 °C to 800.0 °C	0.30°C	
Liquid in glass Thermometer	-50.0°C to 100.0°C	0.20 °C	
	100.1 °C to 350 °C	0.28 °C	

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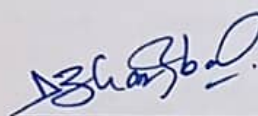

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Field of Measurement: Temperature Source			
Dry Block Calibrator / Temperature Calibrator	-50.0°C to 100.0°C	0.18°C	SOP: EURAMET cg-13, cg-8 & EA-10/08 Reference Thermometer with RTD Probe Precision Thermometer with k-type Thermocouple, Temperature Controllers
	100.1 °C to 350.0 °C	0.20 °C	
	350.1 °C to 600 °C	0.24 °C	
Environmental Chambers / Oven	-40.0°C to 100.0°C	0.18 °C	
	100.1 °C to 300.0 °C	0.22 °C	
Muffle Furnace	200 °C to 1000 °C	0.65°C	
Temperature Measurement by Simulation Method			
RTD Pt 100	-100 °C to 800 °C	0.20 °C	SOP: EURAMET cg-11 Portable Calibrator, Fluke 8508A Reference Multimeter
Thermocouple Type “k”	-200 °C to 1200 °C	0.24 °C	
Thermocouple Type “J”	-200 °C to 1200 °C	0.24 °C	
Field of Measurement: Temperature & Humidity Measurement			
Source	10.0 °C to 40.0 °C 30 %RH to 80 %RH	0.54 °C 2.9 %RH	SOP:005 California Humidity Chamber, Thermo-hygrometer
Measurement	10 °C to 40 °C 30 %RH to 80 %RH	0.54 °C 2.9 %RH	
Field of Measurement: Pressure Measurement			
Pressure	0.01 to 10.00 psi	0.31 psi	SOP: DKD-R 6-1 Pressure Calibrator Dead Weight Tester & Pressure Calibrator/Gauge Vacuum Gauge
	10.01 to 50.00 psi	0.36 psi	
	50.01 to 100.00 psi	0.37 psi	
	100.01 to 250.00 psi	0.38 psi	
	50 psi to 500 psi	1.40 psi	
	550 psi to 1000 psi	1.90 psi	
	2000 psi to 5000 psi	5.71 psi	
	5000 psi to 8000 psi	8.81 psi	
	100 mm of Hg to 200 mm of Hg 220 mm of Hg to 500 mm of Hg 520 mm of Hg to 600 mm of Hg	12.31 mm of Hg 12.33 mm of Hg 12.35 mm of Hg	

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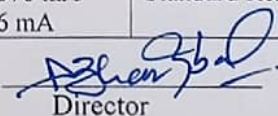

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Field of Measurement: Dimensional Measure					
General Dimension measurements Length, Diameter, Thickness and Depth of Industrial Artifacts	0.5 mm to 25.000 mm	0.40 μ m	SOP: EAL-G 21 SOP # 10 & 12 (NIST) Gauge Block Set, Micrometer, Vernier Caliper, Line Length Standard, Measuring Tape		
	25.10 mm to 100.00 mm	0.0010 mm			
	100.01 mm to 300.00 mm	0.010 mm			
	1.0 cm to 100.0 cm	0.10 cm			
	100.1 cm to 500.0 cm	0.10 cm			
Field of Measurement: Frequency					
Frequency Generation	10.0 Hz to 100.0 Hz	0.010 Hz	SOP: EURAMET cg-7 Function Generator Universal Frequency Counter, Frequency Counter, Digital Oscilloscope		
	1.000 kHz to 100.00 kHz	0.000039 kHz			
	1.00 MHz to 100.0 MHz	0.0000060 Hz			
Frequency Measurement	10.0 Hz to 100.0 Hz	0.010 Hz			
	1.000 KHz to 100.00 KHz	0.000080 KHz			
	1.00 MHz to 100.00 MHz	0.000060 MHz			
Field of Measurement: RPM Measurement					
Tachometers / RPM Measurement	30.0 RPM to 300.0 RPM 300.1 RPM to 6000.0 RPM 6000.1 RPM to 15000.0 RPM 15000.1 RPM to 30000.0 RPM	0.50 RPM 0.72 RPM 1.0 RPM 2.5 RPM	SOP: EURAMET cg-7 Function Generator, Universal Frequency Counter, Digital Tachometers		
Field of Measurement: Time Interval Measurement					
Stop Watch	10 s to 3600 s 3601s to 7200 s	0.49 s 0.75 s	SOP: NIST Guide Function Generator, Frequency Counter, Stop Watches,		
Timer	10 s to 7200 s	0.75 s			
Field of Measurement: Electrical Parameters					
DC Voltage	1.00 mV to 100.00 mV 1.000 V to 10.000 V 10.001 V to 100.00 V 100.01 V to 1000.0 V	0.00061 mV 0.000011 V 0.00011 V 0.056 V	SOP: EURAMET cg-15 Reference Multimeter Fluke 8508A Inmel Calibrator Clamp Meter Standard Resistors		
	AC Voltage @ 50 Hz	0.1000 V to 1.000 V 1.001 V to 10.000 V 10.001 V to 100.00 V 100.01 V to 500.0 V 500.1 V to 1000 V		0.00046 V 0.00011 V 0.0026 V 0.011 V 0.051 V	
		AC Current @ 50 Hz		1.00 mA to 10.00 mA 10.01 mA to 100.0 mA	0.00076 mA 0.036 mA

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	1.000 A to 10.000 A	0.0048 A	
AC Current (Clamp on) @ 50 Hz	5.0 A to 10.0 A 10.1 A to 100.0 A 100.1 A to 500.0 A 500.1 A to 800 A	0.20 A 0.52 A 1.1 A 2.2 A	
DC Current	1.00 mA to 10.00 mA 10.01 mA to 100.0 mA 1.000 A to 10.000 A	0.00022 mA 0.0056 mA 0.0044 A	
DC Current (Clamp on)	5.0 A to 10.0 A 10.1 A to 100.0 A 100.1 A to 500.0 A 500.1 A to 800 A	0.30 A 0.33 A 1.3 A 2.0 A	
Resistance	1.00 Ω to 10.00 Ω	0.013 Ω	
	10.01 Ω to 100.00 Ω	0.015 Ω	
	100.00 Ω to 1.000 k Ω	0.015 Ω	
	1.001 k Ω to 10.00 k Ω	0.00010k Ω	
	10.01 k Ω to 100.00 K Ω	0.0047k Ω	
	100.01 k Ω to 1.000 M Ω	0.54K Ω	
	1.001 M Ω to 10.00 M Ω	0.0087 M Ω	
	10.01 M Ω to 100.0 M Ω	0.015 M Ω	
Insulation Resistance @ 250 V to 1000 V	100.1 M Ω to 1.000 G Ω	0.005 G Ω	
Low Resistance Measurement	10.0 m Ω to 100.0 m Ω	0.14 m Ω	
Field of Measurement: AC Power (Single Phase)			
AC Power @ 50 Hz	10.00 W to 100.0 W 100.1 W to 500.0 W 500.1 W to 1000.0 W 1000.1 W to 5000.0 W	0.12 W 0.24 W 0.42 W 1.0 W	SOP: EURAMET cg-15 Reference Multimeter Fluke 8508A Power Meter Clamp Meter Inmel 33 Calibrator
Field of Measurement: Spectrophotometer			
Wavelength Accuracy	525.5 nm	0.78 nm	SOP: Thermo Scientific, USA
Transmittance @ 590nm& 412 nm	6.13%T to 10.4 %T	0.011%T	SS-1 Spectronic Standard Filters Thermo Spectronics USA
Absorbance @ 590nm& 412 nm	0.990 A to 1.209 A	0.043 A	

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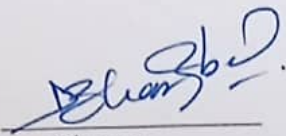
Field of Measurement: pH Measurement			
pH Meter	4.00 pH to 10.00 pH @ 25 °C	0.010 pH	SOP: ASTM, D 1293-12 HANNA pH Buffers, pH Meter

*** Expanded Uncertainty:**

- Expanded Uncertainty is the measurement uncertainty at a coverage probability of 95 %, which usually requires the use of a coverage factor of $k = 2$. This measurement uncertainty is a value for which the laboratory has been accredited using the procedure that was the subject of assessment. In certificates issued under its accreditation scope an accredited laboratory is not permitted to quote an uncertainty that is smaller than the published uncertainty for respective ranges as given above.

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