



PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Centro Integral de Metrología, S.A. de C.V.

***Av. Circunvalación # 3829, Col. Nuevo San Rafael
Guadalupe, Nuevo León, México C.P. 67110***

*(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, Mass, Force and Weighing Devices, Mechanical, Volume, Time
and Frequency, Chemical, Thermodynamic and Electrical 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:

December 13, 2010

Issue Date:

January 28, 2021

Expiration Date:

March 31, 2023

Accreditation No.:

66573

Certificate No.:

L21-70

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.pjllabs.com*



Certificate of Accreditation: Supplement

Centro Integral de Metrología, S.A. de C.V.

Av. Circunvalación # 3829, Col Nuevo San Rafael

Guadalupe, Nuevo León, México C.P. 67110

Contact Name: Guillermo Prieto Flores Phone: 818-479-1354

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

Dimensional

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
Calipers ^F	1 mm to 1 500 mm	$(5.5 + 0.076L) \mu\text{m}$	Gage Blocks Grade 0 NMX-CH-002-IMNC JIS B 7507 NMX-CH-099-IMNC JIS B 7502 ASME B89.1.9 JIS B 7502 Thickness Gage Films (Fabricant Manual)
Depth Gauges ^F	1 mm to 300 mm	$(5.5 + 0.076L) \mu\text{m}$	
Outside Micrometers ^F	1 mm to 600 mm	$(2 + 0.017L) \mu\text{m}$	
Inside Micrometers ^F	40 mm to 600 mm	$(2.2 + 0.017L) \mu\text{m}$	
Depth Micrometers ^F	1 mm to 300 mm	$(2.1 + 0.017L) \mu\text{m}$	
Height Master ^F	10 mm to 600 mm	$2.9 \mu\text{m}$	
End Measuring Rods (Standards) ^F	25 mm to 300 mm	$(0.9 + 0.018L) \mu\text{m}$	
Micrometer Heads ^F	2.5 mm to 50 mm	$3 \mu\text{m}$	
Ultrasonic Thickness Gauge ^F	10 mm to 200 mm	$25 \mu\text{m}$	
Height Gauges ^F	0.5 mm to 1 000 mm	$12 \mu\text{m}$	Thickness Gage Films JIS B 7517
Indicators ^F	1 mm to 50 mm	$(4.8 + 0.005L) \mu\text{m}$	Electronic Head Micrometer JIS B 7503
Test Indicator ^F	0.1 mm to 1.5 mm	$2 \mu\text{m}$	
Microscopes ^F	200 mm to 100 mm	$4.5 \mu\text{m}$	Glass Scale, Reticule JIS B 7153
Tape Measures Error of Indication ^F	1 m to 20 m	$(0.21 + 0.035L) \text{mm}$	Length Standard NMX-CH-0148-IMNC
Granite Surface Plates Repeat Measurement ^O	0.05 mm	$1.3 \mu\text{m}$	Repeat-O-Meter Rahn with Micro indicator ASME B89.3.7
Optical Comparators X axis Linearity	1 mm to 200 mm	$7.6 \mu\text{m}$	Glass Scale, Gage Blocks JIS B 7184
Y axis Linearity ^O	1 mm to 200 mm	$7.6 \mu\text{m}$	
Optical Comparators Axial Orientation ^O	At 100 mm Y Axis Travel	0.01°	Glass Scale JIS B 7184
Optical Comparators Magnification ^O	10X	0.05%	Magnification Sphere Standards / Glass Scale JIS B 7184
	20X	0.03%	
	50X	0.03%	
	100X	0.03%	
Optical Comparators Angularity ^O	0° to 90°	0.05°	Reticule JIS B 7184
Bore Gauges ^F	10 mm to 150 mm	$7 \mu\text{m}$	Super Micrometer ASME B89.1.6
Pin Gauges ^F	0.5 mm to 25.4 mm	$0.6 \mu\text{m}$	
Plain Plug Gauges ^F	0.5 mm to 100 mm	$1.5 \mu\text{m}$	



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Snap Gauge Go / No Go ^F	12 mm to 100 mm	1.7 μ m	Super Micrometer ASME B89.1.6
Setting Rings ^F	12 mm to 200 mm	1.6 μ m	Micro Indicator with (Res.= 0.026 μ m) ASME B89.1.6
Thread Gauges Pitch Diameter ^F	0-80 to 4-12	120 μ in	Super Micrometer Thread Wires Set ASME B1.2 ASME B1.16M
Surface Roughness Ra Fixed Point ^F	2.97 μ m	0.13 μ m	Ra Roughness Master ISO 5436-1
Surface Roughness Ry Fixed Point ^F	9.4 μ m	0.15 μ m	

Mass, Force and Weighting Devices

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
Analytical Balances ^O	1 g to 200 g (Res.= 0.000 1g)	$(1.1 \times 10^{-3} + 1.8 \times 10^{-6} \text{Wt})$ g	Class F1 Weights NOM-010-SCFI
Lab Balances ^O	201 g to 10 000 g (Res.= 0.001 g)	$(5 \times 10^{-3} + 5.73 \times 10^{-6} \text{Wt})$ g	
Bench Scales ^O	10 001 g to 50 kg (Res.= 0.002 g)	$(3 \times 10^{-3} + 4 \times 10^{-5} \text{Wt})$ g	Class M1 Weights NOM-010-SCFI
Platform Scales ^O	51 kg to 500 kg (Res.= 0.02 kg)	$(1 + 3 \times 10^{-5} \text{Wt})$ kg	Class M2 Weights NOM-010-SCFI
Floor Scales ^O	501 kg to 3 000 kg (Res.= 0.1 kg)	$(1 + 4.5 \times 10^{-5} \text{Wt})$ kg	
	3 001 kg to 4 000 kg (Res.= 0.2 kg)	210 g	
	4 001 kg to 5 000 kg (Res.= 0.2 kg)	220 g	
	5 001 kg to 10 000 kg (Res.= 1 kg)	1.5 kg	
	10 001 kg to 20 000 kg (Res.= 2 kg)	1.9 kg	
	20 001 kg to 100 000 kg (Res.= 2 kg)	8 kg	
Mass - Class M1 Fixed Points ^F	1 mg	0.04 mg	Class F1 Weights OIML R 111
	2 mg	0.04 mg	



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Mass - Class M1 Fixed Points ^F	5 mg	0.04 mg	Class F1 Weights OIML R 111
	10 mg	0.04 mg	
	20 mg	0.07 mg	
	50 mg	0.1 mg	
	100 mg	0.13 mg	
	200 mg	0.17 mg	
	500 mg	0.23 mg	
	1 g	0.27 mg	
	2 g	0.3 mg	
	5 g	0.3 mg	
	10 g	0.55 mg	
	20 g	0.55 mg	
	50 g	0.73 mg	
	100 g	1.3 mg	
	500 g	6.1 mg	
	1 kg	12 mg	
	2 kg	25 mg	
	5 kg	64 mg	
	10 kg	0.15 g	
	20 kg	0.25 g	
	25 kg	0.25 g	
Mass - Class M2 Fixed Points ^F	1 mg	0.04 mg	
	2 mg	0.04 mg	
	5 mg	0.04 mg	
	10 mg	0.04 mg	
	20 mg	0.07 mg	
	50 mg	0.1 mg	
	100 mg	0.13 mg	
	200 mg	0.17 mg	
	500 mg	0.23 mg	
	1 g	0.27 mg	
	2 g	0.3 mg	



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Mass - Class M2 Fixed Points ^F	5 g	0.3 mg	Class F1 Weights OIML R 111
	10 g	0.55 mg	
	20 g	0.55 mg	
	50 g	0.73 mg	
	100 g	1.3 mg	
	500 g	6.1 mg	
	1 kg	12 mg	
	2 kg	25 mg	
	5 kg	64 mg	
	10 kg	0.15 g	
	20 kg	0.25 g	
	25 kg	0.25 g	
Mass Class M2 and M3 Fixed Points ^F	500 kg	47 g	Class M1 Weights OIML R 111
	1 000 kg	65 g	

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
Force Measurement Instrument Tensile and Compression ^O	1 kN to 10 kN	0.3 % of reading	Load Cells PT ISO 7500/1
	10 kN to 50 kN	0.35 % of reading	
	50 kN to 98.06 kN	0.35 % of reading	
	98.06 kN to 196 kN	0.4 % of reading	
	196 kN to 294 kN	0.4 % of reading	
Dynamometer ^F	1 N to 10 N	0.25 % of reading	Class F1 Weights ISO 7500/1
	10 N to 100 N	0.27 % of reading	Class M1 Weights ISO 7500/1
	100 N to 1 000 N	0.3 % of reading	Load Cells ISO 7500/1
Torque Meter ^F	0.1 N·m to 11.3 N·m	0.7 % of reading	Torque Analyzer Sturtevant Richmond System 4 ISO 6789
	11.3 N·m to 33.9 N·m	0.7 % of reading	
	33.9 N·m to 108 N·m	1 % of reading	
	108 N·m to 203 N·m	1 % of reading	



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Torque Meter ^F	203 N·m to 338.9 N·m	1 % of reading	Torque Analyzer Sturtevant Richmond System 4 ISO 6789
	338.9 N·m to 813 N·m	1 % of reading	
	813 N·m to 1 355 N·m	1 % of reading	
Indirect Verification of Rockwell Hardness Testers HRC ^O	20 HRC to 39 HRC	0.45 HRC	ASTM E-18 Rockwell Hardness Test Block
	40 HRC to 59 HRC	0.42 HRC	
	60 HRC to 70 HRC	0.4 HRC	
Indirect Verification of Rockwell Hardness Testers HRB ^O	40 HRB to 59 HRB	0.95 HRB	
	60 HRB to 80 HRB	0.7 HRB	
	81 HRB to 100 HRB	0.45 HRB	
Indirect Verification of Rockwell Hardness Testers HR15N ^O	70 HR15N to 77 HR15N	0.33 HR15N	
	78 HR15N to 88 HR15N	0.33 HR15N	
	89 HR15N to 91 HR15N	0.3 HR15N	
Indirect Verification of Rockwell Hardness Testers HR30N ^O	42 HR30N to 54 HR30N	0.51 HR30N	
	55 HR30N to 73 HR30N	0.3 HR30N	
	74 HR30N to 80 HR30N	0.3 HR30N	
Indirect Verification of Rockwell Hardness Testers HR15T ^O	75 HR15T to 80 HR15T	0.79 HR15T	ASTM E-18 Rockwell Hardness Test Block
	81 HR15T to 87 HR15T	0.79 HR15T	
	88 HR15T to 93 HR15T	0.79 HR15T	
Indirect Verification of Rockwell Hardness Testers HR30T ^O	43 HR30T to 56 HR30T	0.61 HR30T	
	57 HR30T to 69 HR30T	0.32 HR30T	
	70 HR30T to 82 HR30T	0.32 HR30T	
Indirect Verification of Brinell Hardness Tester HBW 10/3 000 ^O	92.5 HBW to 650 HBW	3.8 HBW	ASTM E-10 Brinell Hardness Test Block
Indirect Verification of Brinell Hardness Tester HBW 10/500 ^O	92.5 HBW to 125 HBW	1.5 HBW	
Indirect Verification of Micro Hardness Tester Vickers ^O	100 HV to 900 HV	15 HV	ASTM E384 Micro Hardness Test Block
Indirect Verification of Micro Hardness Tester Knoop ^O	100 HK to 900 HK	17 HK	



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Vacuum ^F	-76 cm/Hg to -0.1 cm/Hg	0.07 cm/Hg	Vacuum Calibrator Fluke 718 1G Vacuum Module Fluke 700PV4 Euramet-cg-17
Pressure ^F	1 psi to 100 psi	1 % of reading	Pressure Calibrator Meriam MH-10KT and MGF16BN-10 000 psig Pressure Transducer ASME B-40-1
	100 psi to 1 000 psi	1 % of reading	
	1 000 psi to 2 000 psi	1 % of reading	
	2 000 psi to 5 000 psi	1 % of reading	
	5 000 psi to 10 000 psi	1 % of reading	
Rotational Viscometers ^F	0.01 Pa·s to 100 Pa·s	2.2 % of reading	Visco Standards ASTM D 445
Direct Verification of Durometer Hardness Tester Types A, B, C, D, E, O & DO Extension at zero reading Indenter Shape (Not all parameters apply to all of Durometer Types) Indenter Diameter Indenter Tip Diameter Indenter Tip Radius Indenter Tip Angle Durometer Indenter Spring Types A, B, E & O Types C, D & DO ^F	2.46 mm to 2.54 mm	7.4 μ m 7.4 μ m 7.4 μ m 7.4 μ m 0.06° 1.4 N 1.4 N	ASTM D-2240 Electronic Head Micrometer Video Comparator 20x Video Comparator 20x Video Comparator 20x Video Comparator 20x Electronic Balance Electronic Balance

Chemical

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pH Meters - Probe Calibration Fixed Points ^F	4 pH	0.02 pH	pH Buffer Solution Technical Guide CENAM
	7 pH	0.02 pH	
	10 pH	0.02 pH	



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Conductivity Meter - Probe Calibration Fixed Point ^F	10 μ S/cm to 100 μ S/cm	1.2 % of reading	Conductivity Calibration Solutions Technical Guide CENAM
	100 μ S/cm to 10 000 μ S/cm	1.3 % of reading	
	10 000 μ S/cm to 100 000 μ S/cm	1.3 % of reading	
Kinematic Viscosity Zahn ^F Cups No. 2 @ 20 °C	166.5 mm ² /s	1 % of reading	Cannon Standard Oil ASTM D4212
Kinematic Viscosity Ford ^F Cups No. 3, 4 @ 20 °C	166.5 mm ² /s	1 % of reading	Cannon Standard Oil ASTM D4212

Thermodynamic

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
Bimetallic Thermometers ^F	-15 °C to 100 °C	0.3 °C	Thermocouple Output Escort 22 Euramet-cg-8
	100 °C to 350 °C	0.5 °C	
Infrared Non-Contact Thermometers ^F	-15 °C to 450 °C	2.1 °C	Infrared Calibrator Technical Guide CENAM
	450 °C to 900 °C	2.3 °C	
Relative Humidity ^F @ 20 °C	35 % RH	1.6 % RH	Thermohygrometer Extech Saturated Salt Solution Cabinet Technical Guide CENAM
	75 % RH	1.6 % RH	
	97 % RH	1.7 % RH	

Volume

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
Pipettes ^F Fixed Volume Precision	1 mL	2.9 μ L	Balance BEM-220 Technical Guide CENAM
	5 mL	2.9 μ L	
	10 mL	3.3 μ L	
	25 mL	4.9 μ L	
Burette ^F	10 mL	11 μ L	
	25 mL	29 μ L	
	50 mL	47 μ L	
Graduated Cylinder ^F	25 mL to 2 000 mL	0.9 mL	Balance Radwag PS1000R1 Technical Guide CENAM
Volumetric Flask ^F	50 mL to 2 000 mL	0.01 mL	
Containers ^F	10 L to 200 L	0.29 mL	Balance Mettler Toledo XA32001L Technical Guide CENAM



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Time & Frequency

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Tachometer ^{FO}	1 rpm to 10 000 rpm	2 % of reading	Tachometer Generator RPM Central Machinery with Control Hanyoung Technical Guide CENAM
Stopwatch ^{FO}	60 s to 86 400 s	0.5 s/day	Direct Comparison Stopwatch, UTC NIST SP-960-12

Electrical

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Temperature Calibration, Indication and Control Equipment used with Thermocouple Type B ^F	315.6 °C to 550 °C	2.2 °C	Escort 22 Electrical Simulation of Thermocouple Output Euramet cg-11
	550 °C to 900 °C	1.6 °C	
	900 °C to 1 150 °C	1.2 °C	
	1 150 °C to 1 820 °C	1.1 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type E ^F	-240 °C to -200 °C	0.8 °C	
	-200 °C to -100 °C	0.4 °C	
	-100 °C to 850 °C	0.3 °C	
	850 °C to 1 000 °C	0.4 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type J ^F	-210 °C to -180 °C	0.6 °C	
	-180 °C to -50 °C	0.4 °C	
	50 °C to 500 °C	0.2 °C	
	500 °C to 1 200 °C	0.4 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type K ^F	-230 °C to -100 °C	0.8 °C	
	-100 °C to 1 050 °C	0.4 °C	
	1 050 °C to 1 371.1 °C	0.6 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type L ^F	-200 °C to -50 °C	0.4 °C	
	-50 °C to 500 °C	0.2 °C	
	500 °C to 750 °C	0.3 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type N ^F	-230 °C to -180 °C	1.5 °C	
	-180 °C to -50 °C	1 °C	
	-50 °C to 1 100 °C	0.4 °C	
	1 100 °C to 1 300 °C	0.6 °C	



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Temperature Calibration, Indication and Control Equipment used with Thermocouple Type R ^F	-18.3 °C to 250 °C	1.6 °C	Escort 22 Electrical Simulation of Thermocouple Output Euramet cg-11
	250 °C to 750 °C	1.2 °C	
	750 °C to 1 600 °C	1 °C	
	1 600 °C to 1 767.8 °C	1.2 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type S ^F	-18.3 °C to 100 °C	1.8 °C	
	100 °C to 400 °C	1.4 °C	
	400 °C to 1 700 °C	1.2 °C	
	1 700 °C to 1 767.8 °C	1.4 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type T ^F	-260 °C to -200 °C	1.5 °C	Fluke 743B Electrical Simulation of RTD Output Euramet cg-11
	-200 °C to -50 °C	0.8 °C	
	-50 °C to 0 °C	0.4 °C	
	0 °C to 400 °C	0.2 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type U ^F	-200 °C to -75 °C	0.6 °C	
	-75 °C to 100 °C	0.4 °C	
	100 °C to 6 200 °C	0.2 °C	
Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 3 926, 100 Ω^F	-200 °C to 0 °C	0.2 °C	
	0 °C to 630 °C	0.3 °C	
Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 385, 100 Ω^F	-200 °C to 0 °C	0.2 °C	
	0 °C to 400 °C	0.3 °C	
	400 °C to 800 °C	0.6 °C	
Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 3 916, 100 Ω^F	-200 °C to -190 °C	0.4 °C	
	-190 °C to 0 °C	0.2 °C	
	0 °C to 360 °C	0.3 °C	
Temperature Calibration, Indication and Control Equipment used with RTD Type Ni 672, 120 Ω^F	-200 °C to 0 °C	0.2 °C	
	0 °C to 100 °C	0.2 °C	
	100 °C to 260 °C	0.3 °C	
Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 385, 200 Ω^F	-200 °C to 0 °C	0.2 °C	
	0 °C to 400 °C	0.3 °C	
	400 °C to 630 °C	0.4 °C	



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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
Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 385, 500 Ω^F	-200 °C to 0 °C	0.2 °C	Fluke 743B Electrical Simulation of RTD Output Euramet cg-11
	0 °C to 400 °C	0.3 °C	
	400 °C to 630 °C	0.4 °C	
Temperature Calibration, Indication and Control Equipment used with RTD Type Pt 385, 1 000 Ω^F	-200 °C to 0 °C	0.2 °C	
	0 °C to 400 °C	0.3 °C	
	400 °C to 630 °C	0.4 °C	
Temperature Calibration, Indication and Control Equipment used with RTD Type Cu 427, 10 Ω^F	-100 °C to 0 °C	1.1 °C	Agilent 34001A Multimeter Procedure CNMII-ELE-001
	0 °C to 260 °C	1.4 °C	
Equipment to Measure DC Voltage ^F	1 mV to 99 mV	0.005 % of reading + 0.003 5 mV	
	100 mV to 0.99 V	0.004 % of reading + 0.000 7 mV	
	1 V to 9.99 V	0.003 5 % of reading + 0.000 5 mV	
	10 V to 99.9 V	0.004 5 % of reading + 0.000 6 mV	
	100 V to 1 000 V	0.004 5 % of reading + 0.001 V	
Equipment to Measure AC Voltage At the listed frequencies ^F			Agilent 34001A Multimeter Procedure CNMII-ELE-001
3 Hz to 5 Hz	10 mV to 100 mV	1 % of reading + 0.04 mV	
5 Hz to 10 Hz	10 mV to 100 mV	0.35 % of reading + 0.04 mV	
10 Hz to 20 kHz	10 mV to 100 mV	0.06 % of reading + 0.04 mV	
20 kHz to 50 kHz	10 mV to 100 mV	0.12 % of reading + 0.04 mV	
50 kHz to 100 kHz	10 mV to 100 mV	0.6 % of reading + 0.08 mV	
100 kHz to 300 kHz	10 mV to 100 mV	4 % of reading + 0.5 mV	
3 Hz to 5 Hz	100 mV to 1 V	1 % of reading + 0.03 V	
5 Hz to 10 Hz	100 mV to 1 V	0.35 % of reading + 0.03 V	
10 Hz to 20 kHz	100 mV to 1 V	0.06 % of reading + 0.03 V	
20 kHz to 50 kHz	100 mV to 1 V	0.12 % of reading + 0.04 V	
50 kHz to 100 kHz	100 mV to 1 V	0.6 % of reading + 0.08 V	
100 kHz to 300 kHz	100 mV to 1 V	4 % of reading + 0.5 V	
Equipment to Measure AC Current At the listed frequencies ^F			
3 Hz to 5 Hz	1 V to 750 V	1 % of reading + 0.03 V	



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Centro Integral de Metrología, S.A. de C.V.

Av. Circunvalación # 3829, Col Nuevo San Rafael

Guadalupe, Nuevo León, México. C.P. 67110

Contact Name Guillermo Prieto Flores Phone: 818-479-1354

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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 ^F			Agilent 34001A Multimeter Procedure CNMII-ELE-001
5 Hz to 10 Hz	1 V to 750 V	0.35 % of reading + 0.03 V	
10 Hz to 20 kHz	1 V to 750 V	0.06 % of reading + 0.03 V	
20 kHz to 50 kHz	1 V to 750 V	0.12 % of reading + 0.04 V	
50 kHz to 100 kHz	1 V to 750 V	0.6 % of reading + 0.08 V	
100 kHz to 300 kHz	1 V to 750 V	4 % of reading + 0.5 V	
Equipment to Measure AC Current At the listed frequencies ^F			
3 Hz to 5 Hz	1 mA to 0.999 99 A	1 % of reading + 0.04 A	
5 Hz to 10 Hz	1 mA to 0.999 99 A	0.3 % of reading + 0.04 A	
10Hz to 5 kHz	1 mA to 0.999 99 A	0.1 % of reading + 0.04 A	
Equipment to Measure AC Current At the listed frequencies ^F			
3 Hz to 5 Hz	1 A to 3 A	1 % of reading + 0.04 A	
5 Hz to 10 Hz	1 A to 3 A	0.3 % of reading + 0.04 A	
10Hz to 5 kHz	1 A to 3 A	0.1 % of reading + 0.04 A	
Equipment to Measure Resistance ^F	Up to 100 Ω	0.01 % of reading + 0.004 Ω	
	100 Ω to 1 000 Ω	0.01 % of reading + 0.001 Ω	
	1 k Ω to 10 k Ω	0.01 % of reading + 0.001 k Ω	
	10 k Ω to 100 k Ω	0.01 % of reading + 0.001 k Ω	
	100 k Ω to 1 M Ω	0.01 % of reading + 0.001 M Ω	
	1 M Ω to 10 M Ω	0.04 % of reading + 0.001 M Ω	
	10 M Ω to 100 M Ω	0.8 % of reading + 0.01 M Ω	
Equipment to Measure Frequency At the listed voltage (100 mV to 750 V) ^F	3 Hz to 5 Hz	0.1 % of reading	
	5 Hz to 10 Hz	0.05 % of reading	
	10 Hz to 40 Hz	0.03 % of reading	
	40 Hz to 300 Hz	0.01 % of reading	
Equipment to Output DC Voltage ^F	1 mV to 1 V	0.05 % of reading	AC/DC V-A Source Model 828 Procedure CNMII-ELE-001
	1 V to 10 V	0.05 % of reading	
	10 V to 100 V	0.05 % of reading	
	100 V to 1 000 V	0.05 % of reading	



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Equipment to Output DC Current ^F	1 mA to 1A	0.1 % of reading	AC/DC V-A Source Model 828 Procedure CNMII-ELE-001
	1 A to 10A	0.1 % of reading	
Equipment to Output AC Voltage At the listed frequencies ^F			
50 Hz	1 mV to 32.999 mV	0.05 % of reading	
60 Hz	1 mV to 32.999 mV	1 % of reading	
400 Hz	1 mV to 32.999 mV	1 % of reading	
Equipment to Output AC Voltage At the listed frequencies ^F			
50 Hz	33 mV to 329.999 mV	0.05 % of reading	
60 Hz	33 mV to 329.999 mV	1 % of reading	
400 Hz	33 mV to 329.999 mV	1 % of reading	
Equipment to Output AC Voltage At the listed frequencies ^F			
50 Hz	0.33 mV to 3.299 99 mV	0.05 % of reading	
60 Hz	0.33 mV to 3.299 99 mV	1 % of reading	
400 Hz	0.33 mV to 3.299 99 mV	1 % of reading	
Equipment to Output AC Voltage At the listed frequencies ^F			
50 Hz	33 V to 329.999 V	0.5 % of reading	
60 Hz	33 V to 329.999 V	1 % of reading	
400 Hz	33 V to 329.999 V	1 % of reading	
Equipment to Output AC Voltage At the listed frequencies ^F			
50 Hz	3.3 V to 32.999 9 V	0.5 % of reading	
60 Hz	3.3 V to 32.999 9 V	1 % of reading	
400 Hz	3.3 V to 32.999 9 V	1 % of reading	
Equipment to Output AC Voltage At the listed frequencies ^F			
50 Hz	330 V to 1 000 V	0.5 % of reading	



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Equipment to Output AC Voltage At the listed frequencies ^F			AC/DC V-A Source Model 828 Procedure CNMII-ELE-001
60 Hz	330 V to 1 000 V	0.1 % of reading	
400 Hz	330 V to 1 000 V	0.1 % of reading	
Equipment to Output AC Current At the listed frequencies ^F			
50 Hz	0.029 mA to 0.329 99 mA	0.5 % of reading	
60 Hz	0.029 mA to 0.329 99 mA	0.1 % of reading	
400 Hz	0.029 mA to 0.329 99 mA	0.1 % of reading	
Equipment to Output AC Current At the listed frequencies ^F			
50 Hz	0.33 mA to 3.299 9 mA	0.05 % of reading	
60 Hz	0.33 mA to 3.299 9 mA	1 % of reading	
400 Hz	0.33 mA to 3.299 9 mA	1 % of reading	
Equipment to Output AC Current At the listed frequencies ^F			
50 Hz	3.3 mA to 32.999 mA	0.05 % of reading	
60 Hz	3.3 mA to 32.999 mA	1 % of reading	
400 Hz	3.3 mA to 32.999 mA	1 % of reading	
Equipment to Output AC Current At the listed frequencies ^F			
50 Hz	33 mA to 329.99 mA	0.05 % of reading	
60 Hz	33 mA to 329.99 mA	1 % of reading	
400 Hz	33 mA to 329.99 mA	1 % of reading	
Equipment to Output AC Current At the listed frequencies ^F			
50 Hz	0.33 A to 2.199 99 A	0.5 % of reading	
60 Hz	0.33 A to 2.199 99 A	0.1 % of reading	
400 Hz	0.33 A to 2.199 99 A	0.1 % of reading	



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Equipment to Output AC Current At the listed frequencies ^F			AC/DC V-A Source Model 828 Procedure CNMII-ELE-001
50 Hz	2.2 A to 11 A	0.5 % of reading	
60 Hz	2.2 A to 11 A	0.1 % of reading	
400 Hz	2.2 A to 11 A	0.1 % of reading	

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.
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. 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 L represents length in inches or millimeters as appropriate to the uncertainty statement.
7. The term Wt represents weight in pounds or grams (including SI multiple and submultiple units) appropriate to the uncertainty statement