

	<b>ACCREDITATION DOCUMENT</b>	<b>F-06/02 Issue Date: 10/08/15 Rev. No: 07 LAB 036</b>
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**Accreditation No: LAB 036**

**Awarded to**

**APPLIED PHYSICS COMPUTERS AND INSTRUMENTATION CENTRE (APC.IC),  
Pakistan Council of Scientific & Industrial Research (PCSIR)  
Laboratories 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 17025:2005**.

The accreditation requires regular surveillance, and is valid until **16-06-2019**.

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**

17-06-2016  
Date

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Director General

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**Calibration Laboratory.**

Accreditation scope of **APPLIED PHYSICS COMPUTERS AND INSTRUMENTATION CENTRE(APC.IC)**, Pakistan Council of Scientific & Industrial Research (PCSIR) Laboratories Complex, Lahore 54600, Pakistan.

**Permanent laboratory premises**

Field of Measurement:

Measured Quantity	Range	Calibration Measurement Capability * ( $\pm$ )	Brief Description of measurement and equipment used
<b>1. Length</b>			
Line Length Standard	0 cm -100 cm	0.1 cm	<b>U.ID#(LLC/APCIC /CP/001)</b> Technique: Direct Comparison Line Length Standard
Measuring Tape	0 cm -500 cm	0.1 cm	<b>U.ID#(LLC/APCIC /CP/002)</b> Technique: Direct Comparison Measuring Tape
Vernier Caliper	0 mm -300 mm	0.01 mm	<b>U.ID#(LLC/APCIC /CP/003)</b> Technique: Direct Comparison Gauge Block Set
Micrometer	0 mm - 25 mm	0.001 mm	<b>U.ID#(LLC/APCIC /CP/004)</b> Technique: Direct Comparison Gauge Block Set
Gauge Blocks	0.5 mm-100 mm	0.2 $\mu$ m	<b>U.ID#(LLC/APCIC /CP/005)</b> Technique: Direct Comparison Micrometer, Vernier Caliper, Gauge Block Set, Tesa Tronic Amplifier

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Measured Quantity	Range	Calibration Measurement Capability * ( $\pm$ )	Brief Description of measurement and equipment used
<b>2. Masses and Weighing Balances</b>			
Masses	1 mg to 200 g 1kg to 20 Kg	0.1 mg 0.1 g	<b>U.ID#(LLC/APCIC/C P/006)</b> Technique: Direct Loading Set of Standard Masses, Weighing Balances
Weighing Balances	1 mg to 200 g 5 g to 20 kg	0.1 mg 0.1 g	Technique: Direct Loading Set of Standard Masses
<b>3. Temperature</b>			
Source	-50°C to 1000°C	(0.1 to 1) °C	<b>U.ID#(LLC/APCIC/C P/007, 008)</b> Technique: Direct comparison Dry Well Calibrator, Thermocouple Calibrator, Stirred Liquid Bath,
Measurement	-100°C to 800 °C	(0.1 to 1) °C	Precision Thermometer, Temperature Controllers, RTD Thermometer
Simulation	-200°C to 1200 °C	(0.1 to 1) °C	Portable Calibrator
<b>4. Pressure</b>			
Pneumatic	1 psi to 250 psi	0.1 psi - 1 psi	<b>U.ID#(LLC/APCIC/C P/009)</b> Technique: Direct Comparison Pressure Calibrator
Hydraulic	10 to 9000 psi	1 psi - 6 psi	Dead Weight Tester
Vaccum	-10.0 psi to zero psi	0.1 psi	Pressure Calibrator

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Measured Quantity	Range	Calibration Measurement Capability * ( $\pm$ )	Brief Description of measurement and equipment used
<b>5. Volume</b>			
Pipette (Measuring)  Pipette (Volumetric)	0.1 mL to 2 mL 0.1 mL to 25 mL  1 mL to 100 mL	0.01 mL- 0.05 mL  0.01 mL- 0.1 mL	<b>U.ID#(LLC/APCIC/C P/010)</b> ASTM E-542 (Gravimetric Method)
Burette	0.2 mL to 50 mL  0.5 mL to 100 mL	0.1 mL -0.5 mL	-do-
Cylinder	1 mL to 1000 mL	0.1 mL - 8 mL	-do-
Flask	5 mL to 1000 mL	0.1 mL - 5.0 mL	-do-
Beaker & Erlenmeyer Flask	10 mL to 2000 mL	6 mL – 115 mL	-do-
<b>6. Frequency</b>			
Frequency	1 Hz to 200 MHz  60 RPM to 30000 RPM	0.1 Hz to 0.01 MHz  0.5 RPM to 1 RPM	<b>U.ID#(LLC/APCIC/C P/011, 015)</b> Technique: Direct Comparison Universal Frequency Counter, Frequency Counter, Digital tachometer
<b>7. Time</b>			
Time	10 s to 3600 s	$\pm 0.5$ s	<b>U.ID#(LLC/APCIC/C P/012)</b> Universal Frequency Counter, Technique: Direct comparison Digital Timer

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Measured Quantity	Range	Calibration Measurement Capability * ( $\pm$ )	Brief Description of measurement and equipment used
<b>8. Electrical Parameters</b>			
a.c Voltage,	0.1 V to 1000 V	0.01 V to 1 V	<b>U.ID#(LLC/APCIC/C P/013)</b> Technique: Direct comparison Digital Multimeter
d.c. Voltage	1 mV to 1000V	0.01 mV to 0.1 V	Digital Multimeter
a.c Current	1mA to 800 A	0.01 mA to 1 A	Digital Multimeter, AC/DC Clamp-on Meter
d.c. Current	1mA to 800 A	0.01 mA to 1 A	Digital Multimeter, AC/DC Clamp-on Meter
Resistance	0.01 $\Omega$ - 1 G $\Omega$	0.001 $\Omega$ to 0.002 G $\Omega$	Standard Resistances, Digital Insulation Tester, LCR Meter
<b>9. Spectrophotometer</b>			
Spectrophotometer	0% T to 100% T 0 to 1 ABS 520 to 535nm	0.1 %T 0.001 ABS 1 nm	<b>U.ID#(LLC/APCIC/C P/014)</b> Spectronic Standards

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