



PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

P&P Calibration Lab

International Business Park Blvd., Panama Pacifico Bldg. 3815 Office 204, Panamá Pacifico, Republic of Panama

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, Mechanical, Time and Frequency, Thermodynamic, Mass, Force, and Weighing Devices, 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 05, 2014

May 17, 2025

September 30, 2027

Revision Date:

Accreditation No.:

Certificate No.:

October 13, 2025

75260

L25-46-1-R1

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





P&P Calibration Lab

International Business Park Blvd., Panama Pacifico Bldg. 3815 Office 204, Panamá Pacifico, Republic of Panama Contact Name: Gabriel Parra Phone: 507-342-9484

FIELD OF	MEASURED	RANGE	EXPANDED	CALIBRATION	CALIBRATION	FLEX	LOCATION
CALIBRATION	INSTRUMENT,	(AND SPECIFICATION	MEASUREMENT	EQUIPMENT AND	MEASUREMENT	CODE	OF
CALIBRATION	QUANTITY OR GAUGE	WHERE APPROPRIATE)	UNCERTAINTY (±) 1	REFERENCE	METHOD OR	CODE	ACTIVITY
	Quantities out office	, , , , , , , , , , , , , , , , , , , ,	UNCERTAINTT (±)	STANDARDS USED	PROCEDURES USED		
Dimensional	Indicator	0.001 mm to 508 mm	(0.78 + 0.06 L)	Gage Block Set – Grade 0	CP-002	F1, F3	F, O
			μm	Surface Plate			
Dimensional	Indicator	0.000 05 in to 20 in	$(31+2.5 L) \mu in$	Gage Block Set – Grade 0	CP-002	F1, F3	F, O
				Surface Plate			
Dimensional	Caliper	0.001 mm to	(12.39 + 0.06 L)	Gage Block Set – Grade 0	CP-003	F1, F3	F, O
		1 040 mm	μm	Surface Plate			
Dimensional	Caliper	0.000 5 in to 41 in	$(488 + 2.5 L) \mu in$	Gage Block Set – Grade 0	CP-003	F1, F3	F, O
				Surface Plate			
Dimensional	Micrometer	0.001 mm to	(0.64 + 0.06 L)	Gage Block Set – Grade 0	CP-006	F1, F3	F, O
		1 040 mm	μm	Optical Flat			
Dimensional	Micrometer	0.000 5 in to 41 in	(25.19 + 2.5 L)	Gage Block Set – Grade 0	CP-006	F1, F3	F, O
			μin	Optical Flat			
Dimensional	Crimping Tools (Crimping	0.279 mm to	1.6 μm	Pin Gage Sets - Class ZZ	CP-004	F1, F3	F, O
	Chamber)	15.875 mm					
Dimensional	Crimping Tools (Crimping	0.011 in to 0.625 in	62 μin	Pin Gage Sets - Class ZZ	CP-004	F1, F3	F, O
	Chamber)						
Dimensional	Angle Measuring Devices	0 ° to 10 °	0.026 °	Angle Gauge Blocks	CP-016	F1, F3	F, O
Dimensional	Angle Measuring Devices	11° to 360 °	0.062 °	Angle Gauge Blocks	CP-016	F1, F3	F, O
Dimensional	Flexible Tape	Up to 30 m	0.83 mm	Digital Tape Measure	CP-015	F1, F3	F, O
Dimensional	Rigid Rule	Up to 1 m	0.66 mm	Digital Tape Measure	CP-015	F1, F3	F, O
Dimensional	Profilometers	16 uin RA	2.1 µin	Reference specimen	CP-022	F1, F3	F, O
			•	Blocks			
Dimensional	Profilometers	119 uin RA	2.1 µin	Reference specimen	CP-022	F1, F3	F, O
			·	Blocks			
Dimensional	Feeler gauge	Up to 25 mm	2.2 μm	Digital	CP-024	F1, F3	F, O
	Dimensional Gage		,	Micrometer/Caliper			
Dimensional	Feeler gauge	25 mm to 300mm	12 μm	Digital	CP-024	F1, F3	F, O
	Dimensional Gage		'	Micrometer/Caliper			
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Mechanical	Torque Wrench	0.33 lbf•ft to 1 000 lbf•ft	0.4 % of reading	CDI Multitest 2000-1	CP-005	F1, F3	F, O
Mechanical	Torque Wrench	4 lbf•ft to 12 000 lbf•in	0.4 % of reading	CDI Multitest 2000-1	CP-005	F1, F3	F, O
Mechanical	Torque Tester/ Torque Transducers	20 in•lbf to 500 ft•lbf	0.19 % reading	Class F weights Torque Arm	CP-020 EURAMET CG-14	F1, F2, F3	F, O
Mechanical	Tensiometer (Force)	20 lbf•in to 250 lbf•ft	0.58 % of reading	Dead weight Class F CDI Multitest 2000-1	CP-007	F1, F3	F, O
Mechanical	Tensiometer (Force)	201 lb to 1 000 lb	0.64 % of reading	CDI Multitest 2000-1	CP-007	F1, F3	F, O
Mechanical	Force Gauge	0.5 lb to 200 lb	0.16 % of reading	Dead weight Class F CDI Multitest 2000-1	CP-023	F1, F3	F, O
Mechanical	Force Gauge	200.1 lb to 1 000 lb	0.47 % of reading	CDI Multitest 2000-1	CP-023H	F1, F3	F, O
Mechanical	Pressure Gage	-13.5 psig to 0.001 psig	0.14 psig	Fluke 2700G-BG700K	CP-008	F1, F3	F, O
Mechanical	Pressure Gage	0 psig to 100 psig	0.082 psig	Fluke 2700G-BG700K	CP-008	F1, F3	F, O
Mechanical	Pressure Gage	101 psig to 500 psig	0.091 psig	Fluke 2700G-BG3.5M	CP-008	F1, F3	F, O
Mechanical	Pressure Gage	501 psig to 1 000 psig	0.19 psig	Fluke 2700G-BG7M	CP-008	F1, F3	F, O
Mechanical	Pressure Gage	1 001 psig to 10 000 psig	1.6 psig	Additel ADT681/GP10K	CP-008	F1, F3	F, O
Mechanical	Pressure Gage	10 001 psig to 15 000 psig	24 psig	Additel ADT681/ GP10K	CP-008	F1, F3	F, O
Mechanical	Pressure Gage	15 001 psig to 36 500 psig	98 psig	Additel ADT681/ GP10K	CP-008	F1, F3	F, O
Mechanical	Equipment to Measure Rockwell Hardness	53.1 HRBW	0.5 HRBW	Rockwell Test Blocks	CP-025	F1, F3	F, O
Mechanical	Equipment to Measure Rockwell Hardness	77.38 HRBW	0.59 HRBW	Rockwell Test Blocks	CP-025	F1, F3	F, O





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CALIBRATION	INSTRUMENT, QUANTITY OR GAUGE	(AND SPECIFICATION WHERE APPROPRIATE)	MEASUREMENT UNCERTAINTY (±) ¹	EQUIPMENT AND REFERENCE STANDARDS USED	MEASUREMENT METHOD OR PROCEDURES USED	CODE	OF ACTIVITY
Mechanical	Equipment to Measure Rockwell Hardness	94.05 HRBW	0.62 HRBW	Rockwell Test Blocks	CP-025	F1, F3	F, O
Mechanical	Equipment to Measure Rockwell Hardness	64.61 HRC	0.35 HRC	Rockwell Test Blocks	CP-025	F1, F3	F, O
Mass, Force, and Weighing Devices	Bench and Floor Scales	Up to 1 100 g	0.000 6 g	NIST Class F Weights, OILM Class F1 Weights	CP-026	F1, F3	F, O
Mass, Force, and Weighing Devices	Bench and Floor Scales	Up to 300 lb	0.005 8 lb	NIST Class F Weights, OILM Class F1 Weights	CP-026	F1, F3	F, O
Electrical	Equipment to Measure DC Voltage	Up to 104 mV	8 x 10 ⁻⁵ V/V + 1.1 x 10 ⁻⁵ V	Transmille 1000	CP-009	F1, F3	F, O
Electrical	Equipment to Measure DC Voltage	0.104 V to 1.04 V	$ 8 \times 10^{-5} \text{ V/V} + 6.6 \\ \times 10^{-5} \text{ V} $	Transmille 1000	CP-009	F1, F3	F, O
Electrical	Equipment to Measure DC Voltage	1.04 V to 10.4 V	8 x 10 ⁻⁵ V/V + 6.6 x 10 ⁻⁴ V	Transmille 1000	CP-009	F1, F3	F, O
Electrical	Equipment to Measure DC Voltage	10.4 V to 104 V	$\begin{array}{c} 8 \times 10^{-5} \text{ V/V} + 6.6 \\ \times 10^{-3} \text{ V} \end{array}$	Transmille 1000	CP-009	F1, F3	F, O
Electrical	Equipment to Measure DC Voltage	104 V to 1 000 V	$8 \times 10^{-5} \text{ V/V} + 6.6$ $\times 10^{-2} \text{ V}$	Transmille 1000	CP-009	F1, F3	F, O
Electrical	Equipment to Measure DC Current	Up to 104 uA	3.0 x 10 ⁻⁴ A/A + 3.1 x 10 ⁻⁸ A	Transmille 1000	CP-009	F1, F3	F, O
Electrical	Equipment to Measure DC Current	0.104 mA to 1.04 mA	3.0 x 10 ⁻⁴ A/A + 5.9 x 10 ⁻⁷ A	Transmille 1000	CP-009	F1, F3	F, O
Electrical	Equipment to Measure DC Current	1.04 mA to 10.4 mA	3.0 x 10 ⁻⁴ A/A + 1.7 x 10 ⁻⁶ A	Transmille 1000	CP-009	F1, F3	F, O
Electrical	Equipment to Measure DC Current	10.4 mA to 104 mA	3.0 x 10 ⁻⁴ A/A + 1.3 x 10 ⁻⁵ A	Transmille 1000	CP-009	F1, F3	F, O
Electrical	Equipment to Measure DC Current	0.104 A to 1.04 A	3.0 x 10 ⁻⁴ A/A + 2.5 x 10 ⁻⁴ A	Transmille 1000	CP-009	F1, F3	F, O





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CALIBRATION	INSTRUMENT,	(AND SPECIFICATION	MEASUREMENT	EQUIPMENT AND	MEASUREMENT	CODE	OF
	QUANTITY OR GAUGE	WHERE APPROPRIATE)	UNCERTAINTY (±) ¹	REFERENCE STANDARDS USED	METHOD OR PROCEDURES USED		ACTIVITY
Electrical	Equipment to Measure	1.04 A to 10.4 A	5.0 x 10 ⁻⁴ A/A +	Transmille 1000	CP-009	F1, F3	F, O
	DC Current		$3.0 \times 10^{-3} \text{ A}$				
Electrical	Equipment to Measure AC	104 mV	$8.0 \times 10^{-4} \text{ V/V} +$	Transmille 1000	CP-009	F1, F3	F, O
	Voltage (@ 2 kHz)		5.6 x 10 ⁻⁵ V				
Electrical	Equipment to Measure	104 mV	$1.5 \times 10^{-3} \text{ V/V} +$	Transmille 1000	CP-009	F1, F3	F, O
	AC Voltage (@ 20 kHz)		8.5 x 10 ⁻⁵ V				
Electrical	Equipment to Measure	1.04 V	$8.0 \times 10^{-4} \text{ V/V} +$	Transmille 1000	CP-009	F1, F3	F, O
	AC Voltage (@ 2 kHz)		3.3 x 10 ⁻⁴ V				
Electrical	Equipment to Measure	1.04 V	$1.5 \times 10^{-3} \text{ V/V} +$	Transmille 1000	CP-009	F1, F3	F, O
	AC Voltage (@ 20 kHz)		7.2 x 10 ⁻⁴ V				
Electrical	Equipment to Measure	10.4 V	$8.0 \times 10^{-4} \text{ V/V} +$	Transmille 1000	CP-009	F1, F3	F, O
	AC Voltage (@ 2 kHz)		3.3 x 10 ⁻³ V				
Electrical	Equipment to Measure	10.4 V	$1.5 \times 10^{-3} \text{ V/V} +$	Transmille 1000	CP-009	F1, F3	F, O
	AC Voltage (@ 20 kHz)		7.1 x 10 ⁻³ V				
Electrical	Equipment to Measure	104 V	$8.0 \times 10^{-4} \text{ V/V} +$	Transmille 1000	CP-009	F1, F3	F, O
	AC Voltage (@ 1 kHz)		3.3 x 10 ⁻² V				
Electrical	Equipment to Measure	1 020 V	8.0 x 10 ⁻⁴ V/V +	Transmille 1000	CP-009	F1, F3	F, O
	AC Voltage (@ 1 kHz)		3.3 x 10 ⁻¹ V			 	
Electrical	Equipment to Measure	Up to 104 uA	$1.0 \times 10^{-3} \text{ A/A} +$	Transmille 1000	CP-009	F1, F3	F, O
	AC Current		4.6 x 10 ⁻⁷ A				
	(@ 10 Hz to 2kHz)	A					
Electrical	Equipment to Measure	0.104mA to 1.04 mA	$1.0 \times 10^{-3} \text{ A/A} +$	Transmille 1000	CP-009	F1, F3	F, O
	AC Current		1.2 x 10 ⁻⁶ A				
T1 1	(@ 10 Hz to 2kHz)	1.04 4 10.4 4	10 103 1/4	T 11 1000	CD 000	E1 E2	Б. О
Electrical	Equipment to Measure	1.04 mA to 10.4 mA	$1.0 \times 10^{-3} \text{ A/A} +$	Transmille 1000	CP-009	F1, F3	F, O
	AC Current		8.4 x 10 ⁻⁶ A				
F1 4 1	(@ 10 Hz to 2kHz)	10.4 4 10.4 4	1.0 x 10 ⁻³ A/A +	T '11 1000	CD 000	E1 E2	E O
Electrical	Equipment to Measure	10.4mA to 104 mA		Transmille 1000	CP-009	F1, F3	F, O
	AC Current		1.1 x 10 ⁻⁴ A				
	(@ 10 Hz to 2kHz)						





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	QUANTITI OR GAUGE	WHERE ALL ROLKIALE)	UNCERTAINTY (±) ¹	STANDARDS USED	PROCEDURES USED		ACHVIII
Electrical	Equipment to Measure	0.104 A to 1.04 A	$1.0 \times 10^{-3} \text{ A/A} +$	Transmille 1000	CP-009	F1, F3	F, O
	AC Current		$1.9 \times 10^{-3} \text{ A}$				
	(@ 10 Hz to 2kHz)		<u> </u>				
Electrical	Equipment to Measure	1.04 A to 10.4 A	$1.0 \times 10^{-3} \text{ A/A} +$	Transmille 1000	CP-009	F1, F3	F, O
	AC Current		$2.4 \times 10^{-2} \text{ A}$				
	(@ 10 Hz to 2kHz)						
Electrical	Equipment to Measure	Up to 100Ω	$1.3 \times 10^{-4} \Omega/\Omega +$	Transmille 1000	CP-009	F1, F3	F, O
	Resistance		$3.4 \times 10^{-2} \Omega$				
Electrical	Equipment to Measure	100Ω to $1.0 \text{ k}\Omega$	$1.3 \times 10^{-4} \Omega/\Omega +$	Transmille 1000	CP-009	F1, F3	F, O
	Resistance	10110 1010	$6.8 \times 10^{-2} \Omega$		CT 000		
Electrical	Equipment to Measure	$1.01 \text{ k}\Omega \text{ to } 10 \text{ k}\Omega$	$1.3 \times 10^{-4} \Omega/\Omega +$	Transmille 1000	CP-009	F1, F3	F, O
T1 1	Resistance	10.1.1.0	$6.0 \times 10^{-1} \Omega$	T 11 1000	CD 000	E1 E2	T. O
Electrical	Equipment to Measure	$10.1 \text{ k}\Omega \text{ to } 100 \text{ k}\Omega$	$1.3 \times 10^{-4} \Omega/\Omega +$	Transmille 1000	CP-009	F1, F3	F, O
E1 4 1	Resistance	101 kΩ to 1.0 MΩ	6Ω 1.3 x 10 ⁻⁴ Ω/Ω +	Transmille 1000	CD 000	E1 E2	E O
Electrical	Equipment to Measure Resistance	101 K22 to 1.0 M22	$6.1 \times 10^{1} \Omega$	Transmille 1000	CP-009	F1, F3	F, O
Electrical	Equipment to Measure	1.01M Ω to 10 MΩ	$1.3 \times 10^{-4} \Omega/\Omega +$	Transmille 1000	CP-009	F1, F3	F, O
Electrical	Resistance	1.01101 52 to 10 10152	$6.5 \times 10^{2} \Omega$	Transmine 1000	CF-009	F1, F3	r, 0
Electrical	Equipment to Measure	10M Ω to 100 MΩ	$3.3 \times 10^{-4} \Omega/\Omega +$	Transmille 1000	CP-009	F1, F3	F, O
Electrical	Resistance	10101 22 to 100 10122	$6.1 \times 10^4 \Omega$	Transmine 1000	C1-009	11,13	1,0
Electrical	Equipment to Measure	250 kΩ to 100 MΩ	$8.0 \times 10^{-5} \Omega/\Omega +$	Transmille 1000	CP-010	F1, F3	F, O
Licentear	Resistance (Insulation)	250 K22 to 100 W122	$1.2 \times 10^{-2} \mathrm{M}\Omega$	Megger CB101	C1 010	11,13	1,0
	(@ 100 V)		112 11 10 1112	ininggor editor			
Electrical	Equipment to Measure	250 kΩ to 250 MΩ	$8.0 \times 10^{-5} \Omega/\Omega +$	Transmille 1000	CP-010	F1, F3	F, O
	Resistance (Insulation)		$1.3 \times 10^{-2} M\Omega$	Megger CB101		, -	,
	(@ 250V)						
Electrical	Equipment to Measure	$500~\mathrm{k}\Omega$ to $500~\mathrm{M}\Omega$	$8.0 \times 10^{-5} \Omega/\Omega +$	Transmille 1000	CP-010	F1, F3	F, O
	Resistance (Insulation)		$1.3 \times 10^{-2} M\Omega$	Megger CB101			
	(@ 500 V)						





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Electrical	Equipment to Measure Resistance (Insulation) (@ 1 000 V)	1 MΩ to 1 000 MΩ	$8.0 \times 10^{-5} \Omega/\Omega + 2.8 \times 10^{-2} M\Omega$	Transmille 1000 Megger CB101	CP-010	F1, F3	F, O
Electrical	Equipment to Measure Resistance (Insulation) (@ 1 000 V to 5 000 V)	1 MΩ to 1 GΩ	$8.0 \times 10^{-3} \Omega/\Omega + 1.2 \times 10^{-1} M\Omega$	Transmille 1000 Megger CB101	CP-010	F1, F3	F, O
Electrical	Equipment to Measure Resistance (Insulation) (@ 1 000V to 5 000 V)	1 GΩ to 10 GΩ	2.0 x 10 ⁻² MΩ	Transmille 1000 Megger CB101	CP-010	F1, F3	F, O
Electrical	Equipment to Measure Capacitance	Up to 1 nF	0.009 8 nF	Transmille 1000 Fluke 8846A/ Decade Capacitor	CP-009	F1, F3	F, O
Electrical	Equipment to Measure Capacitance	1 nF to 10 nF	0.061 nF	Transmille 1000 Fluke 8846A/ Decade Capacitor	CP-009	F1, F3	F, O
Electrical	Equipment to Measure Capacitance	10 nF to 100 nF	0.084 nF	Transmille 1000 Fluke 8846A/ Decade Capacitor	CP-009	F1, F3	F, O
Electrical	Equipment to Measure Capacitance	0.1 uF to 1 uF	0.006 1 μF	Transmille 1000 Fluke 8846A/ Decade Capacitor	CP-009	F1, F3	F, O
Electrical	Equipment to Measure Capacitance	1 μF to 10 μF	0.061 μF	Transmille 1000 Fluke 8846A/ Decade Capacitor	CP-009	F1, F3	F, O
Electrical	Equipment to Measure Capacitance	10 μF to 100 μF	0.61 μF	Transmille 1000 Fluke 8846A/ Decade Capacitor	CP-009	F1, F3	F, O





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	_	ŕ		STANDARDS USED	PROCEDURES USED		
Electrical	Equipment to Measure	100 μF to 1000 μF	6.1 μF	Transmille 1000	CP-009	F1, F3	F, O
	Capacitance			Fluke 8846A/ Decade			
			<u> </u>	Capacitor			
Electrical	Equipment to Measure	1 mF to 10 mF	0.008 4 mF	Transmille 1000	CP-009	F1, F3	F, O
	Capacitance			Fluke 8846A/ Decade			
				Capacitor			
Electrical	Electrical Temperature	-200 °C to -100 °C	0.21 °C	Transmille 1000	CP-013	F1, F3	F, O
	Calibration Of						
	Thermocouple Type K						
Electrical	Electrical Temperature	-100 °C to 120 °C	0.2 °C	Transmille 1000	CP-013	F1, F3	F, O
	Calibration Of						
	Thermocouple Type K						
Electrical	Electrical Temperature	120 °C to 1 370 °C	0.21 °C	Transmille 1000	CP-013	F1, F3	F, O
	Calibration Of						
	Thermocouple Type K						
Electrical	Electrical Temperature	-210 °C to -100 °C	0.17 °C	Transmille 1000	CP-013	F1, F3	F, O
	Calibration Of						
	Thermocouple Type J						
Electrical	Electrical Temperature	-100 °C to 150 °C	0.17 °C	Transmille 1000	CP-013	F1, F3	F, O
	Calibration Of			9			
	Thermocouple Type J						
Electrical	Electrical Temperature	150 °C to - 760 °C	0.17 °C	Transmille 1000	CP-013	F1, F3	F, O
	Calibration Of						
	Thermocouple Type J						
Electrical	Electrical Temperature	760 °C to 1 200 °C	0.17 °C	Transmille 1000	CP-013	F1, F3	F, O
	Calibration Of						
	Thermocouple Type J						<u> </u>
Electrical	Electrical Temperature	-250 °C to -150 °C	0.19 °C	Transmille 1000	CP-013	F1, F3	F, O
	Calibration Of						
	Thermocouple Type T						





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	Q 000000000000000000000000000000000000	, , , , , , , , , , , , , , , , , , , ,		STANDARDS USED	PROCEDURES USED		
Electrical	Electrical Temperature	-150 °C to 400 °C	0.1 °C	Transmille 1000	CP-013	F1, F3	F, O
	Calibration Of						
	Thermocouple Type T		A				
Electrical	Electrical Temperature	-200 °C to 0.01 °C	0.17 °C	Transmille 1000	CP-013	F1, F3	F, O
	Calibration Of						
	Simulated PRT						
Electrical	Electrical Temperature	0.01 °C to 800 °C	0.17 °C	Transmille 1000	CP-013	F1, F3	F, O
	Calibration Of						
	Simulated PRT						
Electrical	Equipment to Measure	Up to 500 A	$2.6 \times 10^{-3} \text{ A/A} +$	Transmille EA002	CP-011	F1, F3	F, O
	DC Current		0.23 A				
	(Clamp Coil)						
Electrical	Equipment to Measure	Up to 500 A	$3.3 \times 10^{-3} \text{ A/A} +$	Transmille EA002	CP-011	F1, F3	F, O
	AC Current		0.48A				
	(Clamp Coil)						
Electrical	Equipment to Output	Up to 100 mV	3.7 x 10 ⁻⁵ V/V +	Fluke 8846A/	CP-017	F1, F3	F, O
	DC Voltage		3.6 x 10 ⁻⁶ V	Fluke 80K-40, Ductor			
		<u> </u>		Cal 5070			
Electrical	Equipment to Output	0.1 V to 1 V	$2.5 \times 10^{-5} \text{ V/V} +$	Fluke 8846A/	CP-017	F1, F3	F, O
	DC Voltage		5.9 x 10 ⁻⁵ V	Fluke 80K-40, Ductor			
		A		Cal 5070			
Electrical	Equipment to Output	1 V to 10 V	$2.4 \times 10^{-5} \text{ V/V} +$	Fluke 8846A/	CP-017	F1, F3	F, O
	DC Voltage		5.8 x 10 ⁻⁴ V	Fluke 80K-40, Ductor			
				Cal 5070			
Electrical	Equipment to Output	10 V to 100 V	$3.8 \times 10^{-5} \text{ V/V} +$	Fluke 8846A/	CP-017	F1, F3	F, O
	DC Voltage		$5.9 \times 10^{-3} \text{ V}$	Fluke 80K-40, Ductor			
				Cal 5070			
Electrical	Equipment to Output	100 V to 1 000 V	$4.1 \times 10^{-5} \text{ V/V} +$	Fluke 8846A/	CP-017	F1, F3	F, O
	DC Voltage		5.9 x 10 ⁻² V	Fluke 80K-40, Ductor			
				Cal 5070			





P&P Calibration Lab

International Business Park Blvd., Panama Pacifico Bldg. 3815 Office 204, Panamá Pacifico, Republic of Panama Contact Name: Gabriel Parra Phone: 507-342-9484

FIELD OF CALIBRATION	MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	EXPANDED MEASUREMENT UNCERTAINTY (±) 1	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED	FLEX CODE	LOCATION OF ACTIVITY
Electrical	Equipment to Output DC Voltage	1000 V to 5 kV	0.008 3 kV	Fluke 8846A/ Fluke 80K-40, Ductor Cal 5070	CP-017	F1, F3	F, O
Electrical	Equipment to Output DC Voltage	5 kV to 40 kV	0.12 kV	Fluke 8846A/ Fluke 80K-40, Ductor Cal 5070	CP-017	F1, F3	F, O
Electrical	Equipment to Output DC Current	Up to 100 uA	5.0 x 10 ⁻¹¹ A/A + 2.5 x 10 ⁻⁹ A	Fluke 8846A/ Fluke 80K-40, Ductor Cal 5070	CP-017	F1, F3	F, O
Electrical	Equipment to Output DC Current	0.1 mA to 1 mA	5.0 x 10 ⁻¹¹ A/A + 5.2 x 10 ⁻⁹ A	Fluke 8846A/ Fluke 80K-40, Ductor Cal 5070	CP-017	F1, F3	F, O
Electrical	Equipment to Output DC Current	1 mA to 10 mA	5.0 x 10 ⁻¹¹ A/A + 2.0 x 10 ⁻⁷ A	Fluke 8846A/ Fluke 80K-40, Ductor Cal 5070	CP-017	F1, F3	F, O
Electrical	Equipment to Output DC Current	10 mA to 100 mA	5.0 x 10 ⁻¹¹ A/A + 5.2 x 10 ⁻⁷ A	Fluke 8846A/ Fluke 80K-40, Ductor Cal 5070	CP-017	F1, F3	F, O
Electrical	Equipment to Output DC Current	100 mA to 400 mA	5.0 x 10 ⁻¹¹ A/A + 4.x 10 ⁻⁵ A	Fluke 8846A/ Fluke 80K-40, Ductor Cal 5070	CP-017	F1, F3	F, O
Electrical	Equipment to Output DC Current	0.4 A to 1 A	5.0 x 10 ⁻¹¹ A/A + 2.0 x 10 ⁻⁴ A	Fluke 8846A/ Fluke 80K-40, Ductor Cal 5070	CP-017	F1, F3	F, O
Electrical	Equipment to Output DC Current	1 A to 3 A	1.0 x 10 ⁻¹⁰ A/A + 7.6 x 10 ⁻⁴ A	Fluke 8846A/ Fluke 80K-40, Ductor Cal 5070	CP-017	F1, F3	F, O
Electrical	Equipment to Output DC Current	3 A to 10 A	1.5 x 10 ⁻¹⁰ A/A + 6.0 x 10 ⁻³ A	Fluke 8846A/ Fluke 80K-40, Ductor Cal 5070	CP-017	F1, F3	F, O





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Electrical	Equipment to Output DC Current	10 A to 100 A	1.9 mA/A + 0.32 A	Fluke 8846A/ Fluke 80K-40, Ductor Cal 5070	CP-017	F1, F3	F, O
Electrical	Equipment to Output DC Current	100 A to 1 kA	3.8 A	Ammeter & Timer Calibration Meter	CP-027	F1, F3	F, O
Electrical	Equipment to Output DC Current	1 kA to 5 kA	16 A	Ammeter & Timer Calibration Meter	CP-027	F1, F3	F, O
Electrical	Equipment to Output AC Current (@ 60 Hz)	100 A to 1 kA	4.2 A	Ammeter & Timer Calibration Meter	CP-027	F1, F3	F, O
Electrical	Equipment to Output AC Current (@ 60 Hz)	1 kA to 5 kA	17 A	Ammeter & Timer Calibration Meter	CP-027	F1, F3	F, O
Electrical	Equipment to Measure Resistance (Wrist Strap Tester)	$675~\mathrm{k}\Omega$ to $750~\mathrm{k}\Omega$	20 kΩ	Desco 07010/ Trasmille 1000A	CP-009	F1, F3	F, O
Electrical	Equipment to Measure Resistance (Wrist Strap Tester)	825 k Ω to 900 k Ω	24 kΩ	Desco 07010/ Trasmille 1000A	CP-009	F1, F3	F, O
Electrical	Equipment to Measure Resistance (Wrist Strap Tester)	8.5 MΩ to 9 MΩ	0.25 ΜΩ	Desco 07010/ Trasmille 1000A	CP-009	F1, F3	F, O
Electrical	Equipment to Measure Resistance (Wrist Strap Tester)	11 M Ω to 11.5 M Ω	0.33 ΜΩ	Desco 07010/ Trasmille 1000A	CP-009	F1, F3	F, O
Electrical	Equipment to Measure Resistance (Wrist Strap Tester)	80 ΜΩ	2.4 ΜΩ	Desco 07010/ Trasmille 1000A	CP-009	F1, F3	F, O
Electrical	Equipment to Measure Resistance (Wrist Strap Tester)	120 ΜΩ	3.5 ΜΩ	Desco 07010/ Trasmille 1000A	CP-009	F1, F3	F, O





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FIELD OF	MEASURED	RANGE	EXPANDED	CALIBRATION	CALIBRATION	FLEX	LOCATION
CALIBRATION	INSTRUMENT,	(AND SPECIFICATION	MEASUREMENT	EQUIPMENT AND	MEASUREMENT	CODE	OF
C.ILIBILITION	QUANTITY OR GAUGE	WHERE APPROPRIATE)	UNCERTAINTY (±) 1	REFERENCE	METHOD OR	0022	ACTIVITY
		· ·		STANDARDS USED	PROCEDURES USED		
Electrical	Equipment to Measure	50 μ Ω to 2Ω	$1.0 \times 10^{-3} \Omega/\Omega +$	Ductor Cal 5070,	CP-009	F1, F3	F, O
	Resistance		$4.6 \times 10^{-8} \Omega$	Resistance decade box			
	(Milli & Micro Ohmmeters)		A .				
Electrical	Equipment to Output	Up to 10 Ω	$0.039~\mathrm{m}\Omega$	DMM Fluke 8846A	CP-030 /	F1, F2,	F, O
	Resistance	1			CEM EL-003	F3	
Electrical	Equipment to Output	10Ω to 100Ω	$0.1~\mathrm{m}\Omega$	DMM Fluke 8846A	CP-030 /	F1, F2,	F, O
	Resistance				CEM EL-003	F3	
Electrical	Equipment to Output	100 Ω to 1000 Ω	1.2 mΩ	DMM Fluke 8846A	CP-030 /	F1, F2,	F, O
	Resistance				CEM EL-003	F3	
Electrical	Equipment to Output	$1 \text{ k}\Omega$ to $10 \text{ k}\Omega$	0.12 Ω	DMM Fluke 8846A	CP-030 /	F1, F2,	F, O
	Resistance				CEM EL-003	F3	
Electrical	Equipment to Output	10 kΩ to 100 kΩ	0.15 Ω	DMM Fluke 8846A	CP-030 /	F1, F2,	F, O
	Resistance				CEM EL-003	F3	
Electrical	Equipment to Output	$100 \text{ k}\Omega$ to $1000 \text{ k}\Omega$	30 Ω	DMM Fluke 8846A	CP-030 /	F1, F2,	F, O
	Resistance				CEM EL-003	F3	
Electrical	Equipment to Output	$1 \text{ M}\Omega$ to $10 \text{ M}\Omega$	0.62 kΩ	DMM Fluke 8846A	CP-030 /	F1, F2,	F, O
	Resistance				CEM EL-003	F3	
Electrical	Equipment to Output	$10~\mathrm{M}\Omega$ to $100~\mathrm{M}\Omega$	14 kΩ	DMM Fluke 8846A	CP-030 /	F1, F2,	F, O
	Resistance				CEM EL-003	F3	
Electrical	Equipment to Output	$0.1~\mathrm{G}\Omega$ to $1~\mathrm{G}\Omega$	59 kΩ	DMM Fluke 8846A	CP-030 /	F1, F2,	F, O
	Resistance				CEM EL-003	F3	
Thermodynamic	Equipment to Measure	5 % RH to 95 % RH	0.89 % RH	Vaisala HM45/ HMP113,	CP-018	F1, F2,	F, O
	Humidity Indicators			HCAL1104/Memert	CEM TH-007	F3	
Thermodynamic	Equipment to Measure	0°C to 37 °C	0.18 °C	Traceable 4244/	CP-019	F1, F3	F, O
	Temperature Sensor			HMP113			
Thermodynamic	Equipment to Measure	50 °C to 100 °C	2.2 °C	Black Body Source	CP-028	F1, F2,	F, O
	IR Temperature				Infrared Thermometer	F3	
	•				calibration Guide INM		
					GTM-T/02		





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Thermodynamic	Equipment to Measure IR Temperature	100 °C to 500 °C	3.6 °C	Black Body Source	CP-028 Infrared Thermometer calibration Guide INM GTM-T/02	F1, F2, F3	F, O
Thermodynamic	Equipment to Measure IR Temperature	500 °C to 1 200 °C	5.1 °C	Black Body Source	CP-028 Infrared Thermometer calibration Guide INM GTM-T/02	F1, F2, F3	F, O
Time and Frequency	Equipment to measure Frequency	Up to 999 Hz	0.58 Hz	Transmille 1000	CP-009	F1, F3	F, O
Time and Frequency	Equipment to measure Frequency	1 kHz to 10 kHz	0.000 63 kHz	Transmille 1000	CP-009	F1, F3	F, O
Time and Frequency	Equipment to measure Frequency	11 kHz to 100 kHz	0.002 5 kHz	Transmille 1000	CP-009	F1, F3	F, O
Time and Frequency	Equipment to measure Frequency	1 kHz to 999 kHz	5.8 x 10 ⁻³ kHz / kHz + 1.2 kHz	Transmille 1000	CP-009	F1, F3	F, O
Time and Frequency	Equipment to Source Frequency	Up to 999 Hz	5.8 x 10 ⁻³ Hz/Hz + 1.2 Hz	Fluke 123B, Gain text box	CP-012	F1, F3	F, O
Time and Frequency	Equipment to Source Frequency	1 kHz to 10 kHz	5.8 x 10 ⁻³ kHz/ kHz + 0.25 kHz	Fluke 123B, Gain text box	CP-012	F1, F3	F, O
Time and Frequency	Equipment to Source Frequency	10 kHz to 999 kHz	5.8 x 10 ⁻³ kHz / kHz + 1.2 kHz	Fluke 123B, Gain text box	CP-012	F1, F3	F, O
Time and Frequency	Equipment to Source Frequency	1 kHz to 10 MHz	1.2 x 10 ⁻² MHz / MHz + 0.58 MHz	Fluke 123B, Gain text box	CP-012	F1, F3	F, O
Time and Frequency	Equipment to Source Frequency	11 kHz to 40 MHz	2.9 x 10 ⁻² MHz / MHz + 0.58 MHz	Fluke 123B, Gain text box	CP-012	F1, F3	F, O
Time and Frequency	Equipment to Source Time Interval	Up to 24 hr	0.041 s	Stopwatch & Timer Calibration Meter	CP029/ CEM TF-003	F1, F2, F3	F, O





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- 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
О	Conformity assessment activity is performed onsite at the CABs customer location

- 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 DL represents diagonal length in inches or millimeters as appropriate to the uncertainty statement.
- 6. This is the primary site for all quality management system activities.