



CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

**INSTITUTO PERUANO DE METROLOGIA E
INNOVACION**

**Jr. German Amezaga 242 Interior 202 Zona "B"
San Juan de Miraflores
Lima, Peru**

Fulfills the requirements of

ISO/IEC 17025:2017

In the field of

CALIBRATION

This certificate is valid only when accompanied by a current scope of accreditation document.
The current scope of accreditation can be verified at www.anab.org.

Jason Stine, Vice President

Expiry Date: 13 December 2026

Certificate Number: AC-3158



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory
quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

INSTITUTO PERUANO DE METROLOGIA E INNOVACION

Jr. German Amezaga 242 Interior 202 Zona "B"

San Juan de Miraflores

Lima, Peru

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CALIBRATION

Valid to: December 13, 2026

Certificate Number: AC-3158

Acoustics and Vibration

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Sound Pressure Level – Sound Level Meters, Dosimeters	1 kHz 74 dB 84 dB 94 dB 104 dB	0.48 dB 0.48 dB 0.48 dB 0.48 dB	Comparison to Hangzhou Aihua AWA6223 Class 1 Sound Calibrator

Chemical Quantities

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Conductivity Meters ³ (~ 25 °C)	100 µS/cm 1 413 µS/cm 10 000 µS/cm	2.3 µS/cm 14 µS/cm 100 µS/cm	Comparison to Conductivity Certified Reference Material
pH Meters ³ (~ 25 °C)	4 pH 7 pH 10 pH	0.011 pH 0.011 pH 0.011 pH	Comparison to pH Buffer Certified Reference Material

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
DC High Current – Clamp Meters	(1 to 250) A (250 to 500) A (500 to 1 000) A	0.38 A 0.38 A 0.48 A	Comparison to HANGZHONGHUANG ET030-F Multifunction Calibrator, 100-turn Current Coil
AC High Current – Clamp Meters	60 Hz (1 to 250) A (250 to 500) A (500 to 1 000) A	0.37 A 0.37 A 0.37 A	Comparison to HANGZHONGHUANG ET030-F Multifunction Calibrator, 100-turn Current Coil
DC Current – Measuring Devices	(50 to 500) μ A (0.5 to 5) mA (5 to 50) mA (50 to 250) mA (250 to 500) mA (0.5 to 1) A (1 to 5) A (5 to 10) A	83 nA 10 μ A 0.12 mA 0.13 mA 0.16 mA 5.2 mA 10 mA 19 mA	Comparison to HANGZHONGHUANG ET030-F Multifunction Calibrator
DC Voltage – Measuring Devices	(5 to 50) mV (50 to 500) mV (0.5 to 2.5) V (2.5 to 5) V (5 to 50) V (50 to 100) V (100 to 1 000) V	0.41 mV 0.42 mV 14 mV 14 mV 18 mV 76 mV 61 mV	Comparison to HANGZHONGHUANG ET030-F Multifunction Calibrator
DC Voltage – Sourcing Devices	(0.5 to 5) V (5 to 50) V	0.12 V 0.26 V	Comparison to Fluke 289 Digital Multimeter
AC Current – Measuring Devices	60 Hz (50 to 500) μ A (0.5 to 5) mA (5 to 50) mA (50 to 250) mA (250 to 500) mA (0.5 to 1) A (1 to 5) A (5 to 10) A	1.8 μ A 0.1 μ A 32 μ A 0.51 mA 0.51 mA 15 mA 5.1 mA 27 mA	Comparison to HANGZHONGHUANG ET030-F Multifunction Calibrator

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Voltage – Measuring Devices	60 Hz		Comparison to HANGZHONGHUANG ET030-F Multifunction Calibrator
	(5 to 50) mV	0.32 mV	
	(50 to 500) mV	0.38 mV	
	(0.5 to 2.5) V	14 mV	
	(2.5 to 5) V	0.17 V	
	(5 to 50) V	0.3 V	
	(50 to 100) V	0.34 V	
	(100 to 1 000) V	0.71 V	
	400 Hz		
	(5 to 50) mV	0.32 mV	
	(50 to 500) mV	0.38 mV	
	(0.5 to 2.5) V	14 mV	
	(2.5 to 5) V	14 mV	
	(5 to 50) V	0.17 V	
	(50 to 500) V	0.3 V	
	(500 to 1 000) V	0.33 V	
Resistance – Measuring Devices (Simulated – Fixed Points)	10 Ω	0.59 Ω	Comparison to HANGZHONGHUANG ET030-F Multifunction Calibrator
	20 Ω	0.58 Ω	
	50 Ω	0.59 Ω	
	200 Ω	0.92 Ω	
	500 Ω	0.37 Ω	
	1 k Ω	0.58 k Ω	
	2 k Ω	0.58 k Ω	
	5 k Ω	0.58 k Ω	
	10 k Ω	0.58 k Ω	
	20 k Ω	0.58 k Ω	
Electrical Simulation of Thermocouple Indicating Devices ¹	Type K (-20 to 1 000) °C	1.7 °C	Comparison to Fluke 726 Process Calibrator
Electromagnetic Field Meter (EFM)	(-10 to 10) G	0.48 G	Comparison to Reference Gauss Meter

Length – Dimensional Metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Calipers Outside Inside Depth	(0.5 to 270) mm 10 mm 10 mm	12 μ m 8.3 μ m 5.9 μ m	Comparison to ISO 3650 Grade 1 Gauge Blocks, Standard Ring Gauge, Surface Plate
Dial Indicators/Gauges	Up to 25 mm	3.2 μ m	Comparison to Dial Indicator Calibration Tester
Outside Micrometers	(2.5 to 25) mm	1.2 μ m	Comparison to ISO 3650 Grade 1 Ceramic Gauge Block Set
Depth Micrometers	Up to 25 mm	1.2 μ m	Comparison to ISO 3650 Grade 1 Gauge Block Set
Ultrasonic Thickness Gauges ³	6.25 mm 12.5 mm 18.75 mm 25 mm	62 μ m 62 μ m 62 μ m 62 μ m	Comparison to Steel Stepped Wedge/Gauge

Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Mass – OIML Class M2 Mass Standards	10 kg 20 kg	0.15 g 0.5 g	Comparison to OIML Class M1 Weight Set, Balance
Vacuum Gauges ¹	(-12 to 0) psi	0.71 psi	Comparison to Elitech Reference Vacuum Gauge
Hydraulic Gauge Pressure Gauges ¹	(10 to 500) psig (500 to 5 000) psig (1 000 to 9 500) psig	4.7 psi 14 psi 30 psi	Comparison to Reference Digital Pressure Gauge
Torque Tools	(50 to 150) N·m (150 to 250) N·m (250 to 350) N·m (350 to 500) N·m	1.8 % of reading + 0.5 N·m 2.1 % of reading + 0.05 N·m 2.6 % of reading - 1.2 N·m 1.4 % of reading + 3 N·m	ISO 6789:2003 using Torque Calibration System
Air Flow Rate – Air Personal Sampling Pumps	(0.2 to 5) lpm	1.5 % of reading + 0.000 1 lpm	Comparison to BIOS DCL-ML Air Flowmeter

Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Totalized Volume – Water Flow Meters	(4.5 to 70) gal	0.45 gal	Comparison to Reference Water Meter
Anemometers, Air Velocity Meters	(2 to 10) m/s	3.2 % of reading + 0.039 m/s	Comparison to Reference Anemometer, Wind Tunnel

Photometry and Radiometry

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Light Meters	(50 to 500) lx (500 to 5 000) lx (5 000 to 10 000) lx (10 000 to 20 000) lx	4.5 % of reading 1.7 % of reading 1.6 % of reading 1.6 % of reading	Comparison to Reference Light Meter
UV-A Meters	(1 100 to 2 000) $\mu\text{W}/\text{cm}^2$ (2 000 to 2 700) $\mu\text{W}/\text{cm}^2$	3.3 % of reading 3.3 % of reading	Comparison to Reference UV Meter

Thermodynamic

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Humidity – Air Environment Conditions Measuring Instruments	(40 to 60) %RH	2.9 %RH	Comparison to Reference Thermo-hygrometer
Temperature – Air Environment Conditions Measuring Instruments	(25 to 30) °C	0.81 °C	Comparison to Reference Thermo-hygrometer

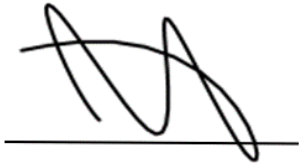
Time and Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Stopwatches	(1 800 to 32 400) s	0.001 7 % of reading + 98 ms	Comparison to Reference Stopwatch
Centrifuges ² Rotational Velocity	(50 to 2 000) rpm (2 000 to 85 000) rpm	5.8 rpm 6.1 rpm	Comparison to Reference Optical Tachometer

Calibration and Measurement Capability (CMC) is expressed in terms of the measurement parameter, measurement range, expanded uncertainty of measurement and reference standard, method, and/or equipment. The expanded uncertainty of measurement is expressed as the standard uncertainty of the measurement multiplied by a coverage factor of 2 ($k=2$), corresponding to a confidence level of approximately 95%.

Notes:

1. On-site calibration service is available for this parameter, since on-site conditions are typically more variable than those in the laboratory, larger measurement uncertainties are expected on-site than what is reported on the accredited scope.
2. rpm = revolutions per minute.
3. The values presented on the Scope are Nominal values. The Actual values will be used at the time of calibration and the Measurement Uncertainty will reflect the Actual value.
4. Unless otherwise specified in the far-right column, the calibration procedure/method utilized was written internally.
5. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-3158.



Jason Stine, Vice President

