



PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

Perry Johnson Laboratory Accreditation, Inc. has assessed the Laboratory of:

Metrology & Consultant, S.A. de C.V.

*Juárez Poniente No. 403, Centro Escobedo
Escobedo, Nuevo León, México. C.P. 66050*

*(Hereinafter called the Organization) and hereby declares that Organization 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
(as outlined by the joint ISO-ILAC-IAF Communiqué dated April 2017):

***Dimensional, Acoustic, Mechanical, Time & Frequency, Electrical, Optical,
Thermodynamic and Mass, Force & Weighing Devices Calibration
(As detailed in the supplement)***

Accreditation claims for such testing and/or calibration services shall only be made from addresses referenced within this certificate. This Accreditation is granted subject to the system rules governing the Accreditation referred to above, and the Organization hereby covenants with the Accreditation body's duty to observe and comply with the said rules.

For PJLA:

Tracy Szerszen
President

Initial Accreditation Date:

September 01, 2010

Issue Date:

October 29, 2023

Expiration Date:

November 30, 2025

Revision Date:

October 15, 2024

Accreditation No.:

67263

Certificate No.:

L23-800-R1

Perry Johnson Laboratory
Accreditation, Inc. (PJLA)
755 W. Big Beaver, Suite 1325
Troy, Michigan 48084

*The validity of this certificate is maintained through ongoing assessments based on a
continuous accreditation cycle. The validity of this certificate should be
confirmed through the PJLA website: www.pjilabs.com*



Certificate of Accreditation: Supplement

Metrology & Consultant, S.A. de C.V.

Juárez Poniente No. 403, Centro Escobedo
 Escobedo, Nuevo León, México. C.P. 66050
 Contact Name: Marcelo Castañón Phone: 811-094-0880

Accreditation is granted to the facility to perform the following calibrations:

Dimensional

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Outside Micrometers ^{FO}	0.1 mm to 508 mm	$(1.46 + 2.09 \times 10^{-3}L) \mu\text{m}$	Master Block Starrett-Mitutoyo, Shars Grade 1	JIS B 7502 JIS B 7507
Calipers ^{FO}	0.1 mm to 1 524 mm	$(11.54 + 3.36 \times 10^{-4}L) \mu\text{m}$		
Dial Indicator ^{FO}	0.1 mm to 25.4 mm	$(2.49 + 1.28 \times 10^{-2}L) \mu\text{m}$	Calibration Tester Mitutoyo UDT-2	JIS B 7503
Microscopes ^O	0.1 mm to 1 mm	$(1.64 - 8.62 \times 10^{-4}L) \mu\text{m}$	Scale Standard Mitutoyo Scale 1 mm	JIS B 7153
	1 mm to 200 mm	$(2.57 + 1.65 \times 10^{-4}L) \mu\text{m}$	Scale Standard Mitutoyo HL1-200	
Tape Measure ^F	5 mm to 5 000 mm	$(817.06 + 6.66 \times 10^{-4}L) \mu\text{m}$	Rule Insize	JIS B 7512
Granite Surface Plates Flatness only ^O	300 mm to 3 600 mm Diagonal	$(5.342 + 3.51 \times 10^{-3}D) \mu\text{m}$	Level Electronics Mahr Federal	JIS B 7513
Optical Comparator Length ^O	X: 1 mm to 200 mm	4.7 μm	Glass Reticules Mitutoyo HL1-200 Block Standard	JIS B 7184
	Y: 1 mm to 200 mm	4.7 μm		
Optical Comparator Angularity ^O	0° to 90°	0.06 °		
Height Caliper ^F	12.7 mm to 609.6 mm	$(11.49 + 4.27 \times 10^{-3}L) \mu\text{m}$	Master Block Starrett-Mitutoyo, Shars Grade 1	JIS B 7517
Feeler Gauges ^{FO}	0.152 mm to 25.4 mm	$(2.26 + 1.6 \times 10^{-2}L) \mu\text{m}$	Master Micrometer Mitutoyo 293-832-30	JIS B 7524
Metal Rules ^{FO}	0.1 mm to 2 000 mm	$(7.52 + 1.6 \times 10^{-2}L) \mu\text{m}$	Rule Master Starrett Microscope WF10X HL1-200,	JIS B 7516
Ping Gages ^F	0.152 mm to 25.4 mm	$(2.26 + 1.6 \times 10^{-2}L) \mu\text{m}$	Master Micrometer Mitutoyo 293-832-30	ASME B 89.1.5-1998
Thread Plugs Pitch Diameter ^F	0-40 to 4-12	5.3 μm	Wires with Micrometer Mitutoyo 293-832-10	NF E11-018-2003
Radius Gage ^F	0.75 mm to 12.7 mm	14 μm	Optical Comparator Mitutoyo	PH-14LS
Angle Gages ^F	0° to 90°	0.1°		
Profilometer Ra Fixed point Ry Fixed point ^F	2.97 μm	0.15 μm	Roughness Specimen Mitutoyo 178-602 ISO 5436-2	ISO 5436-2
	9.4 μm	0.26 μm		
Gage Block Grade 1 and 2 ^{FO}	0.5 mm to 150 mm	$(3.56 \times 10^{-2} + 5.63 \times 10^{-4}L) \mu\text{m}$	Gage Block Grade 0 Gage Block Comparator Metrology	ISO 3650



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Acoustic

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Sound Level Meter Fixed Point ^{FO}	94 dB	0.1 dB	Acoustic Calibrator	IEC 61672
	104 dB	0.2 dB		
	114 dB	0.3 dB		

Mechanical

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Flow Meter ^{FO}	1 mL/min to 99.9 mL/min	0.1 mL/min	AirLeak Simulator Cincinnati Model LS Lite 500	ISO 9978
	99.99 mL/min to 500 mL/min	1 mL/min		
Indirect Verification of Rockwell Hardness Testers HRB ^O	40 HRB to 59 HRB	0.61 HRB	Hardness Tester Blocks	ISO 6508-2
	60 HRB to 79 HRB	0.62 HRB		
	80 HRB to 100 HRB	0.49 HRB		
Indirect Verification of Rockwell Hardness Testers HRC ^O	20 HRC to 39 HRC	0.52 HRC		
	40 HRC to 59 HRC	0.45HRC		
	60 HRC to 70 HRC	0.34HRC		
Indirect Verification of Brinell Hardness Testers HBW ^O	194 HBW to 420 HBW	5 HBW	Hardness Tester Blocks	ISO 6506-2
Indirect Verification of Micro Hardness Tester Knoop ^O	100 HK to 900 HK	20 HK	Hardness Tester Blocks	ISO 6507-2
Pressure Gages ^{FO}	-12 psi to 100 psi	0.02 psi	Transducers Fluke 700G06	OIML R101
	50 psi to 500 psi	0.04 psi	Transducers Fluke PV350 Keithley 2001	
	-14 psi to 3 000 psi	0.85 psi	Transducer 2700G-G20M	
	-14 psi to 10 000 psi	0.94 psi	Transducer 700RG431	
Vacuum Gages ^{FO}	-24.43 in·Hg to -2.03 in·Hg	0.29 inHg	Transducer Fluke 2700G-BG700K	
	-25.14 in·Hg to -2.526 in·Hg	0.28 inHg	Transducers Fluke PV350/ Escort 99	
Force Machines Tension and Compression ^{FO}	1 N to 444.8 N	0.25 % of reading	Load Cell, Rice Lake	ISO 7500
	0.44 kN to 4.44 kN	0.48 % of reading	Load Cell, LOADTRON	



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Force Machines Tension and Compression ^{FO}	1.33 kN to 13.34 kN	0.49 % of reading	Load Cell LOADTRON	ISO 7500
	2.22 kN to 22.24 kN	0.38 % of reading	Load Cell, Rice Lake	
	4.44 kN to 44.48 kN	0.38 % of reading	Load Cell LOADTRON	
	11.12 kN to 111.2 kN	0.26 % of reading		
	20 kN to 222.41 kN	0.5 % of reading		
Direct Verification of Durometer Hardness Tester Types A, B, C, D, E, O, & DO Extension at zero reading	2.46 mm to 2.54 mm	0.5 μ m	Comparator	ASTM D-2240
		8.5 μ m 8.5 μ m 8.5 μ m 0.09°	Comparator Comparator Comparator	
Durometer Indentor Spring Types A, B, E & O Types C, D & DO ^F	0.55 N to 9.05 N	1.5 N	Load Cells Load Cells	
	0.445 N to 44.45 N	1.5 N		
Torque Wrenches ^{FO}	1 lb·in to 10 lb·in	0.26 % of reading	Torque Transducer Mountz BMX10i	ISO 6789
	2.5 lb·in to 25 lb·in	0.33 % of reading	Torque Transducer Mountz BMX25i	
	25 lb·in to 250 lb·in	0.33 % of reading	Torque Transducer MOUNTZ RTSX250i /	
	10 lbf·ft to 100 lbf·ft	0.43 % of reading	MOUNTZ BMX100F	
	100 lbf·ft to 1 000 lbf·ft	0.5 % of reading	MOUNTZ BMX1000F	
Torque Transducer ^F	1 lb·in to 3 000 lb·in	0.2 % of reading	Torque Arms and Weight F1, M2	DIN 51309
Anemometer ^F	0.3 m/s to 25 m/s	0.68 % of reading	Master Anemometer Wind Tunnel Anemometer KANOMAX	IEC 61400-12-1 ASTM D 5096



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Time and Frequency

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Equipment to Output rpm ^{FO}	6 rpm to 4 000 rpm	0.000 25 rpm/rpm + 0.001 rpm	No Contact, Tachometer	AMETEK 1726 AS432B
	6 rpm to 60 000 rpm	0.057 rpm	Fluke 5522	AS432B
Equipment to Output Time ^{FO}	Up to 3 600 s	0.007 s	Casio HS-70W Stopwatch 0.001 s	ITTC-7.6-02-07
Equipment to Output Frequency ^{FO}	10 Hz to 60 MHz	51 μ Hz/Hz + 100 μ Hz	Oscilloscope Tektronix TDS 1002B	ANSI C39.6
	1 Hz to 1 MHz	0.03 % of reading	Keithley 2001	

Electrical

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Equipment to Measure DC Voltage ^{FO}	Up to 100 mV	1.4×10^{-4} mV	Keithley 2001	ANSI C39.6
	0.1 V to 1 V	2.7×10^{-6} V		
	1 V to 10 V	2.7×10^{-5} V		
	10 V to 100 V	6.7×10^{-5} V		
	100 V to 1 000 V	1.7×10^{-3} V		
Equipment to Measure AC Voltage At the listed frequencies ^{FO}				
50 Hz to 10 kHz	1 mV to 100 mV	2.2×10^{-3} mV		
50 Hz to 10 kHz	0.1 V to 1 V	2×10^{-5} V		
50 Hz to 10 kHz	1 V to 10 V	2×10^{-4} V		
Equipment to Measure AC Voltage At the listed frequencies ^{FO}				
50 Hz to 10 kHz	10 V to 100 V	5.6×10^{-3} V		
10 kHz to 20 kHz	100 V to 750 V	2.3×10^{-2} V		
Equipment to Measure Resistance ^{FO}	Up Ω to 100 Ω	8.4×10^{-5} Ω		
	100 Ω to 1 k Ω	8.1×10^{-7} k Ω		
	1 k Ω to 10 k Ω	4.6×10^{-6} k Ω		
	10 k Ω to 100 k Ω	1.2×10^{-5} k Ω		
	100 k Ω to 1 M Ω	1.2×10^{-6} M Ω		
	1 M Ω to 10 M Ω	5.8×10^{-6} M Ω		
	10 M Ω to 100 M Ω	5.8×10^{-6} M Ω		



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Equipment to Measure DC Current ^{FO}	Up to 20 mA	4.1×10^{-5} mA	Keithley 2001	ANSI C39.6
	20 mA to 100 mA	1×10^{-3} mA		
	0.1 A to 1 A	4×10^{-4} A		
Equipment to Measure AC Current At the listed frequencies ^{FO}			Keithley 2001 HI POT Quadtech Sentry 10	ANSI C39.6
50 Hz to 10 kHz	2 mA to 20 mA	4×10^{-4} mA		
50 Hz to 10 kHz	20 mA to 200 mA	4×10^{-4} mA		
50 Hz to 2 kHz	0.2 A to 2 A	4×10^{-4} A		
Equipment to Output AC High Voltage At the listed frequencies ^{FO} 50 Hz to 60 Hz	150 V to 4 500 V	50 V	HI POT Quadtech Sentry 10, Fluke 177	
Equipment to Measure DC Voltage ^{FO}	Up to 600 mV	$540 \mu\text{V}/\text{V} + 200 \mu\text{V}$	Fluke 177	
	6 V to 60 V	$54 \text{mV}/\text{V} + 20 \text{mV}$		
	60 V to 600 V	$540 \text{mV}/\text{V} + 200 \text{mV}$		
	600 V to 1 000 V	3.5 V		
Equipment to Measure AC Voltage At the listed frequencies ^{FO}				
45 Hz to 500 Hz	1 mV to 600 mV	$6 \text{mV}/\text{V} + 300 \mu\text{V}$		
45 Hz to 500 Hz	0.6 V to 6 V	$60 \text{mV}/\text{V} + 3 \text{mV}$		
45 Hz to 500 Hz	6 V to 60 V	$600 \text{mV}/\text{V} + 30 \text{mV}$		
45 Hz to 500 Hz	60 V to 600 V	6.3 V		
45 Hz to 500 Hz	600 V to 1 000 V	13 V		
Equipment to Measure Resistance ^{FO}	Up to 600 Ω	$5.4 \Omega/\Omega + 200 \text{m}\Omega$		
	600 Ω to 6 k Ω	55 Ω		
	6 k Ω to 60 k Ω	550 Ω		
	60 k Ω to 600 k Ω	5.5 k Ω		
	600 k Ω to 6 M Ω	55 k Ω		
	6 M Ω to 50 M Ω	480 k Ω		
Equipment to Measure DC Current ^{FO}	0 mA to 60 mA	$5.9 \mu\text{A}/\text{A}$		
	60 mA to 400 mA	$200 \mu\text{A}/\text{A}$		
	0.4 A to 10 A	$4.9 \text{mA}/\text{A}$		
Equipment to Measure Capacitance ^{FO}	1 μF to 100 μF	$1.2 \mu\text{F}/\text{F} + 200 \mu\text{F}$		



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Equipment to Measure AC Current At the listed frequencies ^{FO}			Fluke 177	ANSI C39.6
45 Hz to 1 kHz	1 mA to 60 mA	900 μ A/A + 30 μ A		
45 Hz to 1 kHz	60 mA to 400 mA	6 mA/A + 300 μ A		
45 Hz to 1 kHz	0.4 A to 6 A	90 mA/A + 3 mA		
45 Hz to 1 kHz	6 A to 10 A	150 mA/A + 30 mA		
Equipment to Output AC High Current Hall Effect Current Sensor Close Loop (10 Hz to 400 Hz) ^{FO}	0 A to 600 A	2.3 A	Fluke 381	ANSI C39.6
Equipment to Output DC High Current Hall Effect Current Sensor Close Loop ^{FO}	0 A to 600 A	2.3 A		
Equipment to Measure AC High Voltage (45 Hz to 1 kHz) ^{FO}	1 kV to 28 kV	5.8 % of reading	Fluke 177 + Fluke 80k-40	Euramet-cg-15.01 ANSI C39.6
Equipment to Measure DC High Voltage ^{FO}	1 kV to 40 kV	2.3 % of reading		
Equipment to Measure AC Surge High Voltage (0.1 μ s to 1 ms) ^{FO}	500 V to 5 000 V	5.9 % of reading	Tektronix TDS 1 002 B + Fluke 80k-40	
Equipment to Measure DC Surge High Voltage (0.1 μ s to 1 ms) ^{FO}	500 V to 5 000 V	2.7 % of reading		
Equipment to Measure AC High Current (50 Hz to 1 kHz) ^{FO}	10 A to 100 A	190 mA/A	High Current Shunt + Fluke 177	
Equipment to Measure DC High Current ^{FO}	10 A to 100 A	190 mA/A		
Equipment to Measure DC Power (PF=1) ^{FO}	0.11 mW to 9 W	0.04 % of reading	Fluke 5522A	
Equipment to Measure AC Power 33 mV to 329.999 MV (PF=1) At the listed frequencies 45 Hz to 65 Hz ^{FO}	0.3 mW to 33 W	0.03 % of reading		
	1.09 mW to 90 W	0.04 % of reading		



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Equipment to Measure AC Power 33 mV to 329.999 MV (PF=1) At the listed frequencies 45 Hz to 65 Hz ^{F0}	2.97 mW to 330 W	0.03 % of reading	Fluke 5522A	Euramet-cg-15.01 ANSI C39.6
	10.89 mW to 900 W	0.08 % of reading		
	29.7 mW to 2 200 W	0.06 % of reading		
	72.6 mW to 4 500 W	0.12 % of reading		
	148.5 mW to 11 000 W	0.09 % of reading		
Equipment to Measure AC Power 33 mV to 329.999 MV (PF=1) ^{F0}	0.11 mW to 0.003 W	0.4 % of reading		
	0.3 mW to 0.011 W	0.25 % of reading		
	1.1 mW to 0.03 W	0.35 % of reading		
	3 mW to 0.11 W	0.25 % of reading		
	11 mW to 0.3 W	0.35 % of reading		
	30 mW to 0.73 W	0.4 % of reading		
	73 mW to 1.5 W	0.25 % of reading		
Equipment to Measure 330 mV to 1 000 V (PF=1) At the listed frequencies 45 Hz to 65 Hz ^{F0}	1.1 mW to 9 W	0.25 % of reading		
	3 mW to 33 W	0.35 % of reading		
	0.011 W to 90 W	0.25 % of reading		
	0.03 W to 330 W	0.35 % of reading		
	0.11 W to 900 W	0.25 % of reading		
	0.3 W to 2 200 W	0.25 % of reading		
	0.73 W to 4 500 W	0.15 % of reading		
	1.5 W to 11 000 W	0.25 % of reading		
	30 mW to 0.73 W	0.15 % of reading		
	73 mW to 1.5 W	0.25 % of reading		
	0.15 W to 3.6 W	0.15 % of reading		
	1.1 mW to 9 W	0.2 % of reading		
3 mW to 33 W	0.15 % of reading			
Equipment to Measure AC Voltage Triangle Wave & Truncated Sine Peak to Peak At the listed frequencies ^{F0}				
0.1 Hz to 10 Hz	2.9 mV to 92.999 mV	50 mV/V + 465 μ V		
10 Hz to 45 Hz	93 mV to 929.999 mV	2.5 mV/V + 4.65 mV		
45 Hz to 1 kHz	0.93 V to 9.299 99 V	2.5 mV/V + 23.25 mV		
1 kHz to 20 kHz	9.3 V to 92.999 9V	5 mV/V + 232.5 mV		



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Equipment to Measure AC Voltage Square Wave Sine Peak to Peak At the listed frequencies ^{FO}			Fluke 5522A / Coil Toroidal- Type Clamps 45 Hz to 65 Hz	Euramet-cg-15.01 ANSI C39.6
0.01 Hz to 10 Hz	2.9 mV to 65.999 mV	50 mV/V + 330 □V		
10 Hz to 45 Hz	66 mV to 659.999 mV	2.5 mV/V + 3.3 mV		
45 Hz to 1 kHz	0.66 V to 6.599 99 V	2.5 mV/V + 16.5 mV		
1 kHz to 100 kHz	6.6 V to 65.999 9 V	50 mV/V + 330 mV		
Equipment to Measure DC Current Thyroid - Type Clamps ^{FO}	10 A to 16.499 9 A	0.4 % of output		
	16.5 A to 149.999 A	0.3 % of output		
	150 A to 550 A	0.3 % of output		
Equipment to Measure AC Current Toroidal- Type Clamps 45 Hz to 65 Hz ^{FO}	10 A to 16.499 9 A	0.35 % of output		
	16.5 A to 149.999 A	0.33 % of output		
	150 A to 550 A	0.34 % of output		
	551 A to 1 100 A	0.45 % of output		
Equipment to Measure AC Current Thyroid - Type Clamps 65 Hz to 400 Hz ^{FO}	10 A to 16.499 9 A	0.93 % of output		
	16.5 A to 149.999 A	0.91 % of output		
Equipment to Measure DC Current Other-Type Clamps ^{FO}	150 A to 550 A	0.93 % of output		
	551 A to 1 200 A	0.96 % of output		
	10 A to 16.499 9 A	0.72 % of output		
	16.5 A to 149.999 A	0.69 % of output		
Equipment to Measure AC Current Other-Type Clamps 45 Hz to 65 Hz ^{FO}	150 A to 550 A	0.68 % of output		
	551 A to 1 200 A	0.7 % of output		
	10 A to 16.499 9 A	2.4 % of output		
Equipment to Measure AC Current Other-Type Clamps 65 Hz to 400 Hz ^{FO}	150 A to 550 A	0.84 % output		
	551 A to 1 200 A	0.93 % of output		
	10 A to 16.499 9 A	1.4 % output		
	16.5 A to 149.999 A	1.4 % output		
Equipment to Measure DC Current ^{FO}	150 A to 550 A	1.4 % output	Fluke 5522A	Euramet-cg-15.01 ANSI C39.6
	551 A to 1 200 A	1.8 % output		



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Equipment to Measure DC Voltage ^{FO}	3.3 V to 32.999 99 V	50 μ V/V + 50 μ V	Fluke 5522A	Euramet-cg-15.01 ANSI C39.6
	33 V to 329.999 9 V	12 μ V/V + 20 mV		
	330 V to 1 020 V	0.018 μ V/V + 1.5 mV		
Equipment to Output DC Current ^{FO}	0 μ A to 329.999 μ A	0.15 mA/A + 0.02 μ A		
	330 μ A to 3.299 99 mA	0.1 mA/A + 0.05 μ A		
	3.3 mA to 32.999 9 mA	0.1 mA/A + 0.25 μ A		
	33 mA to 329.999 mA	0.1 mA/A + 2.5 μ A		
	330 mA to 1.099 99 A	0.2 mA/A + 40 μ A		
	1.1 A to 2.999 99 A	0.38 mA/A + 40 μ A		
	11 A to 20.5 A	0.5 mA/A + 750 μ A		
	11 A to 20.5 A	1 mA/A + 750 mA/A		
Equipment to Measure Resistance ^{FO}	0 Ω to 10.999 9 Ω	0.012 m Ω / Ω		
	11 Ω to 32.999 9 Ω	0.03 m Ω / Ω		
	33 Ω to 109.999 9 Ω	0.028 m Ω / Ω		
	110 Ω to 329.999 9 Ω	0.028 m Ω / Ω		
	330 Ω to 1.099 999 k Ω	0.028 m Ω / Ω		
	1.1 k Ω to 3.299999 k Ω	0.028 m Ω / Ω		
	3.3 k Ω to 10.999 99 k Ω	0.028 m Ω / Ω		
	11 k Ω to 32.999 99 k Ω	0.028 m Ω / Ω		
	33 k Ω to 109.999 9 k Ω	0.028 m Ω / Ω		
	110 k Ω to 329.999 99 k Ω	0.032 m Ω / Ω		
	330 k Ω to 1.099 999 M Ω	0.032 m Ω / Ω		
	1.1 M Ω to 3.299 999 M Ω	0.06 m Ω / Ω		
	3.3 M Ω to 10.999 99 M Ω	0.13 m Ω / Ω		
	11 M Ω to 32.999 99 M Ω	0.25 m Ω / Ω		
	33 M Ω to 109.999 9 M Ω	0.3 m Ω / Ω		
	110 M Ω to 329.999 9 M Ω	3 m Ω / Ω		
	330 M Ω to 1 100 M Ω	15 m Ω / Ω		



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MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Equipment to Measure AC Current At the listed frequencies ^{FO}			Fluke 5522A	Euramet-cg-15.01 ANSI C39.6
10 Hz to 20 Hz	29 μ A to 329.99 μ A	2 μ A/A + 0.1 μ A		
20 Hz to 45 Hz	29 μ A to 329.99 μ A	1.5 μ A/A + 0.1 μ A		
45 Hz to 1 kHz	29 μ A to 329.99 μ A	1.25 μ A/A + 0.1 μ A		
1 kHz to 5 kHz	29 μ A to 329.99 μ A	3 μ A/A + 0.1 μ A		
5 kHz to 10 kHz	29 μ A to 329.99 μ A	8 μ A/A + 0.1 μ A		
10 kHz to 30 kHz	29 μ A to 329.99 μ A	16 μ A/A + 0.1 μ A		
Equipment to Measure AC Current At the listed frequencies ^{FO}				
10 Hz to 20 Hz	0.33 mA to 3.299 99 mA	2 μ A/A + 0.1 μ A		
20 Hz to 45 Hz	0.33 mA to 3.299 99 mA	1.5 μ A/A + 0.1 μ A		
45 Hz to 1 kHz	0.33 mA to 3.299 99 mA	1.25 μ A/A + 0.1 μ A		
1 kHz to 5 kHz	0.33 mA to 3.299 99 mA	3 μ A/A + 0.1 μ A		
5 kHz to 10 kHz	0.33 mA to 3.299 99 mA	8 μ A/A + 0.1 μ A		
10 kHz to 30 kHz	0.33 mA to 3.299 99 mA	16 μ A/A + 0.1 μ A		
Equipment to Measure AC Current At the listed frequencies ^{FO}				
10 Hz to 20 Hz	3.3 mA to 32.999 9 mA	1.8 μ A/A + 0.1 μ A		
20 Hz to 45 Hz	3.3 mA to 32.999 9 mA	9 μ A/A + 0.1 μ A		
45 Hz to 1 kHz	3.3 mA to 32.999 9 mA	1.25 μ A/A + 0.1 μ A		
1 kHz to 5 kHz	3.3 mA to 32.999 9 mA	3 μ A/A + 0.1 μ A		
5 kHz to 10 kHz	3.3 mA to 32.999 9 mA	5 μ A/A + 0.1 μ A		
10 kHz to 30 kHz	3.3 mA to 32.999 9 mA	1 μ A/A + 0.1 μ A		
Equipment to Measure AC Current At the listed frequencies ^{FO}				
10 Hz to 20 Hz	33 mA to 329.999 mA	1.8 μ A/A + 0.2 μ A		
20 Hz to 45 Hz	33 mA to 329.999 mA	0.9 μ A/A + 0.2 μ A		
45 Hz to 1 kHz	33 mA to 329.999 mA	0.4 μ A/A + 0.1 μ A		
1 kHz to 5 kHz	33 mA to 329.999 mA	1 μ A/A + 0.1 μ A		
5 kHz to 10 kHz	33 mA to 329.999 mA	0.4 μ A/A + 0.1 μ A		
10 kHz to 30 kHz	33 mA to 329.999 mA	1 μ A/A + 0.1 μ A		



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Equipment to Measure AC Current At the listed frequencies ^{FO}			Fluke 5522A Euramet-cg-15.01	ANSI C39.6
10 Hz to 45 Hz	0.33 A to 1.099 99 A	1.8 μ A/A + 100 μ A		
45 Hz to 1 kHz	0.33 A to 1.099 99 A	0.5 μ A/A + 100 μ A		
1 kHz to 5 kHz	0.33 A to 1.099 99 A	2.5 μ A/A + 0.1 μ A		
Equipment to Measure AC Current At the listed frequencies ^{FO}				
45 Hz to 100 Hz	3 A to 10.999 9 A	60 μ A/A + 2 000 μ A		
100 Hz to 1 kHz	3 A to 10.999 9 A	100 μ A/A + 2 000 μ A		
1 kHz to 5 kHz	3 A to 10.999 9 A	300 μ A/A + 2 000 μ A		
Equipment to Measure AC Current At the listed frequencies ^{FO}				
45 Hz to 100 Hz	11 A to 20.5 A	1 200 μ A/A + 5 000 μ A		
100 Hz to 1 kHz	11 A to 20.5 A	1 500 μ A/A + 5 000 μ A		
1 kHz to 5 kHz	11 A to 20.5 A	3 000 μ A/A + 5 000 μ A		
Equipment to Measure AC Voltage At the listed frequencies ^{FO}				
10 Hz to 45 Hz	1 mV to 32.999 mV	800 mV/V + 6 μ V		
45 Hz to 10 kHz	1 mV to 32.999 mV	150 mV/V + 6 μ V		
10 kHz to 20 kHz	1 mV to 32.999 mV	200 mV/V + 6 μ V		
20 kHz to 50 kHz	1 mV to 32.999 mV	1 000 mV/V + 6 μ V		
50 kHz to 100 kHz	1 mV to 32.999 mV	3 500 mV/V + 12 μ V		
100 kHz to 500 kHz	1 mV to 32.999 mV	8 000 mV/V + 50 μ V		
Equipment to Measure AC Voltage At the listed frequencies ^{FO}				
10 Hz to 45 Hz	33 mV to 329.999 mV	300 mV/V + 8 μ V		
45 Hz to 10 kHz	33 mV to 329.999 mV	145 mV/V + 8 μ V		
10 kHz to 20 kHz	33 mV to 329.999 mV	160 mV/V + 8 μ V		
20 kHz to 50 kHz	33 mV to 329.999 mV	350 mV/V + 8 μ V		
50 kHz to 100 kHz	33 mV to 329.999 mV	800 mV/V + 32 μ V		
100 kHz to 500 kHz	33 mV to 329.999 mV	2 000 mV/V + 70 μ V		



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Equipment to Measure AC Voltage At the listed frequencies ^{FO}			Fluke 5522A Euramet-cg-15.01	ANSI C39.6
10 Hz to 45 Hz	0.33 V to 3.299 99 V	300 mV/V + 50 μ V		
45 Hz to 10 kHz	0.33 V to 3.299 99 V	150 mV/V + 60 μ V		
10 kHz to 20 kHz	0.33 V to 3.299 99 V	190 mV/V + 60 μ V		
20 kHz to 50 kHz	0.33 V to 3.299 99 V	300 mV/V + 50 μ V		
50 kHz to 100 kHz	0.33 V to 3.299 99 V	700 mV/V + 125 μ V		
100 kHz to 500 kHz	0.33 V to 3.299 99 V	2 400 mV/V + 600 μ V		
Equipment to Measure AC Voltage At the listed frequencies ^{FO}				
10 Hz to 45 Hz	3.3 V to 32.999 9 V	300 mV/V + 650 μ V		
45 Hz to 10 kHz	3.3 V to 32.9999 V	150 mV/V + 600 μ V		
10 kHz to 20 kHz	3.3 V to 32.999 9 V	240 mV/V + 600 μ V		
20 kHz to 50 kHz	3.3 V to 32.999 9 V	350 mV/V + 600 μ V		
50 kHz to 100 kHz	3.3 V to 32.999 9 V	900 mV/V + 1 600 μ V		
Equipment to Measure AC Voltage At the listed frequencies ^{FO}				
45 Hz to 1 kHz	33 V to 329.999 V	190 mV/V + 2 000 μ V		
1 kHz to 10 kHz	33 V to 329.999 V	200mV/V + 6 000 μ V		
10 kHz to 20 kHz	33 V to 329.999 V	250 mV/V + 6 000 μ V		
20 kHz to 50 kHz	33 V to 329.999 V	300 mV/V + 6 000 μ V		
50 kHz to 100 kHz	33 V to 329.999 V	2 000 mV/V + 50 000 μ V		
Equipment to Measure AC Voltage At the listed frequencies ^{FO}				
45 Hz to 1 kHz	330 V to 1 020 V	300 mV/V + 10 000 μ V		
1 kHz to 5 kHz	330 V to 1 020 V	250 mV/V + 10 000 μ V		
5 kHz to 10 kHz	330 V to 1 020 V	300 mV/V + 10 000 μ V		



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Equipment to Measure Capacitance ^{FO}	220 to 399.9 pF	5 pF/F + 10 pF	Fluke 5522A	Euramet-cg-15.01 ANSI C39.6
	0.4 μ F to 1.099 9 μ F	5 pF/F + 0.01 μ F		
	1.1 μ F to 3.299 9 μ F	5 pF/F + 0.01 μ F		
	3.3 μ F to 10.999 9 μ F	2.5 pF/F + 0.01 μ F		
	11 μ F to 32.999 9 μ F	2.5 pF/F + 0.01 μ F		
	33 μ F to 109.999 μ F	2.5 pF/F + 0.01 μ F		
	110 μ F to 329.999 μ F	2.5 pF/F + 0.03 μ F		
	0.33 μ F to 1.09999 μ F	2.5 pF/F + 1 μ F		
	1.1 μ F to 3.29999 μ F	2.5 pF/F + 3 μ F		
	3.3 μ F to 10.999 9 μ F	2.5 pF/F + 10 μ F		
	11 μ F to 32.999 9 μ F	4 pF/F + 30 μ F		
	33 μ F to 109.999 μ F	4.5 pF/F + 100 v		
	110 μ F to 329.999 μ F	4.5 pF/F + 300 μ F		
	0.33 μ F to 1.099 99 mF	4.5 pF/F + 1 μ F		
	1.1 μ F to 3.299 99 mF	4.5 pF/F + 3 μ F		
	3.3 μ F to 10.999 9 mF	4.5 pF/F + 10 μ F		
11 μ F to 32.999 9 mF	7.5 pF/F + 30 μ F			
33 μ F to 110 mF	10.1 pF/F + 30 μ F	Electrical Simulation of Thermocouple Output Fluke 5522A	ASTM E 230	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type B ^{FO}	600 °C to 800 °C			0.44 °C
	800 °C to 1 000 °C			0.34 °C
	1 000 °C to 1 550 °C			0.3 °C
	1 550 °C to 1 820 °C	0.26 °C		
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type C ^{FO}	0 °C to 150 °C	0.3 °C		
	150 °C to 650 °C	0.26 °C		
	650 °C to 1 000 °C	0.31 °C		
	1 000 °C to 1 800 °C	0.5 °C		
	1 800 °C to 2 316 °C	0.84 °C		
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type E ^{FO}	-250 °C to -100 °C	0.5 °C		
	-100 °C to -25 °C	0.16 °C		
	-25 °C to 350 °C	0.14 °C		
	350 °C to 650 °C	0.16 °C		
	650 °C to 1 000 °C	0.21 °C		



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Temperature Calibration, Indication and Control Equipment used with Thermocouple Type J ^{FO}	-210 °C to -100°C	0.27 °C	Electrical Simulation of Thermocouple Output Fluke 5522A	ASTM E 230
	-100 °C to -30 °C	0.16 °C		
	-30 °C to 150 °C	0.14 °C		
	150 °C to 760 °C	0.17 °C		
	760 °C to 1 200 °C	0.23 °C		
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type K ^{FO}	-200 °C to -100 °C	0.33 °C		
	-100 °C to -25 °C	0.18 °C		
	-25 °C to 120 °C	0.016 °C		
	120 °C to 1 000 °C	0.26 °C		
	1 000 °C to 1 372 °C	0.4 °C		
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type L ^{FO}	-200 °C to -100 °C	0.37 °C		
	-100 °C to 800 °C	0.26 °C		
	800 °C to 900 °C	0.17 °C		
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type N ^{FO}	200 °C to -100 °C	0.4 °C		
	-100 °C to -25 °C	0.22 °C		
	-25 °C to 120 °C	0.19 °C		
	120 °C to 410 °C	0.18 °C		
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type R ^{FO}	410 °C to 1 300 °C	0.27 °C		
	0 °C to 250 °C	0.57 °C		
	250 °C to 400 °C	0.35 °C		
	400 °C to 1 000 °C	0.33 °C		
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type S ^{FO}	1 000 °C to 1 767 °C	0.4 °C		
	0 °C to 250 °C	0.47 °C		
	250 °C to 1 000 °C	0.36 °C		
	1 000 °C to 1 400 °C	0.37 °C		
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type T ^{FO}	1 400 °C to 1 767 °C	0.46 °C		
	-250 °C to -150 °C	0.63 °C		
	-150 °C to 0 °C	0.24 °C		
	0 °C to 120 °C	0.16 °C		
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type U ^{FO}	120 °C to 400 °C	0.14 °C		
	-200 °C to 0 °C	0.56 °C		
	0 °C to 600 °C	0.27 °C		



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Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 385, 100 Ω^{FO}	-200 °C to -80 °C	0.05 °C	Electrical Simulation of RTD Output Fluke 5522A	Euramet cg-11
	-80 °C to 0 °C	0.05 °C		
	0 °C to 100 °C	0.07 °C		
	100 °C to 300 °C	0.08 °C		
	300 °C to 400 °C	0.09 °C		
	400 °C to 630 °C	0.12 °C		
	630 °C to 800 °C	0.23 °C		
Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 3926, 100 Ω^{FO}	-200 °C to -80 °C	0.05 °C		
	-80 °C to 0 °C	0.05 °C		
	0 °C to 100 °C	0.07 °C		
	100 °C to 300 °C	0.09 °C		
	300 °C to 400 °C	0.1 °C		
Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 3916, 100 Ω^{FO}	-200 °C to -190 °C	0.04 °C		
	-190 °C to -80 °C	0.05 °C		
	-80 °C to 0 °C	0.06 °C		
	0 °C to 100 °C	0.07 °C		
	100 °C to 260 °C	0.05 °C		
	260 °C to 300 °C	0.08 °C		
	300 °C to 400 °C	0.09 °C		
	400 °C to 600 °C	0.1 °C		
Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 385, 200 Ω^{FO}	-200 °C to -80 °C	0.04 °C		
	-80 °C to 0 °C	0.04 °C		
	0 °C to 100 °C	0.04 °C		
	100 °C to 260 °C	0.05 °C		
	260 °C to 300 °C	0.12 °C		
	300 °C to 400 °C	0.13 °C		
	400 °C to 600 °C	0.14 °C		
	600 °C to 630 °C	0.16 °C		



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Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 385, 500 Ω ^{FO}	-200 °C to -80 °C	0.04 °C	Electrical Simulation of RTD Output Fluke 5522A	Euramet cg-11
	-80 °C to 0 °C	0.05 °C		
	0 °C to 100 °C	0.05 °C		
	100 °C to 260 °C	0.06 °C		
	260 °C to 300 °C	0.08 °C		
	300 °C to 400 °C	0.08 °C		
	400 °C to 600 °C	0.09 °C		
	600 °C to 630 °C	0.11 °C		
Temperature Calibration, Indication, and Control Equipment used with RTD Type Pt 385, 1 000 Ω ^{FO}	-200 °C to -80 °C	0.04 °C		
	-80 °C to 0 °C	0.05 °C		
	0°C to 100 °C	0.04 °C		
	100 °C to 26 0 °C	0.05 °C		
	260 °C to 30 0 °C	0.06 °C		
	300° C to 400 °C	0.07 °C		
	400 °C to 600 °C	0.07 °C		
	600 °C to 630 °C	0.23 °C		
Temperature Calibration, Indication, and Control Equipment used with RTD Pt Ni 385, 120 Ω (Ni120) ^{FO}	-80 °C to 0 °C	0.08 °C		
	0 °C to 100 °C	0.08 °C		
	100 °C to 260 °C	0.14 °C		
Temperature Calibration, Indication, and Control Equipment used with RTD Cu 427, 10 Ω	-100 °C to 260 °C	0.3 °C		
Equipment to Output DC Voltage ^{FO}	100 mV	4.4 x 10 ⁻⁴ mV	Fluke 8588A	ANSI C39.6
	1 V	9.7 x 10 ⁻⁷ V		
	10 V	7.3 x 10 ⁻⁶ V		
	100 V	1.7 x 10 ⁻⁴ V		
	1 000 V	2 x 10 ⁻³ V		
Equipment to Output AC Voltage ^{FO}	100 mV	1.1 x 10 ⁻³ mV		
	1 V	1.8 x 10 ⁻⁶ V		
	10 V	1.7 x 10 ⁻⁴ V		
	100 V	2.2 x 10 ⁻⁴ V		
	1 000 V	2.1 x 10 ⁻³ V		



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Equipment to Output AC Voltage At the listed frequencies			Fluke 8588A	ANSI C39.6
1 Hz to 10 Hz	10 mV	1.5×10^{-6} Hz		
10 Hz to 40 Hz	10 mV	1.5×10^{-6} Hz		
Equipment to Output Capacitance	100 mF	2.5×10^{-2} mF		
	400 μ F/F	5×10^{-2} μ F		
Equipment to Output AC Voltage At the listed frequencies ^{FO}				
40 Hz to 100 Hz	10 mV	2.2×10^{-3} mV		
100 Hz to 2 kHz	10 mV	2.1×10^{-3} mV		
2 kHz to 10 kHz	10 mV	2.1×10^{-3} mV		
10 kHz to 30 kHz	10 mV	2.1×10^{-3} mV		
30 kHz to 10 MHz	10 mV	2.5×10^{-2} mV		
Equipment to Output AC Voltage At the listed frequencies ^{FO}				
1 Hz to 10 Hz	1 V	2.8×10^{-5} V		
10 Hz to 40 Hz	1 V	1.9×10^{-5} V		
40 Hz to 100 Hz	1 V	1.9×10^{-5} V		
100 Hz to 2 kHz	1 V	1.8×10^{-5} V		
2 kHz to 10 kHz	1 V	1.8×10^{-5} V		
10 kHz to 30 kHz	1 V	2×10^{-5} V		
30 kHz to 100 kHz	1 V	1.3×10^{-4} V		
100 kHz to 300 kHz	1 V	6.6×10^{-4} V		
300 kHz to 1 MHz	1 V	2.3×10^{-3} V		
Equipment to Output AC Voltage At the listed frequencies				
1 Hz to 10 Hz	10 V	3×10^{-4} V		
10 Hz to 40 Hz	10 V	1.8×10^{-4} V		
40 Hz to 100 Hz	10 V	2×10^{-4} V		
100 Hz to 2 kHz	10 V	1.7×10^{-4} V		



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Equipment to Output AC Voltage At the listed frequencies			Fluke 8588A	ANSI C39.6
2 kHz to 10 kHz	10 V	1.7×10^{-4} V		
10 kHz to 30 kHz	10 V	1.9×10^{-4} V		
30 kHz to 100 kHz	10 V	1.2×10^{-3} V		
100 kHz to 300 kHz	10 V	5.9×10^{-3} V		
300 kHz to 10 MHz	10 V	5.9×10^{-2} V		
Equipment to Output AC Voltage At the listed frequencies ^{FO}				
1 Hz to 10 Hz	1 000 V	2.1×10^{-2} V		
10 Hz to 40 Hz	1 000 V	2.1×10^{-2} V		
40 Hz to 100 Hz	1 000 V	2.3×10^{-2} V		
100 Hz to 2 kHz	1 000 V	2.3×10^{-2} V		
2 kHz to 10 kHz	1 000 V	2.3×10^{-2} V		
Equipment to Measure Resistance ^{FO}				
	0 Ω to 1.99 Ω	1.5×10^{-5} Ω		
	2 Ω to 19.99 Ω	6.3×10^{-5} Ω		
	20 Ω to 199.99 Ω	4.2×10^{-4} Ω		
	200 Ω to 1.99 k Ω	3.2×10^{-6} k Ω		
	2 k Ω to 19.99 k Ω	4.9×10^{-5} k Ω		
	20 k Ω to 199.99 k Ω	5.3×10^{-4} k Ω		
	200 k Ω to 1.99 M Ω	8.7×10^{-6} M Ω		
	2 M Ω to 1.999 G Ω	1.7×10^{-4} G Ω		
	2 G Ω to 20 G Ω	1.7×10^{-4} G Ω		
Equipment to Output DC Current ^F				
	10 μ A	2.9×10^{-4} μ A		
	1 mA	5.8×10^{-3} mA		
	10 mA	5×10^{-5} mA		
	100 mA	1.3×10^{-3} mA		
	3 A	7.2×10^{-5} A		
	30 A	2.3×10^{-3} A		



Certificate of Accreditation: Supplement

Metrology & Consultant, S.A. de C.V.

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 Escobedo, Nuevo León, México. C.P. 66050
 Contact Name: Marcelo Castañón Phone: 811-094-0880

Accreditation is granted to the facility to perform the following calibrations:

Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Equipment to Output AC Current At the listed frequencies ^{FO}			Fluke 8588A	ANSI C39.6
1 Hz to 10 Hz	10 μ A	$6.2 \times 10^{-3} \mu$ A		
10 Hz to 10 kHz	10 μ A	$8.5 \times 10^{-3} \mu$ A		
10 kHz to 30 kHz	10 μ A	$6.5 \times 10^{-2} \mu$ A		
30 Hz to 100 kHz	10 μ A	$6.5 \times 10^{-2} \mu$ A		
Equipment to Output AC Current At the listed frequencies ^{FO}				
1 Hz to 10 Hz	1 mA	1.1×10^{-4} mA		
10 Hz to 10 kHz	1 mA	7.8×10^{-5} mA		
10 kHz to 30 kHz	1 mA	6.1×10^{-4} mA		
30 Hz to 100 kHz	1 mA	6.1×10^{-4} mA		
Equipment to Output AC Current At the listed frequencies ^{FO}				
1 Hz to 10 Hz	10 mA	1×10^{-3} mA		
10 Hz to 10 kHz	10 mA	7.5×10^{-4} mA		
10 kHz to 30 kHz	10 mA	6.2×10^{-3} mA		
30 Hz to 100 kHz	10 mA	6.2×10^{-3} mA		
Equipment to Output AC Current At the listed frequencies ^{FO}			Fluke 8588A Keithley 2001	
1 Hz to 10 Hz	100 mA	8.4×10^{-3} mA		
10 Hz to 10 kHz	100 mA	7.4×10^{-3} mA		
10 kHz to 30 kHz	100 mA	6.1×10^{-3} mA		
Equipment to Output AC Current At the listed frequencies ^{FO}				
1 Hz to 10 Hz	3 A	9.8×10^{-5} A		
10 Hz to 10 kHz	3 A	2.4×10^{-4} A		
10 kHz to 30 kHz	3 A	2.6×10^{-4} A		
1 Hz to 10 Hz	30 A	1.1×10^{-3} A		
10 Hz to 10 kHz	30 A	1×10^{-3} A		
10 kHz to 30 kHz	30 A	6.6×10^{-3} A		



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Optical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
P (λ) Spectral Reflectance ^{FO}	Color values: CIE L: 14 to 85 CIE a*: 0.22 to 0.51 CIE b*: 0.27 to 0.45	CIE L: 1.69 Units CIE a*: 0.26 Units CIE b*: 0.24 Units	White, Red, Green, Blue and Yellow Standard Tile	ASTM E 1331 ASTM D 2244 ASTM E 1164 ASTM E 308
Transmittance Spectrophotometers and Absorbance at these Wave Lengths λ : 280 nm to 880 nm ^{FO}	λ : 280 nm to 880 nm τ : 0 % T to 30 % T α : 0.049 to 1.09	λ : 0.18 nm τ : 0.082 % T α : 0.00027	Neutral Density Filters, Holmium Oxide Glass Filter, Didymium Oxide Glass Filter	ASTM E 925
Gloss/Specular Reflectance Meter Angle of Incline ^{FO}	20° to 21.3° 46.2° to 60° 69.1° to 85°	0.59 Gloss Units 0.6 Gloss Units 0.69 Gloss Units	Ceram Gloss Standard	ASTM D-523-14
Ev Illuminance Light Booth ^O	100 lux to 6 000 lux	0.8 % of reading	Luxmeter Konica Minolta CL-200	ASTM D 1729 / ISO 3664
Ev Light Meters ^O	100 lux to 5 000 lux	0.8 % of reading		
Luxometer ^{FO}	20 lux to 5 000 lux	0.6 % of reading		NIST 250-37

Thermodynamic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Calibration of Thermocouple Type K, J, R, S ^{FO}	-10 °C to 110 °C	0.065 °C	Fluke 9102 Fluke 8588A with PRT 5626	Eurament-cg-11
	35 °C to 425 °C	0.055 °C	Fluke 9172 Fluke 8588A with PRT 5626	
Calibration of RTD Type Pt 100 Ω (385) ^{FO}	-10 °C to 110 °C	0.065 °C	Fluke 9102 Fluke 8588A with PRT 5626	
	35 °C to 425 °C	0.055 °C	Fluke 9172 Fluke 8588A with PRT 5626	
Temperature- Measure Thermometers Radiation ^{FO}	50 °C to 500 °C	0.8 °C	Infrared Blackbody Hart Scientific Fluke 9132	ASTM E220 CENAM Technical Guide



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Thermodynamic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Temperature Generation Ovens, Furnaces, Muffles and Freezers ^O	0 °C to 750 °C	0.22 °C	Fluke 714 with TC Type J Temperature Calibration	CENAM Technical Guide
Thermo Hygrometer ^F	30 % RH to 90 % RH	1.8 % RH	Nseen HTENS Thermohygrometer	OIML R 121
Calibration of Thermocouples Type K ^{FO}	300 °C to 1 200 °C	0.2 % of reading	Furnace for Thermocouples Metrology	ASTM E220 CENAM Technical Guide
Temperature Thermo-Hygrometers, Temperature & Humidity Recorders Only Temperature ^{FO}	-20 °C to 80 °C	0.034 °C	Nseen HTENS Thermohygrometer	
Temperature Generation Extrusion Plastometer/ Melt Indexer ^O	50 °C to 400 °C	0.058 °C	Fluke 8588A with Standard Platinum Resistance Probe, R0 100 Ω Hart Scientific- Fluke 5626-15-S, Hart Scientific- Fluke 56265 Temperature Calibration Temperature Indicator with Pt-100	ASTM D-1238 CENAM Technical Guide
Temperature Generation Temperature Dry Block Calibrators, IR Calibrators, Lactometers, Glass Thermometer, Bi-Metallic Thermometer, Digital Multi - Channel Thermometers ^F	0 °C to 400 °C	0.011 °C	Fluke 8588A with Standard Platinum Resistance Probe R0 100 Ω Hart Scientific- Fluke 5626-15-S	CENAM Technical Guide

Mass, Force and Weighing Devices

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Balances ^O	20 g to 200 g (Res.= 0.01 g)	$(1.2 \times 10^{-2} + 2.5 \times 10^{-8} \text{Wt}) \text{ g}$	Class F1 Weights	NOM-010-SCFI



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Accreditation is granted to the facility to perform the following calibrations:

Mass, Force and Weighing Devices

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Balances ^O	200 g to 2 kg (Res.= 0.1 g)	$(1.2 \times 10^{-1} + 2.6 \times 10^{-8}Wt) \text{ g}$	Class F1 Weights	NOM-010-SCFI
	2 kg to 20 kg (Res.= 1 g)	$(1.2 + 7.8 \times 10^{-7}Wt) \text{ g}$		
	20 kg to 200 kg (Res.= 10 g)	$(12 + 2.4 \times 10^{-6}Wt) \text{ g}$		
	100 kg to 1 000 kg (Res.= 0.5 kg)	$(577 + 4.4 \times 10^{-8}Wt) \text{ g}$	Class M2 Weights	

1. The CMC (Calibration and Measurement Capability) stated for calibrations included on this scope of accreditation represents the smallest measurement uncertainty attainable by the laboratory when performing a more or less routine calibration of a nearly ideal device under nearly ideal conditions. It is typically expressed at a confidence level of 95 % using a coverage factor k (usually equal to 2). The actual measurement uncertainty associated with a specific calibration performed by the laboratory will typically be larger than the CMC for the same calibration since capability and performance of the device being calibrated and the conditions related to the calibration may reasonably be expected to deviate from ideal to some degree.
2. The laboratories range of calibration capability for all disciplines for which they are accredited is the interval from the smallest calibrated standard to the largest calibrated standard used in performing the calibration. The low end of this range must be an attainable value for which the laboratory has or has access to the standard referenced. Verification of an indicated value of zero in the absence of a standard is common practice in the procedure for many calibrations but by its definition it does not constitute calibration of zero capacity.
3. The presence of a superscript F means that the laboratory performs calibration of the indicated parameter at its fixed location.
4. The presence of a superscript O means that the laboratory performs calibration of the indicated parameter onsite at customer locations.
5. Measurement uncertainties obtained for calibrations performed at customer sites can be expected to be larger than the measurement uncertainties obtained at the laboratories fixed location for similar calibrations. This is due to the effects of transportation of the standards and equipment and upon environmental conditions at the customer site which are typically not controlled as closely as at the laboratories fixed location.
6. The term D represents diameter in inches or millimeters as appropriate to the uncertainty statement.
7. The term L represents length in inches or millimeters as appropriate to the uncertainty statement.
8. The term Wt represents weight in pounds or grams (including SI multiple and submultiple units) appropriate to the uncertainty statement.