



ACAL-0123-324B

## SCOPE OF ACCREDITATION

### INSTRU-TECH PHILIPPINES INC.

UG7 Tower B Palm Towers, Saint Paul Rd.,  
San Antonio Village, Makati City

#### Calibration

Classification of Scopes	Measured quantities/ instrument	Range to be calibrated	Calibration and Measurement Capability (CMC)*	Calibration Method
<b>Limit Gauges</b>				
Plain Plug Gauges	Calibration of Pin Gauge	Up to 10 mm	0.62 $\mu$ m	IT-CP-07 rev. 1
		10 to 20 mm	0.64 $\mu$ m	
	Calibration of Plain Plug Gauge	20 to 25 mm	0.66 $\mu$ m	
		25 to 50 mm	0.78 $\mu$ m	
Plain Ring Gauges	Calibration of Plain Ring Gauge	10 to 25 mm	0.76 $\mu$ m	IT-CP-08 rev. 1
<b>Jigs, Fixture, Cutting Tools and Components</b>				
Jigs & Fixtures	External/Internal Dimension	0-25 mm	0.66 $\mu$ m	IT-CP-23 rev. 0
		25-50 mm	0.79 $\mu$ m	
		50-75 mm	0.96 $\mu$ m	
		75-100 mm	1.2 $\mu$ m	
<b>Engineering metrology equipment</b>				
Surface Plate	Calibration of Surface Plates	Up to 2000 x 2000 mm	1.2 $\mu$ m	IT-CP-05 rev. 1
Bevel Protractors	Calibration Bevel Protractors	0 to +/-90 Degrees	0.63 minutes	IT-CP-41 rev. 0
Angle Meter	Calibration Angle Meter	30 Degrees	0.63 minutes	IT-CP-49 rev. 0
Internal/External Micrometer	Calibration of Outside / External Digital Micrometer	0-25 mm	0.61 $\mu$ m	IT-CP-02 rev. 1
		25-50 mm	0.68 $\mu$ m	
		50-75 mm	0.77 $\mu$ m	
		75-100 mm	0.89 $\mu$ m	
		100-125 mm	1.0 $\mu$ m	
	Calibration of Internal / Stick Micrometer (up to 300mm extension rod)	25-50 mm	0.68 $\mu$ m	IT-CP-10 rev. 1
		50-75 mm	0.77 $\mu$ m	
Height and Depth Gauges	Calibration of Vernier Height Gauge	0-300 mm	12 $\mu$ m	IT-CP-04 rev. 1
	Calibration of Digital Height Gauge	0-300 mm	6.7 $\mu$ m	IT-CP-04 rev. 1



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Classification of Scopes	Measured quantities/ instrument	Range to be calibrated	Calibration and Measurement Capability (CMC)*	Calibration Method
	Calibration of Dial Height Gauge	0-300 mm	12 µm	IT-CP-04 rev. 1
	Calibration of Analog / Vernier Micrometer Depth Gauge with Extension rod up to 300mm	0-25 mm	0.61 µm	IT-CP-22 rev. 0
	Calibration of Digital/Digimatic Micrometer Depth Gauge with Extension rod up to 300mm	0-25 mm	5.8 µm	IT-CP-22 rev. 0
Electronic indicators, dial gauges and test indicators	Calibration of Digital/Digimatic Indicator (Resolution: 0.001 mm)	0 to 25 mm	1.3 µm	IT-CP-14 rev. 0
	Calibration of Digital/Digimatic Indicator (Resolution: 0.01 mm)	0 to 25 mm	5.9 µm	IT-CP-14 rev. 0
	Calibration of Dial Indicator /Gauge (Graduation: 0.001 mm)	0 to 25 mm	1.2 µm	IT-CP-14 rev. 0
	Calibration of Dial Test Indicator/ Gauge (Graduation: 0.002 mm)	Up to 1 mm	1.5 µm	IT-CP-14 rev. 0
	Calibration of Dial Test Indicator/ Gauge (Graduation: 0.01 mm)	Up to 1 mm	3.1 µm	IT-CP-14 rev. 0



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Electronic/Vernier/ Dial Calipers	Calibration of Digital Caliper	0-150 mm	6.4 $\mu$ m	IT-CP-03 rev. 1
		0-200 mm	6.4 $\mu$ m	
		0-300 mm	6.6 $\mu$ m	
	Calibration of Vernier Caliper	0-150 mm	12 $\mu$ m	IT-CP-03 rev. 1
		0-200 mm	12 $\mu$ m	
		0-300 mm	12 $\mu$ m	
	Calibration of Dial Caliper	0-150 mm	12 $\mu$ m	IT-CP-03 rev. 1
		0-200 mm	12 $\mu$ m	
		0-300 mm	12 $\mu$ m	
Feeler Gauges	Calibration of Feeler Gauge	0 to 5 mm	0.62 $\mu$ m	IT-CP-09 rev. 1
Bore Gauge	Calibration of Bore Gauge / Holtest - 3 Legged	5 to 30 mm	1.8 $\mu$ m	IT-CP-20 rev. 0
	Calibration of Bore Gauge / Holtest - 2 Legged	30 to 150 mm	5.8 $\mu$ m	IT-CP-20 rev. 0
Steel Rules and Measuring Tapes	Calibration of Steel Rule Grade 2	0 to 300 mm	0.32 mm	IT-CP-15 rev. 0
		0 to 600 mm	0.67 mm	
		0 to 1000 mm	1.1 mm	
	Calibration of Measuring Tapes	0 to 5 m	0.15 cm	IT-CP-15 rev. 0
		0 to 10 m	0.29 cm	
		0 to 20 m	0.58 cm	
Micrometer Setting Gauges	Calibration of Setting Rod	0-25 mm	0.63 $\mu$ m	IT-CP-11 rev. 1
		25-50 mm	0.73 $\mu$ m	
		50-75 mm	0.80 $\mu$ m	
		75-100 mm	0.93 $\mu$ m	
Other	Calibration of Dial and Digital Thickness Gauge	0-50 mm	0.66 $\mu$ m	IT-CP-38 rev. 0
	Calibration of Ultrasonic Thickness Gauge	Up to 1000 $\mu$ m	0.19 $\mu$ m	IT-CP-39 rev. 0



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<b>Surface topography</b>				
Roughness	Calibration of Roughness Tester	Ra Ry, Rz, Rq	0.19 µm	IT-CP-45 rev. 0
<b>Length and angle standards</b>				
Gauge blocks and accessories	Calibration of Steel Gauge Block (Gr0, Gr1, Gr2)	0.5-25 mm	0.10 µm	IT-CP-01 rev. 1
		25-50 mm	0.12 µm	
		50-75 mm	0.13 µm	
		75-100 mm	0.17 µm	
<b>Dimensional Precision Instrument</b>				
Precision Projection Apparatus	Calibration of Profile Projector/Optical Comparator	Up to 300 mm X and Y Axis	1.5 µm	IT-CP-06 rev. 1
	Calibration of Toolmaker/Measuring Microscope/Video Microscope	Up to 300 mm X and Y Axis	1.5 µm	IT-CP-06 rev. 1
<b>Weighing Devices</b>				
Precision Laboratory Balances	Calibration of Analytical Balance/Semi-Micro Analytical	0 to 50 g	0.13 mg	IT-CP-19 rev. 0
		0 to 100 g	0.22 mg	
		0 to 200 g	0.71 mg	
		0 to 500 g	6.5 mg	
		0 to 1000 g	8.4 mg	
Industrial Weighing Balances	Calibration of Industrial Balances/ Scales	Up to 2 kg	0.085 g	IT-CP-19 rev. 0
		2 to 5 kg	0.093 g	
		5 to 10 kg	0.18 g	
		10 to 50 kg	2.9 g	
		50 to 100 kg	5.8 g	
		100 to 300 kg	17 g	
		300 to 500 kg	29 g	



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Industrial Weighing Appliances	Calibration of Industrial Appliances	Up to 2 kg	0.085 g	IT-CP-19 rev. 0
		2 to 5 kg	0.093 g	
		5 to 10 kg	0.18 g	
		10 to 50 kg	2.9 g	
		50 to 100 kg	5.8 g	
		100 to 300 kg	17 g	
		300 to 500 kg	29 g	
Other weighing devices	Calibration of Industrial Appliances	Up to 2 kg	0.085 g	IT-CP-19 rev. 0
		2 to 5 kg	0.093 g	
		5 to 10 kg	0.18 g	
		10 to 50 kg	2.9 g	
		50 to 100 kg	5.8 g	
		100 to 300 kg	17 g	
		300 to 500 kg	29 g	
<b>Pressure and Vacuum Measuring Devices</b>				
Pressure Gauges	Calibration of Digital and Analog Pressure Gauges	0 to 250 kPa	0.14 kPa	IT-CP-16 rev. 0
		> 250 to 2000 kPa	1.4 kPa	
		> 2000 to 6000 kPa	3.3 kPa	
		> 6 to 20 Mpa	13 kPa	
		> 20 to 34 Mpa	18 kPa	
Vacuum Gauges	Calibration of Digital and Analog Vacuum Gauges	0 to -90 kPa	0.23 kPa	IT-CP-16 rev. 0
Pressure Transmitter	Calibration of Pressure Transmitter/ Transducer	0 to 250 kPa	0.14 kPa	IT-CP-16 rev. 0
		> 250 to 2000 kPa	1.4 kPa	
		> 2000 to 6500 kPa	3.3 kPa	
		> 6.5 to 20 Mpa	13 kPa	
		> 20 to 34 Mpa	18 kPa	
Pressure Recorder	Calibration of Pressure Recorder	0 to 250 kPa	0.14 kPa	IT-CP-16 rev. 0
		> 250 to 2000 kPa	1.4 kPa	
		> 2000 to 6000 kPa	3.3 kPa	
		> 6 to 20 Mpa	13 kPa	
		> 20 to 34 Mpa	18 kPa	



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Force Gauges	Calibration of Push-Pull Gauge/Digital Force Gauge	0 to 20 N	58 mN	IT-CP-025 Rev. 0
		20 to 50 N	0.10 N	
		50 to 100 N	0.59 N	
		100 to 490 N	1.0 N	
		490 to 980 N	9.9 N	
		0.98 to 4.9 kN	49 N	
Other Devices	Calibration of Other force Measuring Devices	0 to 20 N	58 mN	IT-CP-25 Rev. 0
		20 to 50 N	0.10 N	
		50 to 100 N	0.59 N	
		100 to 490 N	1.0 N	
		490 to 980 N	9.9 N	
		0.98 to 4.9 kN	49 N	
<b>Speed measuring devices</b>				
Tachometers	Calibration of Tachometer	0 to 100 RPM	0.058 RPM	IT-CP-43 Rev 0
		100 to 1000 RPM	0.58 RPM	
		1000 to 10000 RPM	0.62 RPM	
		10000 to 20000 RPM	0.71 RPM	
<b>Torque Measuring Devices</b>				
Torque Wrench/Drivers	Calibration of Hand Torque Tool/Torque Driver/Torque Wrench/Electronic Torque	0 to 10 Nm	0.062 N.m	IT-CP-32 Rev. 0
		10 to 20 Nm	0.063 N.m	
		20 to 50 Nm	0.10 N.m	
		50 to 100 Nm	0.30 N.m	
		100 to 200 Nm	0.59 N.m	
		200 to 400 Nm	1.2 N.m	
		400 to 600 Nm	1.8 N.m	
		600 to 800 Nm	2.4 N.m	
800 to 1000 Nm	2.9 N.m			
Torque Meter/ Transducers	Calibration of Torque Meter/ Torque Analyzer/ Torque Transducer	0 to 20 Nm	0.21 N.m	IT-CP-53 Rev.0



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<b>Testing Machine</b>				
Other Testing Machine	Calibration of Centrifuge and RPM Measurement	0 to 100 RPM	0.058 RPM	IT-CP-44 Rev. 0
		100 to 1000 RPM	0.58 RPM	
		1000 to 10000 RPM	0.62 RPM	
		10000 to 20000 RPM	0.71 RPM	
<b>Power supplies</b>				
DC Voltage	DC Voltage (Source)	0 to 1000 V	0.01% rdg	IT-CP-26 Rev 0
AC Voltage	AC Voltage (Source)	100 mV to 1 V (40Hz to 1 KHz)	1.2% rdg + 0.35 mV	IT-CP-26 Rev 0
		1 to 10 V (40 Hz to 1 kHz)	1.2 % rdg + 3.5 mV	
		10 to 100 V (40 Hz to 1 kHz)	0.058 % rdg + 35 mV	
		100 to 750 V (40 Hz to 1 kHz)	0.058 % rdg + 0.26 V	
DC Current	DC Current (Source)	0 to 100 µA	0.058 % Rdg + 29 nA	IT-CP-26 Rev 0
		0.100 to 1.00 mA	0.058 % Rdg + 58 nA	
		1.00 mA to 10.0 mA	0.058 % Rdg + 2.3 µA	
		10 to 100 mA	0.058 % Rdg + 5.8 µA	
		100 to 400 mA	0.058 % Rdg + 23 µA	
		0.4 to 1 A	0.058 % Rdg + 0.23 mA	
		1.0 to 3.0 A	0.12 % Rdg + 0.69 mA	
		3.0 to 10 A	0.17 % Rdg + 0.92 mA	
		10 to 30 A	0.58 % Rdg + 0.011 mA	



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AC Current	AC Current (Source)	0.1 to 10 mA (40 Hz to 1 kHz)	1.3 % Rdg + 6.9 $\mu$ A	IT-CP-26 Rev 0
		10 to 100 mA (40 Hz to 1 kHz)	1.2 % Rdg + 46 $\mu$ A	
		100 to 400 mA (40 Hz to 1 kHz)	0.35 % Rdg + 46 $\mu$ A	
		0.4 to 1 A (40 Hz to 1 kHz)	0.12 % Rdg + 46 $\mu$ A	
		1 to 3 A (40 Hz to 1 kHz)	0.17 % Rdg + 2.1 mA	
		3 to 10 A (40 Hz to 1 kHz)	0.17 % Rdg + 6.9 mA	
		10 to 30 A (40 Hz to 1 kHz)	0.58 % Rdg + 46 mA	
<b>Resistors, Resistance Boxes and Potential Dividers</b>				
Resistance Boxes	Decade Resistance Boxes, Resistance Boxes	0 to 1 M $\Omega$	0.01% Rdg	IT-CP-26 Rev 0
		1 to 10 k $\Omega$	0.03 % Rdg	
		10 to 100 M $\Omega$	0.06 % Rdg	
<b>Electrical Indicating and Recording instruments</b>				
DC Voltage	DC Voltage (Measure)	0 to 104 mV	93 ppm of Rdg. + 12 $\mu$ V	IT-CP-27 Rev.0
		0.104 to 1.04 V	93 ppm of Rdg. + 35 $\mu$ V	
		1.04 to 10.4 V	93 ppm of Rdg. + 0.35 mV	
		10.4 V to 104 V	93 ppm of Rdg. + 3.5 mV	
		104 to 1020 V	93 ppm of Rdg. + 35.1 mV	
AC Voltage	AC Voltage (Measure)	33 to 104 mV (10 Hz to 2 kHz)	0.092% of Rdg. + 35 $\mu$ V	IT-CP-27 Rev.0
		33 to 104 mV (2 kHz to 20 kHz)	0.17% of Rdg. + 81 $\mu$ V	
		0.104 to 1.04 V (10 Hz to 2 kHz)	0.092% of Rdg. + 0.35 mV	





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		0.104 to 1.04 V (2 kHz to 20 kHz)	0.17% of Rdg. + 0.84 mV	
		1.04 to 10.4 V (10 Hz to 2 kHz)	0.092% of Rdg. + 3.5 mV	
		1.04 to 10.4 V (2 kHz to 20 kHz)	0.17% of Rdg. + 8.4 mV	
		10.4 to 104 V (40 Hz to 1 kHz)	0.092% of Rdg. + 0.035 V	
		104 to 1020 V (40 Hz to 1 kHz)	0.092% of Rdg. + 0.35 V	
DC Current	DC Current (Measure)	0 to 104 $\mu$ A	0.035% of Rdg. + 35 nA	IT-CP-27 Rev.0
		0.104 to 1.04 mA	0.035% of Rdg. + 0.12 $\mu$ A	
		1.04 mA to 10.4 mA	0.035% of Rdg. + 1.2 $\mu$ A	
		10.4 to 104 mA	0.035% of Rdg. + 0.012 mA	
		104 to 1040 mA	0.035% of Rdg. + 0.17 mA	
		1.04 to 10.2 A	0.058% of Rdg. + 2.3 mA	
AC Current	AC Current (Measure)	0 to 104 $\mu$ A (10 Hz to 2 kHz)	0.12% of Rdg. + 0.46 $\mu$ A	IT-CP-27 Rev.0
		0.104 to 1.04 mA (10 Hz to 2 kHz)	0.12% of Rdg. + 0.92 $\mu$ A	
		1.04 mA to 10.4 mA (10 Hz to 2 kHz)	0.12% of Rdg. + 9.2 $\mu$ A	
		10.4 to 104 mA (10 Hz to 2 kHz)	0.12% of Rdg. + 92 $\mu$ A	
		104 to 1040 mA (10 Hz to 2 kHz)	0.12% of Rdg. + 0.92 mA	
		1.04 to 10.2 A (10 Hz to 2 kHz)	0.12% of Rdg. + 17 mA	



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Resistance	Resistance (Measure)	0 to 10 Ω	0.023% of Rdg. + 58 mΩ	IT-CP-27 Rev.0
		10 to 100 Ω	0.023% of Rdg. + 58 mΩ	
		0.1 to 1 kΩ	0.023% of Rdg. + 0.10 Ω	
		1 to 10 kΩ	0.023% of Rdg. + 0.82 Ω	
		10 to 100 kΩ	0.023% of Rdg. + 8.2 Ω	
		0.1 to 1MΩ	0.023% of Rdg. + 82 Ω	
		1 to 10 MΩ	0.023% of Rdg. + 0.82 kΩ	
LCR Meter	Resistance (Measure) / LCR Meter	0.1 to 1 Ω	3.5 % Rdg. + 0.58 mΩ	IT-CP-37 Rev.1
		1 to 10 Ω	1.2 % Rdg. + 5.8 mΩ	
		10 to 100 Ω	1.2 % Rdg. + 58 mΩ	
		0.1 to 1 kΩ	1.2 % Rdg. + 0.58 Ω	
		1 to 10 kΩ	1.2 % Rdg. + 5.8 Ω	
		10 to 100 kΩ	1.2 % Rdg. + 58 Ω	
		0.1 to 1 MΩ	1.2 % Rdg. + 0.58 kΩ	
		1 to 10 MΩ	1.2 % Rdg. + 5.8 kΩ	
	Capacitance (Measure) / LCR Meter	0.1 to 1 nF	1.2 % Rdg + 0.058 pF	IT-CP-37 Rev. 1
		1 to 10 nF	1.2 % Rdg + 0.58 pF	



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		10 nF to 100 nF	1.2 % Rdg + 5.8 pF	IT-CP-37 Rev.1
		0.1 to 1 µF	1.2 % Rdg + 58 pF	
		1 to 10 µF	1.2 % Rdg + 5.8 nF	
	Inductance (Measure) / LCR Meter	1 to 10 µH	5.8 % Rdg + 5.8 nH	
		10 to 100 µH	5.8 % Rdg + 58 nH	
		0.1 to 1 mH	5.8 % Rdg + 0.58 µH	
		1 to 10 mH	5.8 % Rdg + 5.8 µH	
		10 to 100 mH	5.8 % Rdg + 58 µH	
		0.1 to 1 H	5.8 % Rdg + 5.8 mH	
	3 1/2 to 4 1/2 Digital Multimeter	DC Voltage (Measure)	0 to 104 mV	
0.104 to 1.04 V			93 ppm of Rdg. + 35 µV	
1.04 to 10.4 V			93 ppm of Rdg. + 0.35 mV	
10.4 V to 104 V			93 ppm of Rdg. + 3.5 mV	
104 to 1020 V			93 ppm of Rdg. + 35.1 mV	
AC Voltage (Measure)		33 to 104 mV (10 Hz to 2 kHz)	0.092% of Rdg. + 35 µV	IT-CP-46 Rev.1
		33 to 104 mV (2 kHz to 20 kHz)	0.17% of Rdg. + 81 µV	
		0.104 to 1.04 V (10 Hz to 2 kHz)	0.092% of Rdg. + 0.35 mV	



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		0.104 to 1.04 V (2 kHz to 20 kHz)	0.17% of Rdg. + 0.84 mV		
		1.04 to 10.4 V (10 Hz to 2 kHz)	0.092% of Rdg. + 3.5 mV		
		1.04 to 10.4 V (2 kHz to 20 kHz)	0.17% of Rdg. + 8.4 mV		
		10.4 to 104 V (40 Hz to 1 kHz)	0.092% of Rdg. + 0.035 V		
		104 to 1020 V (40 Hz to 1 kHz)	0.092% of Rdg. + 0.35 V		
	DC Current (Measure)	10.4 to 104 µA	0.035% of Rdg. + 35 nA		IT-CP-46 Rev.1
		0.104 to 1.04 mA	0.035% of Rdg. + 0.12 µA		
		1.04 mA to 10.4 mA	0.035% of Rdg. + 1.2 µA		
		10.4 to 104 mA	0.035% of Rdg. + 0.012 mA		
		104 to 1040 mA	0.035% of Rdg. + 0.17 mA		
		1.04 to 10.2 A	0.058% of Rdg. + 2.3 mA		
AC Current (Measure)	0 to 104 µA (10 Hz to 2 kHz)	0.12% of Rdg. + 0.46 µA	IT-CP-46 Rev.1		
	0.104 to 1.04 mA (10 Hz to 2 kHz)	0.12% of Rdg. + 0.92 µA			
	1.04 mA to 10.4 mA (10 Hz to 2 kHz)	0.12% of Rdg. + 9.2 µA			
	10.4 to 104 mA (10 Hz to 2 kHz)	0.12% of Rdg. + 92 µA			
	104 to 1040 mA (10 Hz to 2 kHz)	0.12% of Rdg. + 0.92 mA			
	1.04 to 10.2 A (10 Hz to 2 kHz)	0.12% of Rdg. + 17 mA			



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	Resistance (Measure)	0 to 10 Ω	0.023% of Rdg. + 58 mΩ	IT-CP-46 Rev.1
		10 to 100 Ω	0.023% of Rdg. + 58 mΩ	
		0.1 to 1 kΩ	0.023% of Rdg. + 0.10 Ω	
		1 to 10 kΩ	0.023% of Rdg. + 0.82 Ω	
		10 to 100 kΩ	0.023% of Rdg. + 8.2 Ω	
		0.1 to 1MΩ	0.023% of Rdg. + 82 Ω	
		1 to 10 MΩ	0.023% of Rdg. + 0.82 kΩ	
	Frequency (Measure)	1 to 100 Hz	23 ppm of Rdg. + 82 mHz	IT-CP-46 Rev.1
		0.1 to 1 kHz	23 ppm of Rdg. + 0.82 Hz	
		1 to 10 kHz	23 ppm of Rdg. + 8.2 Hz	
		10 to 20 kHz	23 ppm of Rdg. + 8.2 Hz	
		20 to 50 kHz	23 ppm of Rdg. + 8.2 Hz	
		50 to 100 kHz	23 ppm of Rdg. + 8.2 Hz	
	Capacitance (Measure)	0.1 to 1 nF	1.2 % Rdg + 0.058 pF	IT-CP-46 Rev.1
		1 to 10 nF	1.2 % Rdg + 0.58 pF	
		10 nF to 100 nF	1.2 % Rdg + 5.8 pF	



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		0.1 to 1 $\mu$ F	1.2 % Rdg + 58 pF	
		1 to 10 $\mu$ F	1.2 % Rdg + 5.8 nF	
Analog Multimeter	DC Voltage (Measure)	0 to 104 mV	0.0092% of Rdg. + 0.14 mV	IT-CP-47 Rev.0
		0.104 to 1.04 V	0.0092% of Rdg. + 0.0014 V	
		1.04 to 10.4 V	0.0092% of Rdg. + 0.014 V	
		10.4 V to 104 V	0.0092% of Rdg. + 0.14 V	
		104 to 1020 V	0.0092% of Rdg. + 1.4 V	
AC Voltage (Measure)	AC Voltage (Measure)	33 to 104 mV (10 Hz to 2 kHz)	0.092% of Rdg. + 0.15 mV	IT-CP-47 Rev.0
		33 to 104 mV (2 kHz to 20 kHz)	0.17% of Rdg. + 0.17 mV	
		0.104 to 1.04 V (10 Hz to 2 kHz)	0.092% of Rdg. + 0.0015 V	
		0.104 to 1.04 V (2 kHz to 20kHz)	0.17% of Rdg. + 0.0017 V	
		1.04 to 10.4 V (10 Hz to 2 kHz)	0.092% of Rdg. + 0.015 V	
		1.04 to 10.4 V (2 kHz to 20 kHz)	0.17% of Rdg. + 0.017V	
		10.4 to 104 V (40 Hz to 1 kHz)	0.092% of Rdg. + 0.15 V	
		104 to 1020 V (40 Hz to 1 kHz)	0.092% of Rdg. + 1.5 V	
		DC Current (Measure)	DC Current (Measure)	
0.104 to 1.04 mA	0.035% of Rdg. + 0.0014 mA			



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## SCOPE OF ACCREDITATION

### INSTRU-TECH PHILIPPINES INC.

UG7 Tower B Palm Towers, Saint Paul Rd.,  
San Antonio Village, Makati City

Classification of Scopes	Measured quantities/ instrument	Range to be calibrated	Calibration and Measurement Capability (CMC)*	Calibration Method	
		1.04 mA to 10.4 mA	0.035% of Rdg. + 0.014 mA	IT-CP-47 Rev.0	
		10.4 to 104 mA	0.035% of Rdg. + 0.14 mA		
		104 to 1040 mA	0.035% of Rdg. + 1.5 mA		
		1.04 to 10.2 A	0.06% of Rdg. + 0.015A		
	AC Current (Measure)	0 to 104 $\mu$ A (10 Hz to 2 kHz)	0.12% of Rdg. + 0.17 mA		IT-CP-47 Rev.0
		0.104 to 1.04 mA (10 Hz to 2 kHz)	0.12% of Rdg. + 0.0017 mA		
		1.04 mA to 10.4 mA (10 Hz to 2 kHz)	0.12% of Rdg. + 0.017 mA		
		10.4 to 104 mA (10 Hz to 2 kHz)	0.12% of Rdg. + 0.17 mA		
		104 to 1040 mA (10 Hz to 2 kHz)	0.12% of Rdg. + 1.7 mA		
		1.04 to 10.2 A (10 Hz to 2 kHz)	0.12% of Rdg. + 0.023 A		
	Resistance (Measure)	0 to 10 $\Omega$	0.023% of Rdg. + 0.060 $\Omega$		IT-CP-47 Rev.0
		10 to 100 $\Omega$	0.023% of Rdg. + 0.16 $\Omega$		
		0.1 to 1 k $\Omega$	0.023% of Rdg. + 0.0014k $\Omega$		
1 to 10 k $\Omega$		0.023% of Rdg. + 0.014 k $\Omega$			
10 to 100 k $\Omega$		0.023% of Rdg. + 0.14 k $\Omega$			
0.1 to 1 M $\Omega$		0.023% of Rdg. + 0.0014 M $\Omega$			
1 to 10 M $\Omega$		0.023% of Rdg. + 0.014 M $\Omega$			



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## SCOPE OF ACCREDITATION

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UG7 Tower B Palm Towers, Saint Paul Rd.,  
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Conductivity/TDS/ Resistivity Meter	Conductivity/TDS/ Resistivity Meter (Simulation)	0 to 10 $\Omega$	0.023% of Rdg. + 58 m $\Omega$	IT-CP-35 Rev.0
		10 to 100 $\Omega$	0.023% of Rdg. + 58 m $\Omega$	
		0.1 to 1 k $\Omega$	0.023% of Rdg. + 0.10 $\Omega$	
		1 to 10 k $\Omega$	0.023% of Rdg. + 0.82 $\Omega$	
		10 to 100 k $\Omega$	0.023% of Rdg. + 8.2 $\Omega$	
		0.1 to 1 M $\Omega$	0.023% of Rdg. + 82 $\Omega$	
		1 to 10 M $\Omega$	0.023% of Rdg. + 0.82 k $\Omega$	
Clamp Meter	AC Current Clamp	30 mA to 20 A (30 to 60 Hz)	0.42% + 17 mA	IT-CP-28 Rev.0
		20 to 100 A (30 to 60 Hz)	0.42% + 17 mA	
		100 to 500 A (30 to 60 Hz)	0.42% + 17 mA	
	DC Current Clamp	30 mA to 20 A	0.41% + 10 mA	
		20 to 100 A	0.41% + 11 mA	
		100 to 500 A	0.41% + 11 mA	
Insultation Tester	Insulation Tester/ Megger Tester (Resistance)	100 to 500 k $\Omega$ (100 V)	1.2 % of Rdg. + 58 $\Omega$	IT-CP-29 Rev.0
		1 M $\Omega$ (100 V)	1.2 % of Rdg. + 0.58 k $\Omega$	
		10 M $\Omega$ (100 V)	1.2 % of Rdg. + 5.8 k $\Omega$	
		100 M $\Omega$ (100 V)	1.2 % of Rdg. + 5.8 k $\Omega$	
		1 to 5 M $\Omega$ (250 V)	1.2 % of Rdg. + 0.58 k $\Omega$	
		10 M $\Omega$ (250 V)	1.2 % of Rdg. + 5.8 k $\Omega$	





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Classification of Scopes	Measured quantities/ instrument	Range to be calibrated	Calibration and Measurement Capability (CMC)*	Calibration Method
		100 to 200 MΩ (250 V)	1.2 % of Rdg. + 5.8 kΩ	
		5 MΩ (500 V)	1.2 % of Rdg. + 0.58 kΩ	
		10 MΩ (500 V)	1.2 % of Rdg. + 5.8 kΩ	
		100 to 500 MΩ (500 V)	1.2 % of Rdg. + 58 kΩ	
		100 to 1000 MΩ (1000 V)	1.2 % of Rdg. + 58 kΩ	
		100 to 1000 MΩ (1 to 5 kV)	0.92% of Rdg. + 0.17 kΩ	
	Insulation Tester/ Megger Tester (Voltage)	10 to 100 V	52 ppm Rdg + 0.70 mV	
		100 to 1000 V	52 ppm Rdg + 12 mV	
		0.1 to 10 kV	0.58 % Rdg. + 3.6 V	
<b>Frequency and time measuring instruments and standards</b>				
Timer / Stopwatch	Timer / Stopwatch	1 sec to 60mins	23 mSec	IT-CP-36 Rev.0
Clocks & Watches	Watch / Clocks	1 sec to 60mins	23 mSec	
<b>Tests High voltage equipment</b>				
Direct Voltage Tests	DC High Voltage Tester / /Hi-Pot / Withstanding Voltage Tester / Puncture Tester	0 to 10 kV	0.58 % Rdg. + 3.6 V	IT-CP-30 Rev 0
		10 to 40 kV	3.5% Rdg. + 50 V	
Alternating Voltage Tests	AC High Voltage Tester / Hi-Pot / Withstanding Voltage Tester / Puncture Tester	0 to 10 kV (50 Hz to 60 kHz)	1.2% Rdg. + 5.8 V	
		10 to 30 kV (50 Hz to 60 kHz)	3.5% Rdg. + 50 V	



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Classification of Scopes	Measured quantities/ instrument	Range to be calibrated	Calibration and Measurement Capability (CMC)*	Calibration Method
<b>Calibration of Temperature Measurement Equipment</b>				
Rare metal thermocouple	Calibration of Digital Thermometer Thermocouple Type R and S	-20 to 50 °C	0.33 °C	IT-CP-17 rev. 0
		50 to 100 °C	0.35 °C	
		100 to 200 °C	0.38 °C	
		200 to 300 °C	0.44 °C	
Base metal thermocouples	Calibration of Digital Thermometer Thermocouple Type E, J, K and T	-20 to 50 °C	0.33 °C	IT-CP-17 rev. 0
		50 to 100 °C	0.35 °C	
		100 to 200 °C	0.38 °C	
		200 to 300 °C	0.44 °C	
Metallic resistance thermometers	RTD, NTC	-20 to 50 °C	0.33 °C	IT-CP-17 rev. 0
		50 to 100 °C	0.35 °C	
		100 to 200 °C	0.38 °C	
		200 to 300 °C	0.44 °C	
Bimetallic systems	Calibration of Bi-Metallic Thermometer	-20 to 50 °C	0.33 °C	IT-CP-17 rev. 0
		50 to 100 °C	0.35 °C	
		100 to 200 °C	0.38 °C	
		200 to 300 °C	0.44 °C	
Digital temperature indicator systems	Calibration of Digital Thermometer	-20 to 50 °C	0.33 °C	IT-CP-17 rev. 0
		50 to 100 °C	0.35 °C	
		100 to 200 °C	0.38 °C	
		200 to 300 °C	0.44 °C	
<b>Calibration of clinical thermometers</b>				
Electronic	Calibration of Digital Thermometer	20 to 50 °C	0.33 °C	IT-CP-17 rev. 0
<b>Ancillary Temperature Measuring Instruments</b>				
Indicators, Recorders, Controllers	Thermocouple Type J	-210 to -100 °C	0.53 °C	IT-CP-24 rev. 1
		-100 to 150 °C	0.25 °C	
		100 to 760 °C	0.32 °C	
		760 to 1200 °C	0.44 °C	
	Thermocouple Type K	-200 to -100 °C	0.62 °C	
		-100 to 120 °C	0.35 °C	
		120 to 1370 °C	0.60 °C	
	Thermocouple Type T	-250 to -150 °C	1.4 °C	
		-150 to 400 °C	0.25 °C	



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	Thermocouple Type R	0 to 250 °C	1.8 °C	
		250 to 1760 °C	1.2 °C	
	Thermocouple Type S	0 to 250 °C	1.8 °C	
		250 to 1760 °C	1.2 °C	
	Thermocouple Type N	-200 to -100 °C	0.97 °C	
		-100 to 410 °C	0.46 °C	
		410 to 1300 °C	0.55 °C	
	Thermocouple Type E	-200 to -100 °C	1.2 °C	
		-100 to 650 °C	0.28 °C	
		650 to 1000 °C	0.35 °C	
	RTD Pt 100 Ohm	-200 to 0 °C	0.35 °C	
		0 to 800 °C	0.58 °C	
<b>Testing of temperature-controlled enclosures</b>				
Ovens and Baths	Calibration of Ovens and Liquid Baths	-20 to 250 °C	0.41 °C	IT-CP-18 rev. 0
Incubators	Calibration of Incubators	20 to 70 °C	0.41 °C	IT-CP-18 rev. 0
Industrial Freezers	Calibration of Freezers / Refrigerators	-20 to 15°C	0.41 °C	IT-CP-18 rev. 0
Furnace	Calibration of Furnace with Controlled Temperature	400 to 1000 °C	1.3 °C	IT-CP-55 rev. 0
Autoclave/Sterilizer	Calibration of Autoclave / Sterilizer	121 °C	0.34 °C	IT-CP-54 rev. 0
<b>Hygrometer</b>				
Calibration of Humidity Measuring Devices	Calibration of Humidity Measuring Devices (One- point calibration)	20 to 30 °C	0.63 °C	IT-CP-47 rev. 0
		40 to 80% R.H.	2.6 % R.H.	



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Classification of Scopes	Measured quantities/ instrument	Range to be calibrated	Calibration and Measurement Capability (CMC)*	Calibration Method
pH Meter	pH Meter (Simulation)	4,7,10 pH	0.0059 pH	IT-CP-34 Rev.0
	pH Meter (Buffer Solution)	4,7,10 pH	0.015 pH	IT-CP-34 Rev.0
Conductivity / TDS Meter	Conductivity Meter (Solution)	1413 $\mu$ S/cm	3.0 $\mu$ S/cm	IT-CP-35 Rev.0
		12.88 mS/cm	29 $\mu$ S/cm	
	TDS Meter	904 ppm of TDS	3.0 ppm of TDS	

\* CMC expressed as an expanded uncertainty having a specific coverage probability of approximately 95%.

**JAMES E. EMPEÑO**  
Director IV  
Philippine Accreditation Bureau



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