



PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

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

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

and hereby declares that the Organization is accredited in accordance with the recognized International Standard:

ISO/IEC 17025:2017

Whereby, technical competence has been confirmed for the associated scope supplement, in the fields of:

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

Accreditation claims for conformity assessment activities shall only be made from the addresses referenced within this certificate and shall apply solely to those activities identified in the related scope. This Accreditation is granted subject to the Accreditation Body rules governing the Accreditation referred to above, and the Organization hereby commits to observing and complying with those rules in their entirety.

For PJLA:

Initial Accreditation Date:

Issue Date:

Expiration Date:

December 13, 2010

January 22, 2025

March 31, 2027

Accreditation No.:

Certificate No.:

66573

L25-73

Tracy Szerszen President

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.pjlabs.com





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

FIELD OF CALIBRATION	MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED	LOCATION OF ACTIVITY
Dimensional	Calipers	1 mm to 1 500 mm	$(5.5 + 0.076L) \mu m$	Gage Blocks Grade 1	NMX-CH-002-IMNC	F
	Depth Gauges	1 mm to 300 mm	$(5.5 + 0.076L) \mu m$		JIS B 7507 NMX-CH-099-IMNC JIS B 7502	F
	Outside Micrometers	1 mm to 600 mm	$(2 + 0.017L) \mu m$			F
	Inside Micrometers	40 mm to 600 mm	$(2.2 + 0.017L) \mu m$		ASME B89.1.9	F
	Depth Micrometers	1 mm to 300 mm	$(2.1 + 0.017L) \mu m$		JIS B 7502	F
	Height Master	10 mm to 600 mm	2.9 μm			F
	End Measuring Rods (Standards)	25 mm to 300 mm	(0.9 + 0.018L) μm			F
	Micrometer Heads	2.5 mm to 50 mm	3 μm	Gage Blocks Grade 1	NMX-CH-099-IMNC	F
	Ultrasonic Thickness Gauge	10 mm to 200 mm	25 μm	Thickness Gage Films	Fabricant Manual	F
	Height Gauges	0.5 mm to 1 000 mm	12 μm	Gage Blocks Grade 1	JIS B 7517	F
	Indicators	1 mm to 50 mm	$(4.8 + 0.005L) \mu m$	Electronic Head	JIS B 7503	F
	Test Indicator	0.1 mm to 1.5 mm	2 μm	Micrometer		F
	Microscopes	200 mm to 100 mm	4.5 μm	Glass Scale, Reticule	JIS B 7153	F
	Tape Measures Error of Indication	1 m to 20 m	(0.21 + 0.035L) mm	Length Standard	NMX-CH-0148-IMNC	F
	Granite Surface Plates Repeat Measurement	0.05 mm	1.3 μm	Repeat-O-Meter Rahn with Micro Indicator	ASME B89.3.7	0
	Optical Comparators (X axis Linearity)	1 mm to 200 mm	7.6 µm	Glass Scale, Gage Blocks	JIS B 7184	0
	Optical Comparators (Y axis Linearity)	1 mm to 200 mm	7.6 µm			





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Dimensional	Optical Comparators	At 100 mm Y Axis	0.01°	Glass Scale	JIS B 7184	0
	(Axial Orientation)	Travel				
	Optical Comparators	10X	0.05 %	Glass Scale		О
	(Magnification)	20X	0.03 %	Magnification]	0
		50X	0.03 %	Sphere Standards / Glass Scale		0
		100X	0.03 %	Glass Scale		0
	Optical Comparators (Angularity)	0° to 90°	0.05°			0
	Bore Gauges	10 mm to 150 mm	7 μm	Reticule		F
	Pin Gauges	0.5 mm to 25.4 mm	0.6 μm	Super Micrometer	ASME B89.1.6	F
	Plain Plug Gauges	0.5 mm to 100 mm	1.5 μm			F
	Snap Gauge Go / No Go	12 mm to 100 mm	1.7 μm			F
	Setting Rings	12 mm to 200 mm	1.6 μm	Micro Indicator with (Res.= 0.026 μm)		F
	Thread Gauges (Pitch Diameter)	0-80 to 4-12	120 µin	Super Micrometer Thread Wires Set	ASME B1.2 ASME B1.16M	F
	Surface Roughness (Ra Fixed Point)	2.97 μm	0.13 μm	Ra Roughness Master	ISO 5436-1	F
	Surface Roughness (Ry Fixed Point)	9.4 μm	0.15 μm			F
Mass, Force and Weighting Devices	Analytical Balances	1 g to 200 g (Res.= 0.000 1g)	$(1.1 \times 10^{-3} + 1.8 \times 10^{-6} \text{Wt}) \text{ g}$	Class F1 Weights	NOM-010-SCFI	0
	Lab Balances	201 g to 10 000 g (Res.= 0.001 g)	$(5 \times 10^{-3} + 5.73 \times 10^{-6} \text{Wt}) \text{ g}$			0





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Mass, Force and	Bench Scales	10 001 g to 50 kg	$(3 \times 10^{-3} + 4 \times 10^{-5} \text{Wt}) \text{ g}$	Class M1 Weights	NOM-010-SCFI	0
Weighting Devices	Di G G I	(Res.= 0.002 g)	(4 0 5777)	GI NO WY		
	Platform Scales	51 kg to 500 kg	$(1 + 3 \times 10^{-5} \text{Wt}) \text{ kg}$	Class M2 Weights		О
		(Res.= 0.02 kg)	5			
	Floor Scales	501 kg to 3 000 kg	$(1 + 4.5 \times 10^{-5} \text{Wt}) \text{ kg}$			0
		(Res.= 0.1 kg)				
		3 001 kg to 4 000 kg	210 g			0
		(Res.= 0.2 kg)				
		4 001 kg to 5 000 kg	220 g			О
		(Res.= 0.2 kg)				
		5 001 kg to 10 000 kg	1.5 kg			О
		(Res.= 1 kg)				
		10 001 kg to 20 000 kg	1.9 kg	X		О
		(Res.= 2 kg)				
		20 001 kg to 100 000 kg	8 kg			0
		(Res.= 2 kg)				
	Mass - Class M1	1 mg	0.04 mg	Class F1 Weights	OIML R 111	F
	(Fixed Points)	2 mg	0.04 mg			F
		5 mg	0.04 mg			F
		10 mg	0.04 mg			F
		20 mg	0.07 mg			F
		50 mg	0.1 mg			F
		100 mg	0.13 mg			F





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





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Mass, Force and	Mass - Class M2	100 mg	0.13 mg	Class F1 Weights	OIML R 111	F
Weighting Devices	(Fixed Points)	200 mg	0.17 mg			F
		500 mg	0.23 mg			F
		1 g	0.27 mg			F
		2 g	0.3 mg			F
		5 g	0.3 mg			F
		10 g	0.55 mg			F
		20 g	0.55 mg			F
		50 g	0.73 mg			F
		100 g	1.3 mg			F
		500 g	6.1 mg			F
		1 kg	12 mg			F
		2 kg	25 mg			F
		5 kg	64 mg			F
		10 kg	0.15 g			F
		20 kg	0.25 g			F
		25 kg	0.25 g			F
	Mass Class M2 and M3 (Fixed Points)	500 kg	47 g	Class M1 Weights	OIML R 111	F
		1 000 kg	65 g			F





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Mechanical	Force Measurement	1 kN to 10 kN	0.3 % of reading	Load Cells PT	ISO 7500/1	0
	Instruments (Tensile and	10 kN to 50 kN	0.35 % of reading			0
	Compression)	50 kN to 98.06 kN	0.35 % of reading			0
		98.06 kN to 196 kN	0.4 % of reading			0
		196 kN to 294 kN	0.4 % of reading			0
	Dynamometer	1 N to 10 N	0.25 % of reading	Class F1 Weights		F
		10 N to 100 N	0.27 % of reading	Class M1 Weights		F
		100 N to 1 000 N	0.3 % of reading	Load Cells		F
	Torque Meter	0.1 N·m to 11.3 N·m	0.7 % of reading	Torque Analyzer Sturtevant Richmont System 4	CEM 113-19-006-0	F
		11.3 N·m to 33.9 N·m	0.7 % of reading			F
		33.9 N⋅m to 108 N⋅m	1 % of reading			F
		108 N⋅m to 203 N⋅m	1 % of reading			F
		203 N·m to 338.9 N·m	1 % of reading		ISO 6789	F
		338.9 N·m to 813 N·m	1 % of reading			F
		813 N·m to 1 355 N·m	1 % of reading			F
	Indirect Verification of	20 HRC to 39 HRC	0.45 HRC	Rockwell Hardness	ASTM E-18	0
	Rockwell Hardness Testers HRC	40 HRC to 59 HRC	0.42 HRC	Test Block		0
	Testers TIRC	60 HRC to 70 HRC	0.4 HRC			0
	Indirect Verification of	40 HRB to 59 HRB	0.95 HRB			0
	Rockwell Hardness Testers HRB	60 HRB to 80 HRB	0.7 HRB			0
	TCSICIS TIND	81 HRB to 100 HRB	0.45 HRB			0





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Mechanical	Indirect Verification of	70 HR15N to 77 HR15N	0.33 HR15N	Rockwell Hardness	ASTM E-18	0
	Rockwell Hardness	78 HR15N to 88 HR15N	0.33 HR15N	Test Block		0
	Testers HR15N	89 HR15N to 91 HR15N	0.3 HR15N			0
	Indirect Verification of	42 HR30N to 54 HR30N	0.51 HR30N			0
	Rockwell Hardness	55 HR30N to 73 HR30N	0.3 HR30N			0
	Testers HR30N	74 HR30N to 80 HR30N	0.3 HR30N			0
	Indirect Verification of Rockwell Hardness Testers HR15T	75 HR15T to 80 HR15T	0.79 HR15T			0
		81 HR15T to 87 HR15T	0.79 HR15T		1	0
		88 HR15T to 93 HR15T	0.79 HR15T			0
	Indirect Verification of	43 HR30T to 56 HR30T	0.61 HR30T			0
	Rockwell Hardness	57 HR30T to 69 HR30T	0.32 HR30T			0
	Testers HR30T	70 HR30T to 82 HR30T	0.32 HR30T			0
	Indirect Verification of Brinell Hardness Tester HBW 10/3 000	92.5 HBW to 650 HBW	3.8 HBW	Brinell Hardness Test Block	ASTM E-10	0
	Indirect Verification of Brinell Hardness Tester HBW 10/500	92.5 HBW to 125 HBW	1.5 HBW			0
	Indirect Verification of Micro Hardness Tester Vickers	100 HV to 900 HV	15 HV	Micro Hardness Test Block	ASTM E384	0
	Indirect Verification of Micro Hardness Tester Knoop	100 HK to 900 HK	17 HK			0





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Mechanical	Vaccum Gage	-76 cm/Hg to -0.1 cm/Hg	0.07 cm/Hg	Vacuum Calibrator Fluke 718 1G Vacuum Module Fluke 700PV4	Euramet-cg-17	F
	Pressure Gage	1 psi to 100 psi	1 % of reading	Pressure Calibrator Meriam MH-10KT and MGF16BN-10 000 psig Pressure Transducer	ASME B-40-1	F
		100 psi to 1 000 psi	1 % of reading			F
		1 000 psi to 2 000 psi	1 % of reading			F
		2 000 psi to 5 000 psi	1 % of reading			F
		5 000 psi to 10 000 psi	1 % of reading			F
	Rotational Viscometers	0.01 Pa·s to 100 Pa·s	2.2 % of reading	Visco Standards	ASTM D 445	F
	Pipettes	1 mL	2.9 μL	Balance BEM-220	CENAM Technical Guide	F
	(Fixed Volume Precision)	5 mL	2.9 μL			F
		10 mL	3.3 μL			F
		25 mL	4.9 μL			F
	Burette	10 mL	11 μL			F
		25 mL	29 μL			F
		50 mL	47 μL			F
	Graduated Cylinder	25 mL to 2 000 mL	0.9 mL	Balance Radwag		F
-	Volumetric Flask	50 mL to 2 000 mL	0.01 mL	PS1000R1		F
	Storage Tanks (Jugs, Cylinders, Buckets)	10 L to 200 L	0.29 mL	Balance Mettler Toledo XA32001L		F





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Mechanical	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	7.4 μm	Electronic Head Micrometer	ASTM D-2240	F
	Direct Verification of Durometer Hardness Tester (Types A, B, C, D, E, O & DO) (Indentor Diameter)		7.4 µm	Video Comparator 20x		
	Direct Verification of Durometer Hardness Tester (Types A, B, C, D, E, O & DO) (Indentor Tip Diameter)		7.4 µm	Video Comparator 20x		
	Direct Verification of Durometer Hardness Tester (Types A, B, C, D, E, O & DO) (Indentor Tip Radius)		7.4 µm	Video Comparator 20x		
	Direct Verification of Durometer Hardness Tester (Types A, B, C, D, E, O & DO) (Indentor Tip Angle)		0.06°	Video Comparator 20x		
	Direct Verification of Durometer Hardness Tester (Durometer Indentor Spring Types A, B, E & O)	0.55 N to 8.05 N	1.4 N	Electronic Balance		





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Mechanical	Direct Verification of Durometer Hardness Tester (Durometer Indentor Spring Types C, D & DO)	4.445 N to 44.45 N	1.4 N	Electronic Balance	ASTM D-2240	F
Chemical	pH Meters –	4 pH	0.02 pH	pH Buffer Solution	CENAM Technical Guide	F
	Probe Calibration (Fixed Points)	7 pH	0.02 pH			F
		10 pH	0.02 pH			F
	Conductivity Meter -	10 μS/cm to 100 μS/cm	1.2 % of reading	Conductivity		F
	Probe Calibration (Fixed Point)	100 μS/cm to 10 000 μS/cm	1.3 % of reading	Calibration Solutions		F
	Conductivity Meter - Probe Calibration (Fixed Point)	10 000 μS/cm to 100 000 μS/cm	1.3 % of reading	Conductivity Calibration Solutions		F
	Kinematic Viscosity (Zahn Cups No. 2 @ 20 °C)	166.5 mm ² /s	1 % of reading	Cannon Standard Oil	ASTM D4212	F
	Kinematic Viscosity (Ford Cups No. 3, 4 @ 20 °C)	166.5 mm ² /s	1 % of reading			F
Thermodynamic	Bimetallic Thermometers	-15 °C to 100 °C	0.3 °C	Thermocouple Output	Euramet-cg-8	F
		100 °C to 350 °C	0.5 °C	Escort 22		F
	Infrared Non-Contact	-15 °C to 450 °C	2.1 °C	Infrared Calibrator	CENAM Technical	F
	Thermometers	450 °C to 900 °C	2.3 °C	Guide		F
	Relative Humidity (@ 20 °C)	35 % RH	1.6 % RH	Thermohygrometer Extech Saturated Salt Solution Cabinet		





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Time & Frequency	Tachometer	1 rpm to 10 000 rpm	2 % of reading	Tachometer Generator RPM Central Machinery with Control Hanyoung	CENAM Technical Guide	FO
	Stopwatch	60 s to 86 400 s	0.5 s/day	Direct Comparation Stopwatch, UTC	NIST SP-960-12	FO
Electrical	Temperature Calibration,	315.6 °C to 550 °C	2.2 °C	Escort 22	Euramet cg-11	F
	Indication and Control Equipment used with	550 °C to 900 °C	1.6 °C	Electrical Simulation of Thermocouple Output		F
	Thermocouple Type B	900 °C to 1 150 °C	1.2 °C			F
		1 150 °C to 1 820 °C	1.1 °C			F
	Temperature Calibration,	-240 °C to -200 °C	0.8 °C			F
	Indication and Control Equipment used with Thermocouple Type E	-200 °C to -100 °C	0.4 ℃			F
		-100 °C to 850 °C	0.3 °C			F
	Incimocoupie Type 2	850 °C to 1 000 °C	0.4 °C			F
	Temperature Calibration,	-210 °C to -180 °C	0.6 °C			F
	Indication and Control	-180 °C to -50 °C	0.4 °C			F
	Equipment used with Thermocouple Type J	50 °C to 500 °C	0.2 °C			F
		500 °C to 1 200 °C	0.4 °C			F
	Temperature Calibration,	-230 °C to -100 °C	0.8 °C			F
	Indication and Control	-100 °C to 1 050 °C	0.4 °C			F
	Equipment used with Thermocouple Type K	1 050 °C to 1 371.1 °C	0.6 °C			F





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Electrical	Temperature Calibration,	-200 °C to -50 °C	0.4 °C	Escort 22	Euramet cg-11	F
	Indication and Control	-50 °C to 500 °C	0.2 °C	Electrical Simulation of Thermocouple Output		F
	Equipment used with Thermocouple Type L	500 °C to 750 °C	0.3 °C			F
	Temperature Calibration,	-50 °C to 500 °C	0.2 °C			F
	Indication and Control	500 °C to 750 °C	0.3 °C			F
	Equipment used with Thermocouple Type N	-50 °C to 1 100 °C	0.4 °C			F
	The incompact type 1	1 100 °C to 1 300 °C	0.6 °C			F
	Temperature Calibration,	-18.3 °C to 250°C	1.6 °C			F
	Indication and Control	250 °C to 750 °C	1.2 °C			F
	Equipment used with Thermocouple Type R	750 °C to 1 600 °C	1 °C			F
		1 600 °C to 1 767.8 °C	1.2 °C			F
	Temperature Calibration,	-18.3 °C to 100 °C	1.8 °C			F
	Indication and Control	100 °C to 400 °C	1.4 °C			F
	Equipment used with Thermocouple Type S	400 °C to 1 700 °C	1.2 °C			F
	Temperature Calibration, Indication and Control Equipment used with Thermocouple Type T	1 700 °C to 1 767.8 °C	1.4 °C			F
		-260 °C to -200 °C	1.5 °C			F
		-200 °C to -50 °C	0.8 °C			F
		-50 °C to 0 °C	0.4 °C			F
	71	0 °C to 400 °C	0.2 °C			F





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FIELD OF CALIBRATION	MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED	LOCATION OF ACTIVITY
Electrical	Temperature Calibration,	-200 °C to -75 °C	0.6 ℃	Escort 22	Euramet cg-11	F
	Indication and Control	-75 °C to 100 °C	0.4 °C	Electrical Simulation of		F
	Equipment used with Thermocouple Type U	100 °C to 6 200 °C	0.2 °C	Thermocouple Output	F	
	Temperature Calibration,	-200 °C to 0 °C	0.2 °C	Fluke 743B		F
	Indication and Control Equipment used with RTD Type Pt 3 926, 100 Ω	0 °C to 630 °C	0.3 °C	Electrical Simulation of RTD Output		F
	Temperature Calibration,	-200 °C to 0 °C	0.2 °C			F
	Indication and Control	0 °C to 400 °C	0.3 °C			F
	Equipment used with RTD Type Pt 385, 100 Ω	400 °C to 800 °C	0.6 °C			F
	Temperature Calibration,	-200 °C to -190 °C	0.4 °C			F
	Indication and Control	-190 °C to 0 °C	0.2 °C	-0		F
	Equipment used with RTD Type Pt 3 916, 100Ω Temperature Calibration, Indication and Control Equipment used with RTD Type Ni 672, 120Ω Temperature Calibration, Indication and Control	0 °C to 360 °C	0.3 °C			F
		-200 °C to 0 °C	0.2 °C	-		F
		0 °C to 100 °C	0.2 °C		F	
		100 °C to 260 °C	0.3 °C			F
		-200 °C to 0 °C	0.2 °C			F
		0 °C to 400 °C	0.3 °C			F
	Equipment used with RTD Type Pt 385, 200 Ω	400 °C to 630 °C	0.4 °C			F





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Electrical	Temperature Calibration,	-200 °C to 0 °C	0.2 °C	Fluke 743B	Euramet cg-11	
	Indication and Control Equipment used with RTD	0 °C to 400 °C	0.3 °C	Electrical Simulation		
	Type Pt 385, 500 Ω^{F}	400 °C to 630 °C	0.4 °C	of RTD Output		
	Temperature Calibration,	-200 °C to 0 °C	0.2 °C			F
	Indication and Control	0 °C to 400 °C	0.3 °C			F
	Equipment used with RTD Type Pt 385, 1 000 Ω	400 °C to 630 °C	0.4 °C			F
	Temperature Calibration,	-100 °C to 0 °C	1.1 °C			F
	Indication and Control Equipment used with RTD Type Cu 427, 10 Ω	0 °C to 260 °C	1.4 °C			F
	Equipment to Measure DC Voltage	1 mV to 99 mV	0.005 % of reading + 0.003 5 mV	Agilent 34001A Multimeter	CNMII-ELE-001 Internal Procedure	F
		100 mV to 0.99 V	0.004 % of reading + 0.000 7 mV		F	
		1 V to 9.99 V	0.003 5 % of reading + 0.000 5 mV		F	
		10 V to 99.9 V	0.004 5 % of reading + 0.000 6 mV		F	
		100 V to 1 000 V	0.004 5 % of reading + 0.001 V			F
	Equipment to Measure AC Voltage (@ 3 Hz to 5 Hz)	10 mV to 100 mV	1 % of reading + 0.04 mV			F
	Equipment to Measure AC Voltage (@ 5 Hz to 10 Hz)	10 mV to 100 mV	0.35 % of reading + 0.04 mV			F
Equ	Equipment to Measure AC Voltage (@ 10 Hz to 20 kHz)	10 mV to 100 mV	0.06 % of reading + 0.04 mV			F





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Electrical	Equipment to Measure AC	10 mV to 100 mV	0.12 % of reading + 0.04 mV	Agilent 34001A	CNMII-ELE-001	F
	Voltage (@ 20 kHz to 50kHz)		_	Multimeter	Internal Procedure	
	Equipment to Measure AC Voltage (@ 50 kHz to 100 kHz)	10 mV to 100 mV	0.6 % of reading + 0.08 mV			F
	Equipment to Measure AC Voltage (@ 100 kHz to 300 kHz)	10 mV to 100 mV	4 % of reading + 0.5 mV			F
	Equipment to Measure AC Voltage (@ 3 Hz to 5 Hz)	100 mV to 1 V	1 % of reading + 0.03 V			F
	Equipment to Measure AC Voltage (@ 5 Hz to 10 Hz)	100 mV to 1 V	0.35 % of reading + 0.03 V			F
	Equipment to Measure AC Voltage (@ 10 Hz to 20 kHz)	100 mV to 1 V	0.06 % of reading + 0.03 V			F
	Equipment to Measure AC Voltage (@ 20 kHz to 50 kHz)	100 mV to 1 V	0.12 % of reading + 0.04 V			F
	Equipment to Measure AC Voltage (@ 50 kHz to 100 kHz)	100 mV to 1 V	0.6 % of reading + 0.08 V			F
	Equipment to Measure AC Voltage (@ 100 kHz to 300 kHz)	100 mV to 1 V	4 % of reading + 0.5 V			F
	Equipment to Measure AC Current (@ 3 Hz to 5 Hz)	1 V to 750 V	1 % of reading + 0.03 V			F
	Equipment to Measure AC Current (@ 5 Hz to 10 Hz)	1 V to 750 V	0.35 % of reading + 0.03 V			F
	Equipment to Measure AC Current (@ 10 Hz to 20 kHz)	1 V to 750 V	0.06 % of reading + 0.03 V			F
	Equipment to Measure AC Current (@ 20 kHz to 50 kHz)	1 V to 750 V	0.12 % of reading + 0.04 V			F





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Electrical	Equipment to Measure AC	1 V to 750 V	0.6 % of reading + 0.08 V	Agilent 34001A	CNMII-ELE-001	F
	Current (@ 50 kHz to 100 kHz)			Multimeter	Internal Procedure	
	Equipment to Measure AC	1 V to 750 V	4 % of reading + 0.5 V			F
	Current					
	(@ 100 kHz to 300 kHz)					
	Equipment to Measure AC	1 mA to 0.999 99 A	1 % of reading + 0.04 A			F
	Current (@ 3 Hz to 5 Hz)					
	Equipment to Measure AC	1 mA to 0.999 99 A	0.3 % of reading + 0.04 A			F
	Current (@ 5 Hz to 10 Hz)	1 4 0.000.00 4	0.1.0/			Г
	Equipment to Measure AC	1 mA to 0.999 99 A	0.1 % of reading + 0.04 A			F
	Current (@ 10Hz to 5 kHz) Equipment to Measure AC	1 A to 3 A	1 % of reading + 0.04 A			F
	Current (@ 3 Hz to 5 Hz)	1 A to 3 A	1 % of feating + 0.04 A			Г
	Equipment to Measure AC	1 A to 3 A	0.3 % of reading + 0.04 A			F
	Current (@ 5 Hz to 10 Hz)	1116311	0.5 % of Fedding 1 0.0 171			
	Equipment to Measure AC	1 A to 3 A	0.1 % of reading + 0.04 A			F
	Current (@ 10Hz to 5 kHz)					
	Equipment to Measure	Up to 100 Ω	0.01 % of reading + 0.004 Ω			F
	Resistance	$100~\Omega$ to $1~000~\Omega$	0.01% of reading + 0.001Ω			F
		$1 \text{ k}\Omega \text{ to } 10 \text{ k}\Omega$	0.01 % of reading + 0.001 k Ω			F
		$10~\mathrm{k}\Omega$ to $100~\mathrm{k}\Omega$	$0.01~\%$ of reading + $0.001~\text{k}\Omega$			F
		$100~\text{k}\Omega$ to $1~\text{M}\Omega$	$0.01~\%$ of reading + $0.001~\text{M}\Omega$			F
		$1~\mathrm{M}\Omega$ to $10~\mathrm{M}\Omega$	0.04 % of reading + 0.001 M Ω			F
		$10 \text{ M}\Omega$ to $100 \text{ M}\Omega$	0.8% of reading + $0.01\ M\Omega$			F





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Electrical	Equipment to Measure Voltage (@ 3 Hz to 5 Hz)	100 mV to 750 V	0.1 % of reading	Agilent 34001A Multimeter	CNMII-ELE-001 Internal Procedure	F
	Equipment to Measure Voltage (@ 5 Hz to 10 Hz)	100 mV to 750 V	0.05 % of reading			
	Equipment to Measure Voltage (@ 10 Hz to 40 Hz)	100 mV to 750 V	0.03 % of reading			F
	Equipment to Measure Voltage (@ 40 Hz to 300 Hz)	100 mV to 750 V	0.01 % of reading			F
	Equipment to Output	1 mV to 1 V	0.05 % of reading	/		F
	DC Voltage	1 V to 10 V	0.05 % of reading			F
		10 V to 100 V	0.05 % of reading			F
		100 V to 1 000 V	0.05 % of reading			F
	Equipment to Output	1 mA to 1 A	0.1 % of reading	AC/DC V-A	CNMII-ELE-001	F
	DC Current	1 A to 10 A	0.1 % of reading	Source	Internal Procedure	F
	Equipment to Output AC Voltage (@ 50 Hz)	1 mV to 32.999 mV	0.05 % of reading	Model 828		F
	Equipment to Output AC Voltage (@ 60 Hz)	1 mV to 32.999 mV	1 % of reading			F
	Equipment to Output AC Voltage (@ 400 Hz)	1 mV to 32.999 mV	1 % of reading			F
	Equipment to Output AC Voltage (@ 50 Hz)	33 mV to 329.999 mV	0.05 % of reading			F
	Equipment to Output AC Voltage (@ 60 Hz)	33 mV to 329.999 mV	1 % of reading			F





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Electrical	Equipment to Output AC Voltage (@ 400 Hz)	33 mV to 329.999 mV	1 % of reading	AC/DC V-A Source	CNMII-ELE-001 Internal Procedure	F
	Equipment to Output AC Voltage (@ 50 Hz)	0.33 mV to 3.299 99 mV	0.05 % of reading	Model 828		F
	Equipment to Output AC Voltage (@ 60 Hz)	0.33 mV to 3.299 99 mV	1 % of reading			F
	Equipment to Output AC Voltage (@ 400 Hz)	0.33 mV to 3.299 99 mV	1 % of reading)		F
	Equipment to Output AC Voltage (@ 50 Hz)	33 V to 329.999 V	0.5 % of reading	/		F
	Equipment to Output AC Voltage (@ 60 Hz)	33 V to 329.999 V	1 % of reading			F
	Equipment to Output AC Voltage (@ 400 Hz)	33 V to 329.999 V	1 % of reading			F
	Equipment to Output AC Voltage (@ 50 Hz)	3.3 V to 32.999 9 V	0.5 % of reading			F
	Equipment to Output AC Voltage (@ 60 Hz)	3.3 V to 32.999 9 V	1 % of reading			F
	Equipment to Output AC Voltage (@ 400 Hz)	3.3 V to 32.999 9 V	1 % of reading			F
	Equipment to Output AC Voltage (@ 50 Hz)	330 V to 1 000 V	0.5 % of reading			F
	Equipment to Output AC Voltage (@ 60 Hz)	330 V to 1 000 V	0.1 % of reading			F
	Equipment to Output AC Voltage (@ 400 Hz)	330 V to 1 000 V	0.1 % of reading			F





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Electrical	Equipment to Output AC Current (@ 50 Hz)	0.029 mA to 0.329 99 mA	0.5 % of reading	AC/DC V-A Source	CNMII-ELE-001 Internal Procedure	F
	Equipment to Output AC Current (@ 60 Hz)	0.029 mA to 0.329 99 mA	0.1 % of reading	Model 828		F
	Equipment to Output AC Current (@ 400 Hz)	0.029 mA to 0.329 99 mA	0.1 % of reading			F
	Equipment to Output AC Current (@ 50 Hz)	0.33 mA to 3.299 9 mA	0.05 % of reading)		F
	Equipment to Output AC Current (@ 60 Hz)	0.33 mA to 3.299 9 mA	1 % of reading			F
	Equipment to Output AC Current (@ 400 Hz)	0.33 mA to 3.299 9 mA	1 % of reading			F
	Equipment to Output AC Current (@ 50 Hz)	3.3 mA to 32.999 mA	0.05 % of reading			F
	Equipment to Output AC Current (@ 60 Hz)	3.3 mA to 32.999 mA	1 % of reading			F
	Equipment to Output AC Current (@ 400 Hz)	3.3 mA to 32.999 mA	1 % of reading			F
	Equipment to Output AC Current (@ 50 Hz)	33 mA to 329.99 mA	0.05 % of reading			F
	Equipment to Output AC Current (@ 60 Hz)	33 mA to 329.99 mA	1 % of reading			F
	Equipment to Output AC Current (@ 400 Hz)	33 mA to 329.99 mA	1 % of reading			F





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Electrical	Equipment to Output AC Current (@ 50 Hz)	0.33 A to 2.199 99 A	0.5 % of reading	AC/DC V-A Source Model 828	CNMII-ELE-001 Internal Procedure	F
	Equipment to Output AC Current (@ 60 Hz)	0.33 A to 2.199 99 A	0.1 % of reading			F
	Equipment to Output AC Current (@ 400 Hz)	0.33 A to 2.199 99 A	0.1 % of reading			F
	Equipment to Output AC Current (@ 50 Hz)	2.2 A to 11 A	0.5 % of reading			F
	Equipment to Output AC Current (@ 60 Hz)	2.2 A to 11 A	0.1 % of reading			F
	Equipment to Output AC Current (@ 400 Hz)	2.2 A to 11 A	0.1 % of reading			F

- 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. Location of activity:

Location	Location
Code	
F	Conformity assessment activity is performed at the CABs fixed facility
O	Conformity assessment activity is performed onsite at the CABs customer location





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- 4. 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.
- 5. The term L represents length in inches or millimeters as appropriate to the uncertainty statement.
- 6. The term Wt represents weight in pounds or grams (including SI multiple and submultiple units) appropriate to the uncertainty statement.

