



PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

RF Precision Laboratories S.A. de C.V.
Quinta San Ignacio No. 1021, Fraccionamiento Quintas del Valle
Ciudad Juárez, Chihuahua, México. CP. 32540

(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):

Mechanical, Acoustic, Mass, Force and Weighing Devices, Optical, Chemical Electrical, Thermodynamic, Dimensional and Time and Frequency 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:

June 26, 2006

Issue Date:

November 26, 2021

Expiration Date:

November 30, 2023

Revision Date:

November 02, 2022

Accreditation No.:

54869

Certificate No.:

L21-732-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.pjlab.com



Certificate of Accreditation: Supplement

RF PRECISION LABORATORIES S.A. DE C.V.

Quinta San Ignacio No. 1021, Fraccionamiento Quintas del Valle
 Ciudad Juárez, Chihuahua, México. CP. 32540
 Contact Name: Carlos Peraza Cadena Phone: 656-233-3471

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

Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Vacuum Gauge ^{FO}	Up to -15 psi (Up to -103.421 kPa)	0.000 87 psi (6 Pa)	Mensor CPG2400 CEM ME-003
Torque Tools Torsional Par Wrenches Electrical Screwdrivers ^{FO}	1 lb.in to 10 lbf.in	0.012 lbf.in	Torque Analyzer, LTT-2100 250i Torque Transducer Mountz BMX10 Torque Analyzer Mountz TL100F ASME B.107.300M
	2.5 lbf.in to 250 lbf.in	0.017 lbf.in	
	120 lbf.in to 1200 lbf.in	6.94 lbf.in	
Flow Meters ^{FO}	0.01 L/min to 20 L/min (0.021cfh to 42.3 cfh)	0.0013 lpm (0.002 7 cfh)	TSI 20 CEM ME-009
	Up to 300 L/min (Up to 635.6 ft ³ /h)	0.6 L/min (1.3 ft ³ /h)	TSI 300 CEM ME-009
Pressure Devices ^{FO}	Up to 15 inH ₂ O	0.22 inH ₂ O	Fluke 922 Mensor CPG2400 CEM ME-003
	Up to 30 psi	0.0015 psi	
	30 psi to 300 psi	0.091 psi	Crystal M1 CEM ME-003
	300 psi to 3 000 psi	0.037 psi	Fluke 700G29, Precision Pressure CEM ME-003
	500 psi to 10 000 psi	0.03 % of reading	Pressure Module, Fluke 750P31 CEM ME-003
Torque Analyzer & Torque Transducers ^{FO}	4 lbf.in to 105 lbf.in (0.45 N.m to 46.58 N.m)	0.007 2 lbf.in (0.001 8 N.m)	Wheel & Mass Weight Class F Euramet-cg-14
Pipettes ^F	10 μ L to 1 000 μ L	0.25 μ L	Analytic Balance ASTM E1154
	1 mL to 220 mL	1.5 μ L	

Acoustic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Sound Level Meter ^{FO} Fixed point Frequency @ 1 kHz	94 dB	1 dB	Sound Level Meter Extech IEC 61672-1
	114 dB	1 dB	



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Mass, Force and Weighing Devices

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Force Devices -Tension and Compression – Source and Measure ^{FO}	45.359 kgf to 4 535.924 kgf	0.3 % of reading	Load Cell Futek LSB400 ISO 7500-1
Force Devices – Compression and Tension- Source and Measure ^{FO}	889.6 N to 44.13 kN (200 lb·f to 10 000 lb·f)	0.5 % of reading	Load Cell Futek ISO 7500-1
Force Devices – Compression and Tension- and Measure ^{FO}	100 g to 5 000 g	0.58 % of reading	Weight Class F ISO 7500-1
	1 lbf to 10 lbf	0.78 % of reading	
Scales and Balances ^{FO}	10 mg to 500 g	$(9 \times 10^{-4} + 1.6 \times 10^{-4}Wt)$ g	Rice Lake Model: Class “F” NOM-010-SCFI
	500 g to 118.5 kg	$(8.46 \times 10^{-2} + 1.13 \times 10^{-4}Wt)$ g	
Analytic Scales ^F	20 g to 320 g	0.001 5 g	Troemner Class 1 NOM-010-SCFI
Mass Weight Class M2, M3, 7 ^F	2 g	0.025 mg	Analytical Balance & Weight Set Class F2 Double Substitution OIML R111
	5 g	0.025 mg	
	10 g	0.025 mg	
	20 g	0.025 mg	
	50 g	0.027 mg	
	100 g	0.027 mg	
	200 g	0.027 mg	
	220 g	0.03 mg	

Optical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Luxmeters ^F	19 lux to 3 360 lux	2.5 % of reading	Luxmeter Class A Sonopan L200P NIST 250-95

Chemical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
pH Meter ^{FO}	4 pH to 10 pH	0.015 pH	Standard Solution DI-2-PTC-620-RAT-001
Conductivity Meters Fixed Points ^F	1 211 μ S/cm	26 μ S/cm	MRC Sodium Chloride CENAM Technical Guide
	12 809 μ S/cm	160 μ S/cm	



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Electrical

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Equipment to Measure DC Voltage ^{FO}	30 mV to 329.999 9 mV	20 μ V/V + 1 μ V	Fluke 5522A CENAM Technical Guide
	330 mV to 3.299 999 V	11 μ V/V + 2 μ V	
	3.3 V to 32.999 99 V	12 μ V/V + 20 μ V	
	30 V to 329.999 9 V	18 μ V/V + 150 μ V	
	100 V to 1 000 V	18 μ V/V + 1 500 μ V	
Equipment to Measure DC Current ^{FO}	30 μ A to 329.999 μ A	150 μ A/A + 0.02 μ A	
	330 μ A to 3.299 99 mA	100 μ A/A + 0.05 μ A	
	3.3 mA to 32.999 9 mA	100 μ A/A + 0.25 μ A	
	30 mA to 329.999 mA	100 μ A/A + 2.5 μ A	
	330 mA to 1.099 99 A	200 μ A/A + 40 μ A	
	1.1 A to 2.999 99 A	380 μ A/A + 40 μ A	
	3.3 A to 10.999 9 A	500 μ A/A + 500 μ A	
Equipment to Measure Resistance ^{FO}	3 Ω to 10.999 9 Ω	40 $\mu\Omega/\Omega$ + 0.051 Ω	
	11 Ω to 32.999 9 Ω	30 $\mu\Omega/\Omega$ + 0.052 Ω	
	33 Ω to 109.999 9 Ω	28 $\mu\Omega/\Omega$ + 0.052 Ω	
	110 Ω to 329.999 9 Ω	28 $\mu\Omega/\Omega$ + 0.052 Ω	
	330 Ω to 1.0999 99 k Ω	28 $\mu\Omega/\Omega$ + 0.052 Ω	
	1.1 k Ω to 3.299 999 k Ω	28 $\mu\Omega/\Omega$ + 0.07 Ω	
	3.3 k Ω to 10.999 99 k Ω	28 $\mu\Omega/\Omega$ + 0.07 Ω	
	11 k Ω to 32.999 99 k Ω	28 $\mu\Omega/\Omega$ + 0.25 Ω	
	33 k Ω to 109.999 9 k Ω	28 $\mu\Omega/\Omega$ + 0.25 Ω	
	110 k Ω to 329.999 9 k Ω	32 $\mu\Omega/\Omega$ + 2.005 Ω	
	330 k Ω to 1.099 999 M Ω	32 $\mu\Omega/\Omega$ + 2.005 Ω	
	1.1 M Ω to 3.299 999 M Ω	60 $\mu\Omega/\Omega$ + 50 Ω	
	3.3 M Ω to 10.999 99 M Ω	130 $\mu\Omega/\Omega$ + 50 Ω	
	11 M Ω to 32.999 99 M Ω	250 $\mu\Omega/\Omega$ + 2 500 Ω	
	33 M Ω to 109.999 9 M Ω	500 $\mu\Omega/\Omega$ + 3 000 Ω	
	110 M Ω to 329.999 9 M Ω	3 000 $\mu\Omega/\Omega$ + 100 000 Ω	
330 M Ω to 1 100 M Ω	15 000 $\mu\Omega/\Omega$ + 500 000 Ω		



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Equipment to Measure AC Voltage At the listed frequencies ^{FO}			Fluke 5522A CENAM Technical Guide
10 Hz to 45 Hz	1 mV to 32.999 mV	800 μ V/V + 6 μ V	
45 Hz to 10 kHz	1 mV to 32.999 mV	150 μ V/V + 6 μ V	
10 kHz to 20 kHz	1 mV to 32.999 mV	200 μ V/V + 6 μ V	
20 kHz to 50 kHz	1 mV to 32.999 mV	1 000 μ V/V + 6 μ V	
50 kHz to 100 kHz	1 mV to 32.999 mV	3 500 μ V/V + 12 μ V	
100 kHz to 500 kHz	1 mV to 32.999 mV	8 000 μ V/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 μ V/V + 8 μ V	
45 Hz to 10 kHz	33 mV to 329.999 mV	145 μ V/V + 8 μ V	
10 kHz to 20 kHz	33 mV to 329.999 mV	160 μ V/V + 8 μ V	
20 kHz to 50 kHz	33 mV to 329.999 mV	350 μ V/V + 8 μ V	
50 kHz to 100 kHz	33 mV to 329.999 mV	800 μ V/V + 32 μ V	
100 kHz to 500 kHz	33 mV to 329.999 mV	2 000 μ V/V + 70 μ V	
Equipment to Measure AC Voltage At the listed frequencies ^{FO}			
10 Hz to 45 Hz	0.33 V to 3.299 99 V	300 μ V/V + 50 μ V	
45 Hz to 10 kHz	0.33 V to 3.299 99 V	150 μ V/V + 60 μ V	
10 kHz to 20 kHz	0.33 V to 3.299 99 V	190 μ V/V + 60 μ V	
20 kHz to 50 kHz	0.33 V to 3.299 99 V	300 μ V/V + 50 μ V	
50 kHz to 100 kHz	0.33 V to 3.299 99 V	700 μ V/V + 125 μ V	
100 kHz to 500 kHz	0.33 V to 3.299 99 V	2 400 μ V/V + 600 μ V	
Equipment to Measure AC Voltage At the listed frequencies ^{FO}			
10 Hz to 45 Hz ^{FO}	3.3 V to 32.999 9 V	300 μ V/V + 650 μ V	
45 Hz to 10 kHz ^{FO}	3.3 V to 32.999 9 V	150 μ V/V + 600 μ V	
10 kHz to 20 kHz ^{FO}	3.3 V to 32.999 9 V	240 μ V/V + 600 μ V	
20 kHz to 50 kHz	3.3 V to 32.999 9 V	350 μ V/V + 600 μ V	
50 kHz to 100 kHz	3.3 V to 32.999 9 V	900 μ V/V + 1 600 μ V	



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Equipment to Measure AC Voltage At the listed frequencies ^{FO}			Fluke 5522A CENAM Technical Guide
45 Hz to 1 kHz	33 V to 329.999 V	190 μ V/V + 2 000 μ V	
1 kHz to 10 kHz	33 V to 329.999 V	150 μ V/V + 6 000 μ V	
10 kHz to 20 kHz	33 V to 329.999 V	240 μ V/V + 6 000 μ V	
20 kHz to 50 kHz	33 V to 329.999 V	350 μ V/V + 6 000 μ V	
50 kHz to 100 kHz	33 V to 329.999 V	2 000 μ V/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 μ V/V + 10 000 μ V	
1 kHz to 5 kHz	330 V to 1 020 V	250 μ V/V + 10 000 μ V	
5 kHz to 10 kHz	330 V to 1 020 V	300 μ V/V + 10 000 μ V	
Equipment to Measure AC Voltage At the listed frequencies ^{FO}			
10 Hz to 20 Hz	29 μ A to 329.99 μ A	0.2 % of reading + 0.1 μ A	
20 Hz to 45 Hz	29 μ A to 329.99 μ A	0.15 % of reading + 0.1 μ A	
45 Hz to 1 kHz	29 μ A to 329.99 μ A	0.13 % of reading + 0.1 μ A	
1 kHz to 5 kHz	29 μ A to 329.99 μ A	0.3 % of reading + 0.15 μ A	
5 kHz to 10 kHz	29 μ A to 329.99 μ A	0.8 % of reading + 0.2 μ A	
10 kHz to 30 kHz	29 μ A to 329.99 μ A	1.6 % of reading + 0.4 μ A	
Equipment to Measure AC Voltage At the listed frequencies ^{FO}			
10 Hz to 20 Hz	0.33 mA to 3.2999 mA	0.2 % of reading + 0.15 μ A	
20 Hz to 45 H	0.33 mA to 3.2999 mA	0.13 % of reading + 0.15 μ A	
Equipment to Measure AC Voltage At the listed frequencies ^{FO}			
45 Hz to 1 kHz	33 V to 329.999 V	190 μ V/V + 2 000 μ V	
1 kHz to 10 kHz	33 V to 329.999 V	150 μ V/V + 6 000 μ V	
10 kHz to 20 kHz	33 V to 329.999 V	240 μ V/V + 6 000 μ V	
20 kHz to 50 kHz	33 V to 329.999 V	350 μ V/V + 6 000 μ V	
50 kHz to 100 kHz	33 V to 329.999 V	2 000 μ V/V + 50 000 μ V	



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Equipment to Measure AC Voltage At the listed frequencies ^{FO}			Fluke 5522A CENAM Technical Guide
45 Hz to 1 kHz	330 V to 1 020 V	300 μ V/V + 10 000 μ V	
1 kHz to 5 kHz	330 V to 1 020 V	250 μ V/V + 10 000 μ V	
5 kHz to 10 kHz	330 V to 1 020 V	300 μ V/V + 10 000 μ V	
Equipment to Measure AC Voltage At the listed frequencies ^{FO}			
10 Hz to 20 Hz	29 μ A to 329.99 μ A	0.2 % of reading + 0.1 μ A	
20 Hz to 45 Hz	29 μ A to 329.99 μ A	0.15 % of reading + 0.1 μ A	
45 Hz to 1 kHz	29 μ A to 329.99 μ A	0.13 % of reading + 0.1 μ A	
1 kHz to 5 kHz	29 μ A to 329.99 μ A	0.3 % of reading + 0.15 μ A	
5 kHz to 10 kHz	29 μ A to 329.99 μ A	0.8 % of reading + 0.2 μ A	
10 kHz to 30 kHz	29 μ A to 329.99 μ A	1.6 % of reading + 0.4 μ A	
Equipment to Measure AC Current At the listed frequencies ^{FO}			
10 Hz to 20 Hz	0.33 mA to 3.2999 mA	0.2 % of reading + 0.15 μ A	
20 Hz to 45 H	0.33 mA to 3.2999 mA	0.13 % of reading + 0.15 μ A	
45 Hz to 1 kHz	0.33 mA to 3.2999 mA	0.1 % of reading + 0.15 μ A	
1 kHz to 5 kHz	0.33 mA to 3.2999 mA	0.2 % of reading + 0.2 μ A	
5 kHz to 10 kHz	0.33 mA to 3.2999 mA	0.5 % of reading + 0.3 μ A	
10 kHz to 30 kHz	0.33 mA to 3.2999 mA	1 % of reading + 0.6 μ A	
Equipment to Measure AC Current At the listed frequencies ^{FO}			
10 Hz to 20 Hz	3.3 mA to 32.999 mA	0.18 % of reading + 2 μ A	
20 Hz to 45 Hz	3.3 mA to 32.999 mA	0.09 % of reading + 2 μ A	
45 Hz to 1 kHz	3.3 mA to 32.999 mA	0.04 % of reading + 2 μ A	
1 kHz to 5 kHz	3.3 mA to 32.999 mA	0.08 % of reading + 2 μ A	
5 kHz to 10 kHz	3.3 mA to 32.999 mA	0.2 % of reading + 3 μ A	
10 kHz to 30 kHz	3.3 mA to 32.999 mA	0.4 % of reading + 4 μ A	



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Equipment to Measure AC Current At the listed frequencies ^{FO}			Fluke 5522A CENAM Technical Guide
10 Hz to 20 Hz	33 mA to 329.99 mA	0.18 % of reading + 20 μ A	
20 Hz to 45 Hz	33 mA to 329.99 mA	0.09 % of reading + 20 μ A	
45 Hz to 1 kHz	33 mA to 329.99 mA	0.04 % of reading + 20 μ A	
1 kHz to 5 kHz	33 mA to 329.99 mA	0.1 % of reading + 50 μ A	
5 kHz to 10 kHz	33 mA to 329.99 mA	0.2 % of reading + 100 μ A	
10 kHz to 30 kHz	33 mA to 329.99 mA	0.4 % of reading + 200 μ A	
Equipment to Measure AC Current At the listed frequencies ^{FO}			
10 Hz to 45 Hz	0.33 A to 1.099 99 A	0.18 % of reading + 100 μ A	
45 Hz to 1 kHz	0.33 A to 1.099 99 A	0.05 % of reading + 100 μ A	
1 kHz to 5 kHz	0.33 A to 1.099 99 A	0.6 % of reading + 1 000 μ A	
5 kHz to 10 kHz	0.33 A to 1.099 99 A	2.5 % of reading + 5 000 μ A	
Equipment to Measure AC Current At the listed frequencies ^{FO}			
10 Hz to 45 Hz	1.1 A to 2.999 99 A	0.18 % of reading + 100 μ A	
45 Hz to 1 kHz	1.1 A to 2.999 99 A	0.06 % of reading + 100 μ A	
1 kHz to 5 kHz	1.1 A to 2.999 99 A	0.6 % of reading + 1 000 μ A	
5 kHz to 10 kHz	1.1 A to 2.999 99 A	2.5 % of reading + 5 000 μ A	
Equipment to Measure AC Current At the listed frequencies ^{FO}			
45 Hz to 100 Hz	3 A to 10.999 9 A	0.06 % of reading + 2 000 μ A	
100 Hz to 1 kHz	3 A to 10.999 9 A	0.1 % of reading + 2 000 μ A	
1 kHz to 5 kHz	3 A to 10.999 9 A	3 % of reading + 2 000 μ A	
Equipment to Measure Capacitance ^{FO}			
	0.19 nF to 0.399 9 nF	0.5 % of reading + 0.01 nF	
	0.4 nF to 1.099 9 nF	0.5 % of reading + 0.01 nF	
	1.1 nF to 3.299 9 nF	0.5 % of reading + 0.01 nF	
	3.3 nF to 10.999 9 nF	0.25 % of reading + 0.01 nF	
	11 nF to 32.999 9 nF	0.25 % of reading + 0.1 nF	
	33 nF to 109.999 nF	0.25 % of reading + 0.1 nF	
	110 μ F to 329.999 μ F	0.45 % of reading + 300 nF	



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Equipment to Measure Capacitance ^{FO}	0.33 mF to 1.099 99 mF	0.45 % of reading + 1 μ F	Fluke 5522A CENAM Technical Guide
	1.1 mF to 3.299 9 mF	0.45 % of reading + 3 μ F	
	3.3 mF to 10.999 9 mF	0.45 % of reading + 10 μ F	
	11 μ F to 32.999 9 μ F	0.4 % of reading + 30 nF	
	33 μ F to 109.999 μ F	0.45 % of reading + 100 nF	
	110 μ F to 329.999 μ F	0.45 % of reading + 300 nF	
	0.33 mF to 1.099 99 mF	0.45 % of reading + 1 μ F	
	1.1 mF to 3.299 9 mF	0.45 % of reading + 3 μ F	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type B ^{FO}	600 °C to 800 °C	0.44 °C	Fluke 5522A Electrical Simulation of Thermocouple Output EC/GM/11.02
	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	0.33 °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	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type J ^{FO}	-210 °C to -100 °C	0.27 °C	
	-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	0.16 °C	
	120 °C to 1 000 °C	0.26 °C	
	1 000 °C to 1 372 °C	0.4 °C	



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Temperature Calibration, Indication and control Equipment used with Thermocouple Type L ^{FO}	-200 °C to -100 °C	0.37 °C	Fluke 5522A Electrical Simulation of Thermocouple Output EC/GM/11.02
	-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 R ^{FO}	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	
	1 000 °C to 1 767 °C	0.4 °C	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type S ^{FO}	0 °C to 250 °C	0.47 °C	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type S ^{FO}	250 °C to 1 000 °C	0.36 °C	
	1 000 °C to 1 400 °C	0.37 °C	
	1 400 °C to 1 767 °C	0.46 °C	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type T ^{FO}	-250 °C to -150 °C	0.63 °C	
	-150 °C to 0 °C	0.24 °C	
	0 °C to 120 °C	0.16 °C	
	120 °C to 400 °C	0.14 °C	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type U ^{FO}	-200 °C to 0 °C	0.56 °C	
	0 °C to 600 °C	0.27 °C	
Temperature Calibration, Indication, and Control Equipment use with RTD Type Pt 395, 100 Ω ^{FO}	-200 °C to -80 °C	0.05 °C	Fluke 5522A Electrical Simulation of RTD Output EC/GM/11.02
	-80 °C to 0 °C	0.05 °C	
	0 °C to 100 °C	0.07 °C	
Temperature Calibration, Indication, and Control Equipment use with RTD Type Pt 395, 100 Ω ^{FO}	100 °C to 300 °C	0.09 °C	
	300 °C to 400 °C	0.1 °C	
	400 °C to 630 °C	0.12 °C	
	630 °C to 800 °C	0.23 °C	
Temperature Calibration, Indication, and Control Equipment use with RTD 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	
	400 °C to 630 °C	0.12 °C	



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Temperature Calibration, Indication, and Control Equipment use with RTD Pt 3916, 100 Ω^{FO}	-200 °C to -190 °C	0.25 °C	Fluke 5522A Electrical Simulation of RTD Output EC/GM/11.02
	-190 °C to -80 °C	0.04 °C	
	-80 °C to 0 °C	0.05 °C	
	0 °C to 100 °C	0.06 °C	
	100 °C to 260 °C	0.07 °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	
600 °C to 630 °C	0.23 °C		
Temperature Calibration, Indication, and Control Equipment use with RTD 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	
Temperature Calibration, Indication, and Control Equipment use with RTD Pt 385, 500 Ω^{FO}	-200 °C to -80 °C	0.04 °C	
	-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 use with RTD Pt 385, 1 000 Ω^{FO}	-200 °C to -80 °C	0.03 °C	
	-80 °C to 0 °C	0.03 °C	
	0 °C to 100 °C	0.04 °C	
	100 °C to 260 °C	0.05 °C	
	260 °C to 300 °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	



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Temperature Calibration, Indication, and Control Equipment use with RTD PtNi 385, 120 Ω^{FO}	-80 °C to 0 °C	0.08 °C	Fluke 5522A Electrical Simulation of RTD Output EC/GM/11.02
	0 °C to 100 °C	0.08 °C	
	100 °C to 260 °C	0.14 °C	
Temperature Calibration, Indication, and Control Equipment use with RTD Cu 427, 10 Ω^{FO}	-100 °C to 260 °C	0.3 °C	
Equipment to Output DC Voltage ^{FO}	199.99 mV to 1.99 V	3 μ V/V + 0.4 μ V	Fluke 8508A UNE-EN 50470-1
	2 V to 19.99 V	3 μ V/V + 4 μ V	
Equipment to Output DC Voltage ^{FO}	20 V to 199.99 V	4.5 μ V/V + 40 μ V	
	200 V to 1 000 V	4.5 μ V/V + 500 μ V	
Equipment to Output DC Current ^{FO}	19.99 μ A to 199.99 μ A	12 μ A/A + 0.4 nA	
	199.99 μ A to 1.99 mA	12 μ A/A + 4 nA	
	2 mA to 19.99 mA	13 μ A/A + 40 nA	
	19.99 mA to 199.99 mA	36 μ A/A + 0.8 μ A	
	200 mA to 1.99 A	170 μ A/A + 16 μ A	
2 A to 19.99 A	380 μ A/A + 400 μ A		
Equipment to Output AC Voltage At the listed frequencies ^{FO}			
1 Hz to 10 Hz	20 mV to 199.99 mV	160 μ V/V + 14 μ V	
10 Hz to 40 Hz	20 mV to 199.99 mV	130 μ V/V + 8 μ V	
40 Hz to 100 Hz	20 mV to 199.99 mV	110 μ V/V + 8 μ V	
100 Hz to 2 kHz	20 mV to 199.99 mV	105 μ V/V + 2 μ V	
2 kHz to 10 kHz	20 mV to 199.99 mV	105 μ V/V + 4 μ V	
10 kHz to 30 kHz	20 mV to 199.99 mV	305 μ V/V + 8 μ V	
30 kHz to 100 kHz	20 mV to 199.99 mV	705 μ V/V + 20 μ V	
Equipment to Output AC Voltage At the listed frequencies ^{FO}			
1 Hz to 10 Hz	2 V to 19.999 V	140 μ V/V + 1.2 mV	
10 Hz to 40 Hz	2 V to 19.999 V	105 μ V/V + 200 μ V	
40 Hz to 100 Hz	2 V to 19.999 V	85 μ V/V + 200 μ V	
100 Hz to 2 kHz	2 V to 19.999 V	65 μ V/V + 200 μ V	
2 kHz to 10 kHz	2 V to 19.999 V	85 μ V/V + 200 μ V	



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Equipment to Output AC Voltage At the listed frequencies ^{FO}			Fluke 8508A UNE-EN 50470-1
10 kHz to 30 kHz	2 V to 19.999 V	205 μ V/V + 400 μ V	
30 kHz to 100 kHz	2 V to 19.999 V	505 μ V/V + 2 mV	
Equipment to Output AC Voltage At the listed frequencies ^{FO}			
1 Hz to 10 Hz	20 V to 199.99 V	140 μ V/V + 12 mV	
10 Hz to 40 Hz	20 V to 199.99 V	105 μ V/V + 2 mV	
40 Hz to 100 Hz	20 V to 199.99 V	85 μ V/V + 2 mV	
Equipment to Output AC Voltage At the listed frequencies ^{FO}			
100 Hz to 2 kHz	20 V to 199.99 V	65 μ V/V + 2 mV	
2 kHz to 10 kHz	20 V to 199.99 V	85 μ V/V + 2 mV	
10 kHz to 30 kHz	20 V to 199.99 V	205 μ V/V + 4 mV	
Equipment to Output AC Voltage At the listed frequencies ^{FO}			
30 kHz to 100 kHz	20 V to 199.99 V	505 μ V/V + 20 mV	
1 Hz to 10 Hz	200 V to 1 050 V	140 μ V/V + 74 mV	
10 Hz to 40 Hz	200 V to 1 050 V	110 μ V/V + 20 mV	
40 Hz to 10 kHz	200 V to 1 050 V	95 μ V/V + 21 mV	
Equipment to Output AC Current At the listed frequencies ^{FO}			
10 kHz to 30 kHz	200 V to 1 050 V	205 μ V/V + 42 mV	
30 kHz to 100 kHz	200 V to 1 050 V	510 μ V/V + 0.21 V	
1 Hz to 10 Hz	20 mA to 199.99 mA	475 μ A/A + 200 nA	
10 Hz to 10 kHz	20 mA to 199.99 mA	475 μ A/A + 200 nA	
10 kHz to 30 kHz	20 mA to 199.99 mA	650 μ A/A + 200 nA	
30 kHz to 100 kHz	20 mA to 199.99 mA	4 000 μ A/A + 200 nA	



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Equipment to Output AC Current At the listed frequencies ^{FO}			Fluke 8508A UNE-EN 50470-1
1 Hz to 10 Hz	199.99 mA to 1.999 9 mA	290 μ A/A + 0.2 μ A	
10 Hz to 10 kHz	199.99 mA to 1.999 9 mA	280 μ A/A + 0.2 μ A	
10 kHz to 30 kHz	199.99 mA to 1.999 9 mA	650 μ A/A + 0.2 μ A	
30 kHz to 100 kHz	199.99 mA to 1.999 9 mA	4 000 μ A/A + 0.2 μ A	
Equipment to Output AC Current At the listed frequencies ^{FO}			
1 Hz to 10 Hz	2 mA to 19.999 mA	290 μ A/A + 2 μ A	
10 Hz to 10 kHz	2 mA to 19.999 mA	280 μ A/A + 2 μ A	
Equipment to Output AC Current At the listed frequencies ^{FO}			
10 kHz to 30 kHz	2 mA to 19.999 mA	650 μ A/A + 2 μ A	
30 kHz to 100 kHz	2 mA to 19.999 mA	4 000 μ A/A + 2 μ A	
Equipment to Output AC Current At the listed frequencies ^{FO}			
1 Hz to 10 Hz	20 mA to 199.99 mA	290 μ A/A + 20 μ A	
10 Hz to 10 kHz	20 mA to 199.99 mA	250 μ A/A + 20 μ A	
10 kHz to 30 kHz	20 mA to 199.99 mA	600 μ A/A + 20 μ A	
Equipment to Output AC Current At the listed frequencies ^{FO}			
10 Hz to 2 kHz	200 mA to 1.999 999 A	600 μ A/A + 200 μ A	
2 kHz to 10 kHz	200 mA to 1.999 999 A	700 μ A/A + 200 μ A	
10 kHz to 30 kHz	200 mA to 1.999 999 A	1 500 μ A/A + 200 μ A	
Equipment to Output AC Current At the listed frequencies ^{FO}			
10 Hz to 2 kHz	19.999 A	700 μ A/A + 2 mA	
2 kHz to 10 kHz	19.999 A	0.25 % of reading + 2 mA	
Equipment to Output Resistance ^{FO}			
	0.2 Ω to 1.99 Ω	15 $\mu\Omega/\Omega$ + 4 $\mu\Omega$	
	1.99 Ω to 19.99 Ω	9 $\mu\Omega/\Omega$ + 14 $\mu\Omega$	



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Equipment to Output Resistance ^{FO}	20 Ω to 199.99 Ω	7.5 $\mu\Omega/\Omega$ + 50 $\mu\Omega$	Fluke 8805A UNE-EN 50470-1
	200 Ω to 1.99 k Ω	7.5 $\mu\Omega/\Omega$ + 500 $\mu\Omega$	
	2 k Ω to 19.99 k Ω	7.5 $\mu\Omega/\Omega$ + 0.005 Ω	
	20 k Ω to 199.99 k Ω	7.5 $\mu\Omega/\Omega$ + 0.05 Ω	
	200 k Ω to 1.99 M Ω	8.5 $\mu\Omega/\Omega$ + 1 Ω	
	2 M Ω to 19.99 M Ω	15 $\mu\Omega/\Omega$ + 100 Ω	
	20 M Ω to 199.99 M Ω	60 $\mu\Omega/\Omega$ + 10 k Ω	
	200 M Ω to 1.99 G Ω	525 $\mu\Omega/\Omega$ + 995 k Ω	
Equipment to Measure RF/Microwave Tuned RF Power At the listed Frequency ^{FO}			8901B with 11722A T.O. 33K3-4-2894-1
10 kHz to 2.6 GHz	-0.1 dB to -3 dB	0.02 dB	
Equipment to Measure RF/Microwave Tuned RF Power At the listed Frequency ^{FO}			8901B/8901A Measuring Receiver T.O. 33K3-4-2894-1
10 kHz to 2.6 GHz	-3 dB to -10 dB	0.02 dB	
10 kHz to 2.6 GHz	-10 dB to -40 dB	0.08 dB	
10 kHz to 2.6 GHz	-40 dB to -50 dB	0.14 dB	
10 kHz to 2.6 GHz	-50 dB to -80 dB	0.2 dB	
10 kHz to 2.6 GHz	-80 dB to -90 dB	0.26 dB	
10 kHz to 2.6 GHz	-90 dB to -110 dB	0.3 dB	
Equipment to Measure RF / Microwave Amplitude Modulation ^{FO}	0.15 MHz to 10 MHz	2.1 % of reading	8901B w/ 11722A Type-N T.O. 33K3-4-2894-1
	10 MHz to 1 300 MHz	1.1 % of reading	
Equipment to Measure Frequency Modulation ^{FO}	0.25 MHz to 10 MHz	2.1 % of reading	
	10 MHz to 1 300 MHz	1.1 % of reading	
Equipment to Measure RF Absolute Power Coaxial Thermocouple Power Sensors w/Meter ^{FO}	30 dB to -20 dB 100 kHz to 2.6 GHz SWR \leq 1.15:1 500 MHz to 1 300 MHz	0.071 dB	8901B w/ 11722A Type-N T.O. 33K3-4-2894-1
Equipment to Measure RF Absolute Power Attenuation for Coaxial Steps Attenuators ^{FO}	Up to 11 dB	0.01 dB/10 dB	355C and 355D T.O. 33K3-4-2894-1



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Equipment to Measure RF Absolute Power Coaxial Diode Power Sensors At the listed frequencies ^{FO}			438A w/ 8482A, Type-N 50 Ω T.O. 33K4-4-35-1
100 kHz to 300 kHz SWR \leq 1.6:1	20 dB to -30 dB	0.05 dB	
300 kHz to 1 MHz SWR \leq 1.2:1	20 dB to -30 dB	0.049 dB	
1 MHz to 2 GHz SWR \leq 1.1:1	20 dB to -30 dB	0.051 dB	
2 GHz to 4.2 GHz SWR \leq 1.3:1	20 dB to -30 dB	0.5 dB	
Equipment to Measure RF Absolute Power Coaxial Diode Power Sensors At the listed frequencies ^{FO}			438A w/ 8482A, Type-N T.O. 33K4-4-35-1
10 MHz to 30 MHz SWR \leq 1.4:1 ^{FO}	-20 dB to -70 dB	0.074 dB	
Equipment to Measure RF Absolute Power Coaxial Diode Power Sensors At the listed frequencies ^{FO}			
30 MHz to 4 GHz SWR \leq 1.15:1 ^{FO}	-20 dB to -70 dB	0.074 dB	HP 8350B T.O. 33K4-4-35-1
Equipment to Measure RF Absolute Power Coaxial Diode Power Sensors At the listed frequencies ^{FO}			
4 GHz to 10 GHz SWR \leq 1.21:1	-20 dB to -70 dB	0.077 dB	
10 GHz to 15 GHz SWR \leq 1.3:1	-20 dB to -70 dB	0.1 dB	
15 GHz to 18 GHz SWR \leq 1.35:1	-20 dB to -70 dB	0.11 dB	
Equipment to Measure Sine Wave, 2.4 mm At the listed frequencies ^{FO}			HP 8350B T.O. 33K4-4-35-1
10 MHz to 2 GHz SWR 1.6:1	10 dB	1.2 dB	
2 GHz to 8.4 GHz SWR 1.6:1	10 dB	1.3 dB	



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Equipment to Measure Sine Wave, 2.4 mm At the listed frequencies ^{FO}			HP 8350B T.O. 33K3-4-2894-1
10 MHz to 2 GHz SWR 1.6:1	-10 dB	0.6 dB	
2 GHz to 8.4 GHz SWR 1.6:1	-10 dB	0.7 dB	
10 MHz to 2 GHz SWR 1.6:1	-60 dB	0.9 dB	
2 GHz to 8.4 GHz SWR 1.6:1	-60 dB	1 dB	
2 GHz to 8.4 GHz SWR 1.8:1	-60 dB	1.2 dB	
10 MHz to 2 GHz SWR 1.6:1	-60 dB	1.4 dB	
2 GHz to 8.4 GHz SWR 1.6:1	-60 dB	1.5 dB	
2 GHz to 8.4 GHz SWR 1.8:1	-60 dB	1.7 dB	
Equipment to Measure Frequency ^{FO}	10 Hz to 499 MHz	110 Hz/MHz	HP 5343A
	500 MHz to 26.5 GHz	110 MHz/GHz	T.O. 33K3-4-2894-1
Power Meter ^{FO}	3 μ W	0.25 % of reading	HP 11683A
	10 μ W	0.25 % of reading	T.O. 33K4-4-35-1
	30 μ W	0.25 % of reading	
	100 μ W	0.25 % of reading	
	300 μ W	0.25 % of reading	
	1 mW	0.25 % of reading	
	3 mW	0.25 % of reading	
	10 mW	0.25 % of reading	
	30 mW	0.25 % of reading	
	100 mW	0.25 % of reading	
Oscilloscope Amplitude DC ^{FO}	1 mV to 6.6 V	0.2 % of reading + 31 μ V	Fluke 5522A / TM515 /
	6.6 V to 130 V	0.039 % of reading + 31 μ V	CG551AP
	40 μ V to 200 V	0.25 % of reading + 1 μ V	50 Ω , 1 M Ω
	1 mV to 6.6 V	0.2 % of reading + 31 μ V	T.O. 33K3-4-19-1
	1 mV to 130 V	0.075 % of reading + 31 μ V	



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Oscilloscope Leveled Sine Wave ^{FO}	50 kHz Reference	1.6 % of reading + 240 μ V	Fluke 5522A TM515 / CG551AP T.O. 33K3-4-19-1
Oscilloscope Amplitude ^{FO} (50 kHz) At the listed frequency			Fluke 5522A T.O. 33K3-4-19-1
50 kHz to 100 MHz	5 mV to 5.5 V	2.7 % of reading + 240 μ V	
100 MHz to 300 MHz	5 mV to 5.5 V	3.1 % of reading + 240 μ V	
100 MHz to 600 MHz	5 mV to 5.5 V	3.1 % of reading + 240 μ V	
300 MHz to 1 100 MHz	5 mV to 3.5 V	4.7 % of reading + 240 μ V	
Oscilloscope Flatness ^{FO} (50 kHz) At the listed frequency			
50 kHz to 100 MHz	5 mV to 5.5 V	1.2 % of reading + 78 μ V	
100 MHz to 300 MHz	5 mV to 5.5 V	1.6 % of reading + 78 μ V	
100 MHz to 600 MHz	5 mV to 5.5 V	3.1 % of reading + 78 μ V	
300 MHz to 1 100 MHz	5 mV to 3.5 V	3.1 % of reading + 78 μ V	
Oscilloscope Time Marker ^{FO}	0.2 Hz to 1 GHz	5 000 000 Hz/MHz	
Oscilloscope Rise Time ^{FO}	0.25 Hz to 1KHz	0.3 ns	
HV Output ^{FO}	1 kV to 6 kV DC/AC	1.2 % of reading	Fluke 80 K-06 T.O. 33K1-4-181-1
Spectrum Analyzer Network Analyzer Power Sensor, Power Meter Frequency Counter Oscilloscope ^{FO}	250 kHz to 3 GHz	0.01 Hz	Signal Generator Agilent E4421B T.O. 33K3-4-2894-1
DC Power Supply AC Power Source 250 W (0 V to 120 V)	Up to 60 A	0.025 % of reading + 0.05 % FS	DC Electronic Load BK Precision 8601 T.O. 33K1-4-60-1
Measurement and Output of Electrostatic Discharge (ESD) ^{FO}	750 k Ω to 100 M Ω	5 % of reading	Tester Calibration Unit Desco 07010 ANSI/ESD S20.20-2021
Equipment to Output RF Power At the listed frequencies ^{FO}	9 kHz to 3 GHz	0.1 Hz	Spectrum Analyzer Agilent N9320A T.O. 33K3-4-2894-1



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Equipment to Output RF Power At the listed frequencies ^{F0} 9 kHz to 3.3 GHz Spectrum Analyzer Network Analyzer Power Sensor, Power Meter Frequency Counter Oscilloscope	300 kHz to 3.3 GHz (-144 dBm to 13 dBm)	0.1 Hz (0.01 dBm)	Signal Generator Rohde & Schwarz SMQ03B T.O. 33K3-4-44-1
	-10 dB to -80 dB	0.05 dB	Stabilized Light Source Opto Test OP250 T.O. 33K1-4-60-1
	Up to 500 MHz	0.1 MHz	Oscilloscope DSOX3052T KEYSIGHT Nota Técnica no. 1337 del NIST
Equipment to Measure DC Voltage ^{F0}	30 mV to 329.999 9 mV	0.25 % of reading	Fluke 5522A Euramet cg-15
	330 mV to 3.299 999 V	0.25 % of reading	
	3.3 V to 32.999 99 V	0.25 % of reading	
	30 V to 329.999 9 V	0.25 % of reading	
Equipment to Measure DC Current ^{F0}	30 μ A to 329.999 μ A	0.25 % of reading	
	330 μ A to 3.299 99 mA	0.25 % of reading	
	3.3 mA to 32.999 9 mA	0.25 % of reading	
	30 mA to 329.999 mA	0.25 % of reading	
	330 mA to 1.099 99 A	0.25 % of reading	
	1.1 A to 2.999 99 A	0.25 % of reading	
	3.3 A to 10.999 9 A	0.25 % of reading	
Equipment to Measure Resistance ^{F0}	3 Ω to 10.999 9 Ω	0.25 % of reading	
	11 Ω to 32.999 9 Ω	0.25 % of reading	
	33 Ω to 109.999 9 Ω	0.25 % of reading	
	110 Ω to 329.999 9 Ω	0.25 % of reading	
	330 Ω to 1.0999 99 k Ω	0.25 % of reading	
	1.1 k Ω to 3.299 999 k Ω	0.25 % of reading	
	3.3 k Ω to 10.999 99 k Ω	0.25 % of reading	
	11 k Ω to 32.999 99 k Ω	0.25 % of reading	
	33 k Ω to 109.999 9 k Ω	0.25 % of reading	
	110 k Ω to 329.999 9 k Ω	0.25 % of reading	
330 k Ω to 1.099 999 M Ω	0.25 % of reading		



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RF PRECISION LABORATORIES S.A. DE C.V.

Quinta San Ignacio No. 1021, Fraccionamiento Quintas del Valle

Ciudad Juárez, Chihuahua, México C.P. 32540

Contact Name: Carlos Peraza Cadena Phone: 656-233-3471

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

Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Equipment to Measure Resistance ^{FO}	1.1 M Ω to 3.299 999 M Ω	0.25 % of reading	Fluke 5522A UNE-EN 50470-1
	3.3 M Ω to 10.999 99 M Ω	0.25 % of reading	
	11 M Ω to 32.999 99 M Ω	0.25 % of reading	
	33 M Ω to 109.999 9 M Ω	0.25 % of reading	
	110 M Ω to 329.999 9 M Ω	0.25 % of reading	
	330 M Ω to 1 100 M Ω	0.25 % of reading	
Equipment to Measure AC Voltage At the listed frequencies ^{FO}			
10 Hz to 45 Hz	1 mV to 32.999 mV	0.25 % of reading	
45 Hz to 10 kHz	1 mV to 32.999 mV	0.25 % of reading	
10 kHz to 20 kHz	1 mV to 32.999 mV	0.25 % of reading	
20 kHz to 50 kHz	1 mV to 32.999 mV	0.25 % of reading	
50 kHz to 100 kHz	1 mV to 32.999 mV	0.25 % of reading	
100 kHz to 500 kHz	1 mV to 32.999 mV	0.25 % of reading	
Equipment to Measure AC Voltage At the listed frequencies ^{FO}			
10 Hz to 45 Hz	33 mV to 329.999 mV	0.25 % of reading	
45 Hz to 10 kHz	33 mV to 329.999 mV	0.25 % of reading	
10 kHz to 20 kHz	33 mV to 329.999 mV	0.25 % of reading	
20 kHz to 50 kHz	33 mV to 329.999 mV	0.25 % of reading	
50 kHz to 100 kHz	33 mV to 329.999 mV	0.25 % of reading	
100 kHz to 500 kHz	33 mV to 329.999 mV	0.25 % of reading	
Equipment to Measure AC Voltage At the listed frequencies ^{FO}			
10 Hz to 45 Hz	0.33 V to 3.299 99 V	0.25 % of reading	
45 Hz to 10 kHz	0.33 V to 3.299 99 V	0.25 % of reading	
10 kHz to 20 kHz	0.33 V to 3.299 99 V	0.25 % of reading	
20 kHz to 50 kHz	0.33 V to 3.299 99 V	0.25 % of reading	
50 kHz to 100 kHz	0.33 V to 3.299 99 V	0.25 % of reading	
100 kHz to 500 kHz	0.33 V to 3.299 99 V	0.25 % of reading	



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Equipment to Measure AC Voltage At the listed frequencies ^{FO}			Fluke 5522A UNE-EN 50470-1 Euramet cg-15
10 Hz to 45 Hz	3.3 V to 32.999 9 V	0.25 % of reading	
45 Hz to 10 kHz	3.3 V to 32.999 9 V	0.25 % of reading	
10 kHz to 20 kHz	3.3 V to 32.999 9 V	0.25 % of reading	
20 kHz to 50 kHz	3.3 V to 32.999 9 V	0.25 % of reading	
50 kHz to 100 kHz	3.3 V to 32.999 9 V	0.25 % of reading	
Equipment to Measure AC Voltage At the listed frequencies ^{FO}			
45 Hz to 1 kHz	33 V to 329.999 V	0.25 % of reading	
1 kHz to 10 kHz	33 V to 329.999 V	0.25 % of reading	
10 kHz to 20 kHz	33 V to 329.999 V	0.25 % of reading	
20 kHz to 50 kHz	33 V to 329.999 V	0.25 % of reading	
50 kHz to 100 kHz	33 V to 329.999 V	0.25 % of reading	
Equipment to Measure AC Voltage At the listed frequencies ^{FO}			
45 Hz to 1 kHz	330 V to 1 020 V	0.25 % of reading	
1 kHz to 5 kHz	330 V to 1 020 V	0.25 % of reading	
5 kHz to 10 kHz	330 V to 1 020 V	0.25 % of reading	
Equipment to Measure AC Voltage At the listed frequencies ^{FO}			
10 Hz to 20 Hz	29 μ A to 329.99 μ A	0.25 % of reading	
20 Hz to 45 Hz	29 μ A to 329.99 μ A	0.25 % of reading	
45 Hz to 1 kHz	29 μ A to 329.99 μ A	0.25 % of reading	
1 kHz to 5 kHz	29 μ A to 329.99 μ A	0.25 % of reading	
5 kHz to 10 kHz	29 μ A to 329.99 μ A	0.25 % of reading	
10 kHz to 30 kHz	29 μ A to 329.99 μ A	0.25 % of reading	
Equipment to Measure AC Voltage At the listed frequencies ^{FO}			
0 Hz to 20 Hz	0.33 mA to 3.299 9 mA	0.25 % of reading	
20 Hz to 45 H	0.33 mA to 3.299 9 mA	0.25 % of reading	



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Equipment to Measure AC Voltage At the listed frequencies ^{FO}			Fluke 5522A UNE-EN 50470-1
45 Hz to 1 kHz	33 V to 329.999 V	0.25 % of reading	
1 kHz to 10 kHz	33 V to 329.999 V	0.25 % of reading	
10 kHz to 20 kHz	33 V to 329.999 V	0.25 % of reading	
20 kHz to 50 kHz	33 V to 329.999 V	0.25 % of reading	
50 kHz to 100 kHz	33 V to 329.999 V	0.25 % of reading	
Equipment to Measure AC Voltage At the listed frequencies ^{FO}			
45 Hz to 1 kHz	330 V to 1 020 V	0.25 % of reading	
1 kHz to 5 kHz	330 V to 1 020 V	0.25 % of reading	
5 kHz to 10 kHz	330 V to 1 020 V	0.25 % of reading	
Equipment to Measure AC Current At the listed frequencies ^{FO}			
10 Hz to 20 Hz	29 µA to 329.99 µA	0.25 % of reading	
20 Hz to 45 Hz	29 µA to 329.99 µA	0.25 % of reading	
45 Hz to 1 kHz	29 µA to 329.99 µA	0.25 % of reading	
1 kHz to 5 kHz	29 µA to 329.99 µA	0.25 % of reading	
5 kHz to 10 kHz	29 µA to 329.99 µA	0.25 % of reading	
10 kHz to 30 kHz	29 µA to 329.99 µA	0.25 % of reading	
Equipment to Measure AC Current At the listed frequencies ^{FO}			
10 Hz to 20 Hz	0.33 mA to 3.299 9 mA	0.25 % of reading	
20 Hz to 45 H	0.33 mA to 3.299 9 mA	0.25 % of reading	
45 Hz to 1 kHz	0.33 mA to 3.299 9 mA	0.25 % of reading	
1 kHz to 5 kHz	0.33 mA to 3.299 9 mA	0.25 % of reading	
5 kHz to 10 kHz	0.33 mA to 3.299 9 mA	0.25 % of reading	
10 kHz to 30 kHz	0.33 mA to 3.299 9 mA	0.25 % of reading	



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Equipment to Measure AC Current At the listed frequencies ^{FO}			Fluke 5522A UNE-EN 50470-1 Euramet cg-15
10 Hz to 20 Hz	3.3 mA to 32.999 mA	0.25 % of reading	
20 Hz to 45 Hz	3.3 mA to 32.999 mA	0.25 % of reading	
45 Hz to 1 kHz	3.3 mA to 32.999 mA	0.25 % of reading	
1 kHz to 5 kHz	3.3 mA to 32.999 mA	0.25 % of reading	
5 kHz to 10 kHz	3.3 mA to 32.999 mA	0.25 % of reading	
10 kHz to 30 kHz	3.3 mA to 32.999 mA	0.25 % of reading	
Equipment to Measure AC Current At the listed frequencies ^{FO}			
10 Hz to 20 Hz	33 mA to 329.99 mA	0.25 % of reading	
20 Hz to 45 Hz	33 mA to 329.99 mA	0.25 % of reading	
45 Hz to 1 kHz	33 mA to 329.99 mA	0.25 % of reading	
1 kHz to 5 kHz	33 mA to 329.99 mA	0.25 % of reading	
5 kHz to 10 kHz	33 mA to 329.99 mA	0.25 % of reading	
10 kHz to 30 kHz	33 mA to 329.99 mA	0.25 % of reading	
Equipment to Measure AC Current At the listed frequencies ^{FO}			
10 Hz to 45 Hz	0.33 A to 1.099 99 A	0.25 % of reading	
45 Hz to 1 kHz	0.33 A to 1.099 99 A	0.25 % of reading	
1 kHz to 5 kHz	0.33 A to 1.099 99 A	0.25 % of reading	
5 kHz to 10 kHz	0.33 A to 1.099 99 A	0.25 % of reading	
Equipment to Measure AC Current At the listed frequencies ^{FO}			
10 Hz to 45 Hz	1.1 A to 2.999 99 A	0.25 % of reading	
45 Hz to 1 kHz	1.1 A to 2.999 99 A	0.25 % of reading	
1 kHz to 5 kHz	1.1 A to 2.999 99 A	0.25 % of reading	
5 kHz to 10 kHz	1.1 A to 2.999 99 A	0.25 % of reading	



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Equipment to Measure AC Current At the listed frequencies ^{FO}			Fluke 5522A UNE-EN 50470-1 EURAMET cg-15
45 Hz to 100 Hz	3 A to 10.999 9 A	0.25 % of reading	
100 Hz to 1 kHz	3 A to 10.999 9 A	0.25 % of reading	
1 kHz to 5 kHz	3 A to 10.999 9 A	0.25 % of reading	
Equipment to Measure Capacitance ^{FO}	0.19 nF to 0.399 9 nF	0.25 % of reading	
	0.4 nF to 1.099 9 nF	0.25 % of reading	
	1.1 nF to 3.299 9 nF	0.25 % of reading	
	3.3 nF to 10.999 9 nF	0.25 % of reading	
	11 nF to 32.999 9 nF	0.25 % of reading	
	33 nF to 109.999 nF	0.25 % of reading	
	110 µF to 329.999 µF	0.25 % of reading	
	0.33 mF to 1.099 99 mF	0.25 % of reading	
	1.1 mF to 3.299 9 mF	0.25 % of reading	
	3.3 mF to 10.999 9 mF	0.25 % of reading	
	11 µF to 32.999 9 µF	0.25 % of reading	
	33 µF to 109.999 µF	0.25 % of reading	
	110 µF to 329.999 µF	0.25 % of reading	
	0.33 mF to 1.099 99 mF	0.25 % of reading	
	1.1 mF to 3.299 9 mF	0.25 % of reading	
3.3 mF to 10.999 9 mF	0.25 % of reading		
Temperature Calibration, Indication and control Equipment used with Thermocouple Type B ^{FO}	600 °C to 800 °C	0.25 % of reading	Fluke 5522A Electrical Simulation of Thermocouple Output UNE-EN 50470-1 EURAMET cg-15
	800 °C to 1 000 °C	0.25 % of reading	
	1 000 °C to 1 550 °C	0.25 % of reading	
	1 550 °C to 1 820 °C	0.25 % of reading	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type C ^{FO}	0 °C to 150 °C	0.25 % of reading	
	150 °C to 650 °C	0.25 % of reading	
	650 °C to 1 000 °C	0.25 % of reading	
	1 000 °C to 1 800 °C	0.25 % of reading	
	1 800 °C to 2 316 °C	0.25 % of reading	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type E ^{FO}	-250 °C to -100 °C	0.25 % of reading	
	-100 °C to -25 °C	0.25 % of reading	



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Temperature Calibration, Indication and control Equipment used with Thermocouple Type E ^{FO}	-25 °C to 350 °C	0.25 % of reading	Fluke 5522A Electrical Simulation of Thermocouple Output UNE-EN 50470-1 Euramet cg-15
	350 °C to 650 °C	0.25 % of reading	
	650 °C to 1 000 °C	0.25 % of reading	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type J ^{FO}	-210 °C to -100 °C	0.25 % of reading	
	-100 °C to -30 °C	0.25 % of reading	
	-30 °C to 150 °C	0.25 % of reading	
	150 °C to 760 °C	0.25 % of reading	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type K ^{FO}	760 °C to 1 200 °C	0.25 % of reading	
	-200 °C to -100 °C	0.25 % of reading	
	-100 °C to -25 °C	0.25 % of reading	
	-25 °C to 120 °C	0.25 % of reading	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type L ^{FO}	120 °C to 1 000 °C	0.25 % of reading	
	1 000 °C to 1 372 °C	0.25 % of reading	
	800 °C to 900 °C	0.25 % of reading	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type R ^{FO}	0 °C to 250 °C	0.25 % of reading	
	250 °C to 400 °C	0.25 % of reading	
	400 °C to 1 000 °C	0.25 % of reading	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type S ^{FO}	1 000 °C to 1 767 °C	0.25 % of reading	
	-250 °C to -150 °C	0.25 % of reading	
	-150 °C to 0 °C	0.25 % of reading	
	0 °C to 250 °C	0.25 % of reading	
	250 °C to 1 000 °C	0.25 % of reading	
	1 000 °C to 1 400 °C	0.25 % of reading	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type T ^{FO}	1 400 °C to 1 767 °C	0.25 % of reading	
	-250 °C to -150 °C	0.25 % of reading	
	-150 °C to 0 °C	0.25 % of reading	
	0 °C to 120 °C	0.25 % of reading	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type U ^{FO}	120 °C to 400 °C	0.25 % of reading	
	-200 °C to 0 °C	0.25 % of reading	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type U ^{FO}	0 °C to 600 °C	0.25 % of reading	



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Temperature Calibration, Indication and control Equipment used with RTD Type Pt 395, 100 Ω^{FO}	-200 °C to -80 °C	0.25 % of reading	Fluke 5522A Electrical Simulation of RTD Output UNE-EN 50470-1
	-80 °C to 0 °C	0.25 % of reading	
	0 °C to 100 °C	0.25 % of reading	
	100 °C to 300 °C	0.25 % of reading	
	300 °C to 400 °C	0.25 % of reading	
	400 °C to 630 °C	0.25 % of reading	
	630 °C to 800 °C	0.25 % of reading	
	-200 °C to 630 °C	0.25 % of reading	
Temperature Calibration Indication and control Equipment used with RTD Type Pt 3926, 100 Ω^{FO}	-200 °C to 630 °C	0.25 % of reading	Fluke 5522A Electrical Simulation of RTD Output UNE-EN 50470-1
Temperature Calibration Indication and control Equipment used with RTD Type Pt 385, 200 Ω^{FO}	-200 °C to 630 °C	0.25 % of reading	
Temperature Calibration Indication and control Equipment used with RTD Type Pt 385, 500 Ω^{FO}	-200 °C to 630 °C	0.25 % of reading	
Temperature Calibration Indication and control Equipment used with RTD Type Pt 385, 1 000 Ω^{FO}	-200 °C to 630 °C	0.25 % of reading	
Temperature Calibration Indication and control Equipment used with RTD Type Pt Ni 385, 120 Ω^{FO}	-80 °C to 260 °C	0.25 % of reading	
Temperature Calibration Indication and control Equipment used with RTD Type Cu 427, 10 Ω^{FO}	-100 °C to 260 °C	0.25 % of reading	
Temperature Calibration Indication and control Equipment used with RTD Type Pt 385, 100 Ω^{FO}	-200 °C to 100 °C	0.07 °C	
	100 °C to 800 °C	0.02 % of reading + 0.05 °C	
Temperature Calibration Indication and control Equipment used with RTD Type Pt 385, 200 Ω^{FO}	-200 °C to 100 °C	0.07 °C	
	100 °C to 630 °C	0.02 % of reading + 0.05 °C	



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Temperature Calibration Indication and control Equipment used with RTD Type Pt 385, 500 Ω ^{F0}	-200 °C to 100 °C	0.07 °C	Fluke 753 Electrical Simulation of RTD Output UNE-EN 50470-1
	100 °C to 630 °C	0.02 % of reading + 0.05 °C	
Temperature Calibration Indication and control Equipment used with RTD Type Pt 385, 1 000 Ω ^{F0}	-200 °C to 100 °C	0.07 °C	
	100 °C to 630 °C	0.02 % of reading + 0.05 °C	
Temperature Calibration Indication and control Equipment used with RTD Type Pt 3916, 100 Ω ^{F0}	-200 °C to 100 °C	0.07 °C	
	100 °C to 630 °C	0.02 % of reading + 0.05 °C	
Temperature Calibration Indication and control Equipment used with RTD Type Pt 3926, 100 Ω ^{F0}	-200 °C to 100 °C	0.08 °C	
	100 °C to 630 °C	0.02 % of reading + 0.06 °C	
Temperature Calibration Indication and control Equipment used with RTD Type Cu 427, 10 Ω ^{F0}	-100 °C to 260 °C	0.2 °C	
Temperature Calibration Indication and control Equipment used with RTD Type Cu 672, 120 Ω ^{F0}	-80 °C to 260 °C	0.1 °C	
Equipment to Measure AC Current At the listed frequencies ^{F0}			Fluke 753 UNE-EN 50470-1
1 Hz to 110 Hz	0.1 mA a 10 mA	0.01 % + 5 uA	
110.1 Hz to 1 100 kHz	0.1 mA a 1 mA	0.01 % + 5 uA	
1 101 kHz to 11 000 kHz	0.1 mA a 1 mA	0.01 % + 5 uA	
11.01 kHz to 50 kHz	0.1 mA a 1 mA	0.01 % + 5 uA	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type B ^{F0}	600 °C to 800 °C	1.3 °C	Fluke 753 Electrical Simulation of Thermocouple Output UNE-EN 50470-1
	800 °C to 1 000 °C	1 °C	
	1 000 °C to 1 820 °C	0.9 °C	



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Temperature Calibration Indication and control Equipment used with Thermocouple Type C ^{FO}	0 °C to 800 °C	0.6 °C	Fluke 753 Electrical Simulation of Thermocouple Output UNE-EN 50470-1
	800 °C to 1 200 °C	0.8 °C	
	1 200 °C to 1 800 °C	1.1 °C	
	1 800 °C to 2 316 °C	2 °C	
Temperature Calibration Indication and control Equipment used with Thermocouple Type E ^{FO}	-250 °C to -200 °C	1.3 °C	
	-200 to -100 °C	0.5 °C	
	-100 °C to 600 °C	0.3 °C	
	600 °C to 1 000 °C	0.4 °C	
Temperature Calibration Indication and control Equipment used with Thermocouple Type J ^{FO}	-210 to -100 °C	0.6 °C	
	-100 °C to 800 °C	0.3 °C	
	800 °C to 1 200 °C	0.5 °C	
Temperature Calibration Indication and control Equipment used with Thermocouple Type K ^{FO}	-200 °C to -100 °C	0.7 °C	
	-100 to 400 °C	0.3 °C	
	400 °C to 1 200 °C	0.5 °C	
	1 200 °C to 1 372 °C	0.7 °C	
Temperature Calibration Indication and control Equipment used with Thermocouple Type L ^{FO}	-200 °C to -100 °C	0.6 °C	
	-100 to 800 °C	0.3 °C	
	800 °C to 900 °C	0.5 °C	
Temperature Calibration Indication and control Equipment used with Thermocouple Type N ^{FO}	-200 °C to -100 °C	1 °C	
	-100 °C to 900 °C	0.5 °C	
	900 °C to 1 300 °C	0.6 °C	
Temperature Calibration Indication and control Equipment used with Thermocouple Type R ^{FO}	-20 °C to 0 °C	2.3 °C	
	0 °C to 100 °C	1.5 °C	
	100 °C to 1 767 °C	1 °C	
Temperature Calibration Indication and control Equipment used with Thermocouple Type S ^{FO}	-20 °C to 0 °C	2.3 °C	
	0 °C to 200 °C	1.5 °C	
	200 °C to 1 400 °C	0.9 °C	
	1 400 °C to 1 767 °C	1.1 °C	
Temperature Calibration Indication and control Equipment used with Thermocouple Type T ^{FO}	-250 °C to -200 °C	1.7 °C	
	-200 °C to 0 °C	0.6 °C	
	0 °C to 400 °C	0.3 °C	



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Electrical

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Temperature Calibration Indication and control Equipment used with Thermocouple Type U ^{FO}	-200 °C to 0 °C	0.6 °C	Fluke 753 Electrical Simulation of Thermocouple Output UNE-EN 50470-1	
	0 °C to 600 °C	0.3 °C		
Temperature Calibration Indication and control Equipment used with Thermocouple Type BP ^{FO}	0 °C to 1 000 °C	1 °C		
	1 000 °C to 2 000 °C	1.6 °C		
	2 000 °C to 2 500 °C	2 °C		
Temperature Calibration Indication and control Equipment used with Thermocouple Type XK ^{FO}	-200 °C to 300 °C	0.2 °C		
	300 °C to 800 °C	0.4 °C		
Equipment to Output AC Voltage (Hipot) ^{FO}	1 kV to 6 kV	0.6 kV		High Voltage Probe UNE-EN 50470-1
	6 kV to 10 kV	1 kV		
	10 kV to 25 kV	2.5 kV		
Equipment to Output DC Voltage (Hipot) ^{FO}	1 kV to 6 kV	0.24 kV		
	6 kV to 10 kV	0.4 kV		
	10 kV to 35 kV	1.4 kV		
Equipment to Measure AC Current At the listed frequencies ^{FO}			Fluke 8846A UNE-EN 50470-1	
10 Hz to 5 kHz	0.1 μ A to 100 μ A	0.1 % of reading + 0.4 μ A		
5 kHz to 10 kHz	0.1 μ A to 100 μ A	0.2 % of reading + 2.5 μ A		
Equipment to Measure AC Current At the listed frequencies ^{FO}				
10 Hz to 5 kHz	100 μ A to 1 mA	0.15 % of reading + 6 μ A		
5 kHz to 10 kHz	100 μ A to 1 mA	0.35 % of reading + 70 μ A		
Equipment to Measure AC Current At the listed frequencies ^{FO}				
10 Hz to 5 kHz	1 mA to 10 mA	0.1 % of reading + 40 μ A		
5 kHz to 10 kHz	1 mA to 10 mA	0.2 % of reading + 250 μ A		
Equipment to Measure AC Current At the listed frequencies ^{FO}				
10 Hz to 5 kHz	10 mA to 100 mA	0.1 % of reading + 0.4 mA		
5 kHz to 10 kHz	10 mA to 100 mA	0.2 % of reading + 2.8 mA		



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RF PRECISION LABORATORIES S.A. DE C.V.

Quinta San Ignacio No. 1021, Fraccionamiento Quintas del Valle

Ciudad Juárez, Chihuahua, México C.P. 32540

Contact Name: Carlos Peraza Cadena Phone: 656-233-3471

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

Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Equipment to Measure AC Current At the listed frequencies ^{FO}			Fluke 8846A UNE-EN 50470-1
10 Hz to 1 kHz	100 mA to 400 mA	0.1 % of reading + 0.4 μ A	
1 kHz to 10 kHz	100 mA to 400 mA	0.2 % of reading + 2.5 μ A	
Equipment to Measure AC Current At the listed frequencies ^{FO}			
10 Hz to 5 kHz	0.4 A to 1 A	0.1 % of reading + 0.4 μ A	
5 kHz to 10 kHz	0.4 A to 1 A	0.35 % of reading + 7 μ A	
Equipment to Measure AC Current At the listed frequencies ^{FO}			
10 Hz to 5 kHz	1 A to 3 A	0.15 % of reading + 6 mA	
5 kHz to 10 kHz	1 A to 3 A	0.35 % of reading + 70 mA	
Equipment to Measure AC Current At the listed frequencies ^{FO}			
10 Hz to 5 kHz	3 A to 10 A	0.15 % of reading + 6 mA	
5 kHz to 10 kHz	3 A to 10 A	0.35 % of reading + 70 mA	
Equipment to Measure DC Voltage ^{FO}	1 μ V to 100 mV	0.003 7 % of reading + 3.5 μ V	
	100 mV to 1 V	0.002 5 % of reading + 7 μ V	
	1 V to 10 V	0.002 4 % of reading + 0.05 mV	
	10 V to 100 V	0.003 8 % of reading + 0.6 mV	
	100 V to 1 000 V	0.004 1 % of reading + 10 mV	
Equipment to Measure AC Voltage ^{FO} 10 Hz to 20 kHz	0.1 mV to 100 mV	0.06 % of reading + 0.04 mV	
	100 mV to 1 V	0.06 % of reading + 0.3 mV	
	1 V to 10 V	0.06 % of reading + 3 mV	
	10 V to 100 V	0.06 % of reading + 30 mV	
	100 V to 1 000 V	0.06 % of reading + 225 mV	
Equipment to Measure Capacitance ^{FO}	0.1 nF to 1 nF	2 % of reading + 0.025 nF	
	1 nF to 10 nF	1 % of reading + 0.05 nF	
	10 nF to 100 nF	1 % of reading + 0.5 nF	
	0.1 μ F to 1 μ F	1 % of reading + 5 nF	
	1 μ F to 10 μ F	1 % of reading + 50 nF	
	10 μ F to 100 μ F	1 % of reading + 0.5 μ F	



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Equipment to Measure Capacitance ^{FO}	0.01 mF to 1 mF	1 % of reading + 0.005 mF	Fluke 8846A UNE-EN 50470-1
	1 mF to 10 mF	1 % of reading + 0.05 mF	
Equipment to Measure Resistance ^{FO}	0.1 Ω to 10 Ω	0.01 % of reading + 3 m Ω	
	10 Ω to 100 Ω	0.01 % of reading + 4 m Ω	
	100 Ω to 1 k Ω	0.01 % of reading + 10 m Ω	
	1 k Ω to 10 k Ω	0.01 % of reading + 100 m Ω	
	10 k Ω to 100 k Ω	0.01 % of reading + 1 Ω	
	100 k Ω to 1 M Ω	0.01 % of reading + 10 Ω	
	1 M Ω to 10 M Ω	0.04 % of reading + 100 Ω	
	10 M Ω to 100 M Ω	0.8 % of reading + 10 k Ω	
Equipment to Measure DC Current ^{FO}	0.01 μ A to 100 μ A	0.05% of reading + 0.025 μ A	
	100 μ A to 1 mA	0.05 % of reading + 0.05 μ A	
	1 mA to 10 mA	0.05 % of reading + 2 μ A	
	10 mA to 100 mA	0.05 % of reading + 5 μ A	
	100 mA to 400 mA	0.05 % of reading + 20 μ A	
	0.4 A to 1 A	0.05 % of reading + 0.2 mA	
	1 A to 3 A	0.1 % of reading + 2 mA	
	3 A to 10 A	0.15 % of reading + 0.8 mA	
Oscilloscope – Time Markers ^{FO}	1 GHz	0.1 GHz	Osciloscopio Keysight DSOX3052T Technical Note no.1337 NIST
	1 s to 500 s	100 ns	

Thermodynamic

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Thermo-Hygrometers ^F	10 % HR to 90 % HR	1.2 % of reading	Climate Chamber Novus N323RHT CEM TH-007
	1 $^{\circ}$ C to 50 $^{\circ}$ C	1.2 % of reading	
	10 $^{\circ}$ C to 400 $^{\circ}$ C (20 $^{\circ}$ F to 752 $^{\circ}$ F)	1.4 $^{\circ}$ C (2.5 $^{\circ}$ F)	Blackbody Calibrator Omega BB703 CENAM Technical Guide



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

Dimensional

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Calipers ^F	1 mm to 300 mm	$(14.01 + 9.7 \times 10^{-4}L) \mu\text{m}$	Spi Gage 25-338-5 Height Master 515-322 CENAM Technical Guide
Micrometers ^F	1 mm to 101.6 mm	2.1 μm	Block Gages Grade 2 CENAM Technical Guide
Height Gages ^F	1 mm to 300 mm	14 μm	Spi Gage 25-338-5 Height Master 515-322 CENAM Technical Guide
Protractor ^{FO}	0.5° to 90°	0.089°	Angle Blocks ASME B89.4.19
Optical Comparator X axis Linearity Y axis Linearity ^O	0.5 in to 12 in	$(280 + 58L) \mu\text{in}$	Glass Scale JIS B 7184
	0.5 in to 12 in	$(280 + 58L) \mu\text{in}$	
Optical Comparator Axis Squareness ^O	4 in of X axis travel or maximum, Y axis travel if maximum is less than 4in	280 μin	Master Square JIS B 7184
Optical Comparator Magnification ^O	10X	0.03 %	Glass Scale JIS B 7184
	20X	0.03 %	
	31.5X	0.03 %	
	62.5X	0.03 %	
	50X	0.04 %	
100X	0.04 %		
Optical Comparator Angularity ^O	0° to 180°	0.15°	Angle Blocks JIS B 7184
Vision System ^O X, Y and Z axis Linearity	0.5 in to 12 in	$(280 + 58L) \mu\text{in}$	Mitutoyo Glass Scale, mm Gage Blocks JIS B 7184
Thickness Gages ^{FO}	1 mm to 25.4 mm	25 μm	Block Gages Grade 2 ASME B89.1.10M
Dial Indicator ^{FO}	1 mm to 101.6 mm (0.04 in to 4 in)	2.1 μm $(8.3 \times 10^{-5}) \text{ in}$	
Thread Gages ^{FO}	0.1 mm to 25.4 mm	0.002 mm	SHARS Electronic Micrometer" ASME B1.20.2M
Pin Gages ^F	0.1 mm to 25.4 mm	$(0.25 + 0.9L) \mu\text{m}$	BETA Laser Mike 283-10 ASME B89.1.10M
Microscope ^{FO} X axis Linearity Y axis Linearity	Up to 10 mm	0.1 mm	Comparison Reticule Mitutoyo 183-108 No.7 JIS B 7184



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Microscope Angulatory ^{FO}	0.5° to 360°	0.15°	Comparison Reticule Mitutoyo 183-113 No.12 JIS B 7184
Microscope Magnification ^{FO}	Up to 100x	0.04 % of magnification	Comparison Reticule Mitutoyo 183-102 No.01 JIS B 7184
Laser Micrometer ^{FO}	Up to 1 in (Up to 25.4 mm)	2.2 x 10 ⁻⁴ in (5.6 μ m)	Master Plug Gages ISO 14638
Granite Surfaces ^{FO} (Flatness)	424.26 mm to 3 605.55 mm (in diagonal)	0.14 μ m	Starret 777 DI-015 ISO 8512-2

Time and Frequency

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Tachometer ^{FO}	5 rpm to 200 000 rpm	2 % of reading	Tachometer ASTM-E1256-95
Chronometers & Timers ^{FO}	Up 86 400 s	0.036 ms	Universal frequency Counter, Signal Generator & Timer 1/100 Technical Note No. 1337 NIST and NIST 960-12

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. Example: Outside Micrometer^F would mean that the laboratory performs this calibration at its fixed location.



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

4. The presence of a superscript O means that the laboratory performs calibration of the indicated parameter onsite at customer locations. Example: Outside Micrometer^O would mean that the laboratory performs this calibration onsite at the customer's location.
5. The presence of a superscript FO means that the laboratory performs calibration of the indicated parameter both at its fixed location and onsite at customer locations. Example: Outside Micrometer^{FO} would mean that the laboratory performs this calibration at its fixed location and onsite at customer locations.
6. 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.
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.

