



# PERRY JOHNSON LABORATORY ACCREDITATION, INC.

## Certificate of Accreditation

*Perry Johnson Laboratory Accreditation, Inc. has assessed the Organization*

### ***Metrologia Aplicada y Servicios S. de R.L. de C.V. (Site 1)***

***Calle Amada Armendariz # 233, Colonia Revolución  
Chihuahua, Chihuahua, México. C.P. 31135***

*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:

***Thermodynamic, Mass, Force and Weighing Devices, Time and Frequency 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:

Tracy Szerszen  
President

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

*Initial Accreditation Date:*

April 12, 2023

*Issue Date:*

April 24, 2025

*Expiration Date:*

April 30, 2027

*Revision Date:*

February 22, 2026

*Accreditation No.:*

22580

*Certificate No.:*

L25-361-2-R1

*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](http://www.pjlab.com)*



# Certificate of Accreditation: Supplement

## Metrologia Aplicada y Servicios S. de R.L. de C.V. (Site 1)

Calle Amada Armendariz # 233, Colonia Revolución  
 Chihuahua, Chihuahua, México. C.P. 31135  
 Contact Name: Carlos Valenzuela. Phone: 656-617-6617

*Accreditation is granted to the facility to perform the following conformity assessment activities:*

FIELD OF CALIBRATION	MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	EXPANDED MEASUREMENT UNCERTAINTY ( $\pm$ ) <sup>1</sup>	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED	FLEX CODE	LOCATION OF ACTIVITY
Thermodynamic	Thermo-Hygrometer (Humidity)	10 % RH to 90 % RH	1 % RH	Vaisala MI70/HMP75 Humidity Chamber	Euramet-cg-20 CEM/TH-007	F1, F2	F
Thermodynamic	Thermo-Hygrometer (Temperature)	10 °C to 50 °C	0.1 °C	Vaisala MI70/HMP75 Humidity Chamber	Euramet-cg-20 CEM/TH-007	F1, F2	F
Thermodynamic	System Accuracy Test (SAT) Oven-Chamber-Thermal Processing Equipment with Thermocouples Type J, K	-50 °C to 1 200 °C	0.5 °C	Fluke 1586A Super-DAQ Precision Temperature Scanner	AMS2750 and AIAG CQI-9, CQI-11, CQI-12	F1, F2	F, O
Thermodynamic	Temperature Uniformity Surveys (TUS) Oven-Chamber-Thermal Processing Equipment with Thermocouples Type J, K	-50 °C to 1 200 °C	0.25 °C	Fluke 1586A Super-DAQ Precision Temperature Scanner	AMS2750 and AIAG CQI-9, CQI-11, CQI-12	F1, F2	F, O
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	1 mg	5 $\mu$ g	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	2 mg	5 $\mu$ g	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F



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Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	5 mg	5 $\mu$ g	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	10 mg	5 $\mu$ g	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	20 mg	6 $\mu$ g	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	50 mg	10 $\mu$ g	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	100 mg	10 $\mu$ g	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	200 mg	12 $\mu$ g	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F



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Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	500 mg	15 $\mu$ g	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	1 g	22 $\mu$ g	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	2 g	25 $\mu$ g	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	5 g	40 $\mu$ g	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	10 g	43 $\mu$ g	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	20 g	68 $\mu$ g	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F



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Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	50 g	80 $\mu$ g	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	100 g	100 $\mu$ g	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	200 g	200 $\mu$ g	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	500 g	0.5 mg	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	1 kg	1.1 mg	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	2 kg	1.9 mg	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F



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Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	5 kg	5 mg	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	10 kg	10 mg	Double Substitution with Class E2 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Mass, Force and Weighing Devices	Mass, Weight and Weight Sets F1, F2, M1, M2, M3	20 kg	21 mg	Double Substitution with Class F1 Weights, Balances & Mass Comparators	OIML R111-1	F1, F2	F
Electrical	Equipment to Simulate and Measure Thermocouple in Linear (@10 $\mu$ V/ $^{\circ}$ C and 1 mV/ $^{\circ}$ C)	0.1 mV to 329.999 9 mV	50 $\mu$ V/V + 3 $\mu$ V	Fluke 5522A	Euramet cg-11	F1, F2	F, O
Electrical	Equipment to Measure DC Voltage	0.1 mV to 329.999 9 mV	20 $\mu$ V/V + 1 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure DC Voltage	0.4 mV to 3.299 999 V	11 $\mu$ V/V + 2 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure DC Voltage	4 V to 32.999 99 V	12 $\mu$ V/V + 20 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure DC Voltage	30 V to 329.999 9 V	18 $\mu$ V/V + 150 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure DC Voltage	100 V to 102 V	18 $\mu$ V/V + 1 500 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O



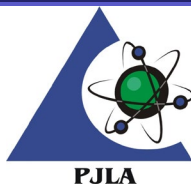
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Electrical	Equipment to Measure DC Current	0.1 $\mu$ A to 329.999 $\mu$ A	150 $\mu$ A/A + 0.02 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure DC Current	0.4 $\mu$ A to 3.299 99 mA	100 $\mu$ A/A + 0.05 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure DC Current	4 mA to 32.999 9 mA	100 $\mu$ A/A + 0.25 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure DC Current	33 mA to 329.999 mA	100 $\mu$ A/A + 2.5 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure DC Current	330 mA to 1.099 99 A	200 $\mu$ A/A + 40 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure DC Current	1.1 A to 2.99 999 A	380 $\mu$ A/A + 40 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure DC Current	3 A to 10.999 9 A	500 $\mu$ A/A + 500 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure DC Current	11 A to 20.5 A	800 $\mu$ A/A + 750 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure Resistance	0.1 $\Omega$ to 10.999 9 $\Omega$	47 $\mu\Omega/\Omega$ + 1.2 m $\Omega$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure Resistance	11 $\Omega$ to 32.999 9 $\Omega$	40 $\mu\Omega/\Omega$ + 1.7 m $\Omega$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure Resistance	33 $\Omega$ to 109.999 9 $\Omega$	34 $\mu\Omega/\Omega$ + 1.8 m $\Omega$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure Resistance	110 $\Omega$ to 329.999 9 $\Omega$	34 $\mu\Omega/\Omega$ + 2.4 m $\Omega$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure Resistance	330 $\Omega$ to 1.099 999 k $\Omega$	34 $\mu\Omega/\Omega$ + 2.4 m $\Omega$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O



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Electrical	Equipment to Measure Resistance	1.1 k $\Omega$ to 3.299 999 k $\Omega$	34 $\mu\Omega/\Omega$ + 22 m $\Omega$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure Resistance	3.3 k $\Omega$ to 10.999 99 k $\Omega$	34 $\mu\Omega/\Omega$ + 23 m $\Omega$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure Resistance	11 k $\Omega$ to 32.999 99 k $\Omega$	34 $\mu\Omega/\Omega$ + 0.22 $\Omega$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure Resistance	33 k $\Omega$ to 109.999 9 k $\Omega$	34 $\mu\Omega/\Omega$ + 0.24 $\Omega$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure Resistance	110 k $\Omega$ to 329.999 99 k $\Omega$	44 $\mu\Omega/\Omega$ + 1.6 $\Omega$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure Resistance	330 k $\Omega$ to 1.099 999 M $\Omega$	40 $\mu\Omega/\Omega$ + 3 $\Omega$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure Resistance	1.1 M $\Omega$ to 3.299 999 M $\Omega$	0.12 m $\Omega/\Omega$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure Resistance	3.3 M $\Omega$ to 10.999 99 M $\Omega$	0.16 m $\Omega/\Omega$ + 86 $\Omega$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure Resistance	11 M $\Omega$ to 32.999 99 M $\Omega$	0.7 m $\Omega/\Omega$ + 2.5 k $\Omega$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure Resistance	33 M $\Omega$ to 109.999 9 M $\Omega$	0.76 m $\Omega/\Omega$ + 3.5 k $\Omega$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure Resistance	110 M $\Omega$ to 329.999 9 M $\Omega$	0.65 m $\Omega/\Omega$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure Resistance	330 M $\Omega$ to 1 100 M $\Omega$	15 m $\Omega/\Omega$ + 730 k $\Omega$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 10 Hz to 45 Hz)	1 mV to 32.999 mV	800 $\mu\text{V}/\text{V}$ + 6 $\mu\text{V}$	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O



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Electrical	Equipment to Measure AC Voltage (@ 45 Hz to 10 kHz)	1 mV to 32.999 mV	150 $\mu$ V/V + 6 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 10 kHz to 20 kHz)	1 mV to 32.999 mV	200 $\mu$ V/V + 6 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 20 kHz to 50 kHz)	1 mV to 32.999 mV	1 000 $\mu$ V/V + 6 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 50 kHz to 100 kHz)	1 mV to 32.999 mV	3 500 $\mu$ V/V + 12 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 100 kHz to 500 kHz)	1 mV to 32.999 mV	8 000 $\mu$ V/V + 50 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 10 Hz to 45 Hz)	33 mV to 329.999 mV	300 $\mu$ V/V + 8 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 45 Hz to 10 kHz)	33 mV to 329.999 mV	145 $\mu$ V/V + 8 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 10 kHz to 20 kHz)	33 mV to 329.999 mV	160 $\mu$ V/V + 8 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 20 kHz to 50 kHz)	33 mV to 329.999 mV	350 $\mu$ V/V + 8 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O



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Electrical	Equipment to Measure AC Voltage (@ 50 kHz to 100 kHz)	33 mV to 329.999 mV	800 $\mu$ V/V + 32 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 100 kHz to 500 kHz)	33 mV to 329.999 mV	2 000 $\mu$ V/V + 70 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 10 Hz to 45 Hz)	0.33 V to 3.299 99 V	300 $\mu$ V/V + 50 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 45 Hz to 10 kHz)	0.33 V to 3.299 99 V	150 $\mu$ V/V + 60 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 10 kHz to 20 kHz)	0.33 V to 3.299 99 V	190 $\mu$ V/V + 60 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 20 kHz to 50 kHz)	0.33 V to 3.299 99 V	300 $\mu$ V/V + 50 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 50 kHz to 100 kHz)	0.33 V to 3.299 99 V	700 $\mu$ V/V + 130 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 100 kHz to 500 kHz)	0.33 V to 3.299 99 V	2 400 $\mu$ V/V + 600 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 10 Hz to 45 Hz)	3.3 V to 32.999 9 V	300 $\mu$ V/V + 600 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O



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Electrical	Equipment to Measure AC Voltage (@ 45 Hz to 10 kHz)	3.3 V to 32.999 9 V	150 $\mu$ V/V + 600 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 10 kHz to 20 kHz)	3.3 V to 32.999 9 V	240 $\mu$ V/V + 600 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 20 kHz to 50 kHz)	3.3 V to 32.999 9 V	350 $\mu$ V/V + 600 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 50 kHz to 100 kHz)	3.3 V to 32.999 9 V	900 $\mu$ V/V + 1 600 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 10 Hz to 45 Hz)	33 V to 329.999 V	190 $\mu$ V/V + 2 000 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 45 Hz to 10 kHz)	33 V to 329.999 V	200 $\mu$ V/V + 6 000 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 10 kHz to 20 kHz)	33 V to 329.999 V	250 $\mu$ V/V + 6 000 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 20 kHz to 50 kHz)	33 V to 329.999 V	300 $\mu$ V/V + 6 000 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 50 kHz to 100 kHz)	33 V to 329.999 V	2 000 $\mu$ V/V + 50 000 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O



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## Metrologia Aplicada y Servicios S. de R.L. de C.V. (Site 1)

Calle Amada Armendariz # 233, Colonia Revolución  
 Chihuahua, Chihuahua, México. C.P. 31135  
 Contact Name: Carlos Valenzuela. Phone: 656-617-6617

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Electrical	Equipment to Measure AC Voltage (@ 10 Hz to 1 kHz)	330 V to 1 020 V	300 $\mu$ V/V + 10 000 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 1 kHz to 5 kHz)	330 V to 1 020 V	250 $\mu$ V/V + 10 000 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Voltage (@ 5 kHz to 10 kHz)	330 V to 1 020 V	300 $\mu$ V/V + 10 000 $\mu$ V	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 10 Hz to 20 Hz)	29 $\mu$ A to 329.99 $\mu$ A	0.2 $\mu$ A /A + 0.1 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 20 Hz to 45 Hz)	29 $\mu$ A to 329.99 $\mu$ A	0.15 $\mu$ A /A + 0.1 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 45 Hz to 1 kHz)	29 $\mu$ A to 329.99 $\mu$ A	0.125 $\mu$ A /A + 0.1 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 1 kHz to 5 kHz)	29 $\mu$ A to 329.99 $\mu$ A	0.3 $\mu$ A /A + 0.15 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 5 kHz to 10 kHz)	29 $\mu$ A to 329.99 $\mu$ A	0.8 $\mu$ A /A + 0.2 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 10 kHz to 30 kHz)	29 $\mu$ A to 329.99 $\mu$ A	1.6 $\mu$ A /A + 0.4 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O



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Electrical	Equipment to Measure AC Current (@ 10 Hz to 20 Hz)	0.33 mA to 3.299 99 mA	0.2 $\mu$ A /A + 0.15 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 20 Hz to 45 Hz)	0.33 mA to 3.299 99 mA	0.125 $\mu$ A /A + 0.15 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 45 Hz to 1 kHz)	0.33 mA to 3.299 99 mA	0.1 $\mu$ A /A + 0.15 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 1 kHz to 5 kHz)	0.33 mA to 3.299 99 mA	0.2 $\mu$ A /A + 0.2 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 5 kHz to 10 kHz)	0.33 mA to 3.299 99 mA	0.5 $\mu$ A /A + 0.3 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 10 kHz to 30 kHz)	0.33 mA to 3.299 99 mA	1 $\mu$ A /A + 0.6 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 10 Hz to 20 Hz)	3.3 mA to 32.999 9 mA	0.18 $\mu$ A /A + 2 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 20 Hz to 45 Hz)	3.3 mA to 32.999 9 mA	0.09 $\mu$ A /A + 2 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 45 Hz to 1 kHz)	3.3 mA to 32.999 9 mA	0.04 $\mu$ A /A + 2 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O



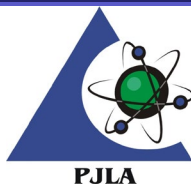
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Electrical	Equipment to Measure AC Current (@ 1 kHz to 5 kHz)	3.3 mA to 32.999 9 mA	0.08 $\mu$ A /A + 2 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 5 kHz to 10 kHz)	3.3 mA to 32.999 9 mA	0.2 $\mu$ A /A + 3 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 10 kHz to 30 kHz)	3.3 mA to 32.999 9 mA	0.04 $\mu$ A /A + 4 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 10 Hz to 20 Hz)	33 mA to 329.999 mA	0.18 $\mu$ A /A + 20 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 20 Hz to 45 Hz)	33 mA to 329.999 mA	0.09 $\mu$ A /A + 20 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 45 Hz to 1 kHz)	33 mA to 329.999 mA	0.04 $\mu$ A /A + 20 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 1 kHz to 5 kHz)	33 mA to 329.999 mA	0.1 $\mu$ A /A + 50 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 5 kHz to 10 kHz)	33 mA to 329.999 mA	0.2 $\mu$ A /A + 100 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 10 kHz to 30 kHz)	33 mA to 329.999 mA	0.4 $\mu$ A /A + 200 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O



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Electrical	Equipment to Measure AC Current (@ 10 to 45 Hz)	0.33 A to 1.099 99 A	0.18 $\mu$ A /A + 100 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 45 Hz to 1 kHz)	0.33 A to 1.099 99 A	0.05 $\mu$ A /A + 100 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 1 kHz to 5 kHz)	0.33 A to 1.099 99 A	0.6 $\mu$ A /A + 1000 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 5 kHz to 10 kHz)	0.33 A to 1.099 99 A	2.5 $\mu$ A /A + 5 000 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 10 to 45 Hz)	1.1 A to 2.999 99 A	0.18 $\mu$ A /A + 100 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 45 Hz to 1 kHz)	1.1 A to 2.999 99 A	0.06 $\mu$ A /A + 100 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 1 kHz to 5 kHz)	1.1 A to 2.999 99 A	0.6 $\mu$ A /A + 1 000 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 5 kHz to 10 kHz)	1.1 A to 2.999 99 A	2.5 $\mu$ A /A + 5 000 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 45 Hz to 100 Hz)	11 A to 20.5 A	0.12 $\mu$ A /A + 5 000 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O



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Electrical	Equipment to Measure AC Current (@ 100 Hz to 1 kHz)	11 A to 20.5 A	0.15 $\mu$ A /A + 5 000 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Measure AC Current (@ 1 kHz to 5 kHz)	11 A to 20.5 A	3 $\mu$ A /A + 5 000 $\mu$ A	Fluke 5522A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type J	210 °C to -100 °C	0.21 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type J	-100 °C to -30 °C	0.13 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type J	-30 °C to 150 °C	0.11 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type J	150 °C to 760 °C	0.13 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type J	760 °C to 1 200 °C	0.18 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O



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Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type K	-210 °C to -100 °C	0.26 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type K	-100 °C to -25 °C	0.14 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type K	-25 °C to 120 °C	0.13 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type K	120 °C to 1 000 °C	0.2 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type K	1 000 °C to 1 372 °C	0.31 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type R	0 °C to 250 °C	0.44 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O



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Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type R	250 °C to 400 °C	0.27 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type R	400 °C to 1 000 °C	0.26 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type R	1 000 °C to 1 767 °C	0.31 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type S	0 °C to 250 °C	0.37 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type S	250 °C to 1 000 °C	0.28 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type S	1 000 °C to 1 400 °C	0.29 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O



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Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type S	1 400 °C to 1 767 °C	0.36 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type T	-250 °C to -150 °C	0.49 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type T	-150 °C to 0 °C	0.19 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type T	0 °C to 120 °C	0.13 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type T	120 °C to 400 °C	0.11 °C	Fluke 5522A Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Equipment to Output DC Voltage	Up to 330 mV	16 $\mu$ V/V + 780 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output DC Voltage	330 mV to 3.3 V	8.5 $\mu$ V/V + 1.6 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output DC Voltage	3.3 V to 33 V	9.3 $\mu$ V/V + 16 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O



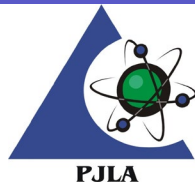
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Electrical	Equipment to Output DC Voltage	33 V to 330 V	14 $\mu$ V/V + 120 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output DC Voltage	100 V to 1.02 kV	14 $\mu$ V/V + 1.2 mV	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output DC Current	Up to 320 $\mu$ A	0.038 $\mu$ A/A + 16 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output DC Current	320 $\mu$ A to 3.2 mA	78 $\mu$ A/A + 39 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output DC Current	3.2 mA to 32 mA	78 $\mu$ A/A + 190 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output DC Current	32 mA to 320 mA	78 $\mu$ A/A + 1.9 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output DC Current	320 mA to 1.1 A	150 $\mu$ A/A + 31 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output DC Current	1.1 A to 2.9 A	290 $\mu$ A/A + 31 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output DC Current	2.9 A to 11A	390 $\mu$ A/A + 390 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output DC Current	11 A to 20.5 A	780 $\mu$ A/A + 580 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output Resistance	0 $\Omega$ to 11 $\Omega$	31 $\mu\Omega/\Omega$ + 78 $\mu\Omega$	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output Resistance	11 $\Omega$ to 33 $\Omega$	23 $\mu\Omega/\Omega$ + 1.2 m $\Omega$	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output Resistance	33 $\Omega$ to 110 $\Omega$	22 $\mu\Omega/\Omega$ + 1.1 m $\Omega$	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O



# Certificate of Accreditation: Supplement

## Metrologia Aplicada y Servicios S. de R.L. de C.V. (Site 1)

Calle Amada Armendariz # 233, Colonia Revolución  
 Chihuahua, Chihuahua, México. C.P. 31135  
 Contact Name: Carlos Valenzuela. Phone: 656-617-6617

*Accreditation is granted to the facility to perform the following conformity assessment activities:*

FIELD OF CALIBRATION	MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	EXPANDED MEASUREMENT UNCERTAINTY ( $\pm$ ) <sup>1</sup>	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED	FLEX CODE	LOCATION OF ACTIVITY
Electrical	Equipment to Output Resistance	110 $\Omega$ to 330 $\Omega$	22 $\mu\Omega/\Omega$ + 1.6 m $\Omega$	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output Resistance	330 $\Omega$ to 1.1 k $\Omega$	22 $\mu\Omega/\Omega$ + 1.6 m $\Omega$	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output Resistance	1.1 k $\Omega$ to 3.3 k $\Omega$	22 $\mu\Omega/\Omega$ + 16 m $\Omega$	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output Resistance	3.3 k $\Omega$ to 11 k $\Omega$	22 $\mu\Omega/\Omega$ + 16 m $\Omega$	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output Resistance	11 k $\Omega$ to 33 k $\Omega$	22 $\mu\Omega/\Omega$ + 160 m $\Omega$	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output Resistance	33 k $\Omega$ to 110 k $\Omega$	22 $\mu\Omega/\Omega$ + 160 m $\Omega$	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output Resistance	110 k $\Omega$ to 330 k $\Omega$	25 $\mu\Omega/\Omega$ + 1.6 $\Omega$	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output Resistance	330 k $\Omega$ to 1.1 M $\Omega$	25 $\mu\Omega/\Omega$ + 1.6 $\Omega$	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output Resistance	1.1 M $\Omega$ to 3.3 M $\Omega$	47 $\mu\Omega/\Omega$ + 23 $\Omega$	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output Resistance	3.3 M $\Omega$ to 11 M $\Omega$	100 $\mu\Omega/\Omega$ + 39 $\Omega$	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output Resistance	11 k $\Omega$ to 33 k $\Omega$	190 $\mu\Omega/\Omega$ + 1.9 k $\Omega$	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output Resistance	33 k $\Omega$ to 110 k $\Omega$	390 $\mu\Omega/\Omega$ + 2.3 k $\Omega$	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output Resistance	110 k $\Omega$ to 330 k $\Omega$	230 $\mu\Omega/\Omega$ + 78 k $\Omega$	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O



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FIELD OF CALIBRATION	MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	EXPANDED MEASUREMENT UNCERTAINTY ( $\pm$ ) <sup>1</sup>	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED	FLEX CODE	LOCATION OF ACTIVITY
Electrical	Equipment to Output Resistance	330 k $\Omega$ to 1 100 M $\Omega$	1.2 m $\Omega/\Omega$ + 390 k $\Omega$	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 10 Hz to 45 Hz)	1 mV to 33 mV	0.062 % of reading + 4.7 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 45 kHz to 10 kHz)	1 mV to 33 mV	0.012 % of reading + 4.7 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 10 kHz to 20 kHz)	1 mV to 33 mV	0.016 % of reading + 4.7 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 20 kHz to 50 kHz)	1 mV to 33 mV	0.078 % of reading + 4.7 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 50 kHz to 100 kHz)	1 mV to 33 mV	0.27 % reading + 9.3 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 100 kHz to 500 kHz)	1 mV to 33 mV	0.62 % reading + 39 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 10 Hz to 45 Hz)	33 mV to 330 mV	0.023 % of reading + 6.2 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 45 kHz to 10 kHz)	33 mV to 330 mV	0.011 % of reading + 6.2 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O



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Electrical	Equipment to Output AC Voltage (@ 10 kHz to 20 kHz)	33 mV to 330 mV	0.012 % of reading + 6.2 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 20 kHz to 50 kHz)	33 mV to 330 mV	0.027 % of reading + 6.2 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 50 kHz to 100 kHz)	33 mV to 330 mV	0.062 % of reading + 25 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 100 kHz to 500 kHz)	33 mV to 330 mV	0.15 % of reading + 54 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 10 Hz to 45 Hz)	0.33 V to 3.3 V	0.023 % of reading + 39 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 45 kHz to 10 kHz)	0.33 V to 3.3 V	0.011 % of reading + 47 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 10 kHz to 20 kHz)	0.33 V to 3.3 V	0.015 % of reading + 47 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 20 kHz to 50 kHz)	0.33 V to 3.3 V	0.023 % of reading + 39 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 50 kHz to 100 kHz)	0.33 V to 3.3 V	0.054 % of reading + 97 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O



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Electrical	Equipment to Output AC Voltage (@ 100 kHz to 500 kHz)	0.33 V to 3.3 V	0.18 % of reading + 470 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 10 Hz to 45 Hz)	3.3 V to 33 V	0.023 % of reading + 500 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 45 kHz to 10 kHz)	3.3 V to 33 V	0.012 % of reading + 470 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 10 kHz to 20 kHz)	3.3 V to 33 V	0.019 % of reading + 470 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 20 kHz to 50 kHz)	3.3 V to 33 V	0.027 % of reading + 470 $\mu$ V	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 50 kHz to 100 kHz)	3.3 V to 33 V	0.07 % of reading + 1.2 mV	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 10 Hz to 45 Hz)	33 V to 330 V	0.015 % of reading + 1.6 mV	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 45 kHz to 10 kHz)	33 V to 330 V	0.016 % of reading + 4.7 mV	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 10 kHz to 20 kHz)	33 V to 330 V	0.019 % of reading + 4.7 mV	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O



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Electrical	Equipment to Output AC Voltage (@ 20 kHz to 50 kHz)	33 V to 330 V	0.023 % of reading + 4.7 mV	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 50 kHz to 100 kHz)	33 V to 330 V	0.16 % of reading + 39 mV	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 45 Hz to 1 kHz)	330 V to 1 020 V	0.023 % of reading + 7.8 mV	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 1 kHz to 5 kHz)	330 V to 1 020 V	0.019 % of reading + 7.8 mV	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Voltage (@ 5 kHz to 10 kHz)	330 V to 1 020 V	0.023 % of reading + 7.8 mV	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 10 Hz to 20 Hz)	29 $\mu$ A to 330 $\mu$ A	0.16 % of reading + 78 nA	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 20 Hz to 45 Hz)	29 $\mu$ A to 330 $\mu$ A	0.12 % of reading + 78 nA	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 45 Hz to 1 kHz)	29 $\mu$ A to 330 $\mu$ A	0.1 % of reading + 78 nA	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 1 kHz to 5 kHz)	29 $\mu$ A to 330 $\mu$ A	0.23 % of reading + 0.12 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O



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Electrical	Equipment to Output AC Current (@ 5 kHz to 10 kHz)	29 $\mu$ A to 330 $\mu$ A	0.62 % of reading + 0.16 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 10 kHz to 30 kHz)	29 $\mu$ A to 330 $\mu$ A	1.3 % of reading + 0.31 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 10 Hz to 20 Hz)	0.33 mA to 3.3 mA	0.16 % of reading + 0.12 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 20 Hz to 45 Hz)	0.33 mA to 3.3 mA	0.1 % of reading + 0.12 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 45 Hz to 1 kHz)	0.33 mA to 3.3 mA	0.075 % of reading + 0.12 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 1 kHz to 5 kHz)	0.33 mA to 3.3 mA	0.16 % of reading + 0.16 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 5 kHz to 10 kHz)	0.33 mA to 3.3 mA	0.39 % of reading + 0.23 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 10 kHz to 30 kHz)	0.33 mA to 3.3 mA	0.77 % of reading + 0.47 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 10 Hz to 20 Hz)	3.3 mA to 33 mA	0.14 % of reading + 1.6 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O



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Electrical	Equipment to Output AC Current (@ 20 Hz to 45 Hz)	3.3 mA to 33 mA	0.07 % of reading + 1.6 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 45 Hz to 1 kHz)	3.3 mA to 33 mA	0.03 % of reading + 1.6 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 1 kHz to 5 kHz)	3.3 mA to 33 mA	0.06 % of reading + 1.6 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 5 kHz to 10 kHz)	3.3 mA to 33 mA	0.16 % of reading + 2.3 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 10 kHz to 30 kHz)	3.3 mA to 33 mA	0.31 % of reading + 3.1 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 10 Hz to 20 Hz)	33 mA to 330 mA	0.14 % of reading + 16 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 20 Hz to 45 Hz)	33 mA to 330 mA	0.07 % of reading + 16 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 45 Hz to 1 kHz)	33 mA to 330 mA	0.03 % of reading + 16 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 1 kHz to 5 kHz)	33 mA to 330 mA	0.08 % of reading + 39 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O



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Electrical	Equipment to Output AC Current (@ 5 kHz to 10 kHz)	33 mA to 330 mA	0.16 % of reading + 78 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 10 kHz to 30 kHz)	33 mA to 330 mA	0.31 % of reading + 160 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 10 Hz to 20 Hz)	0.33 A to 1.1 A	0.14 % of reading + 78 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 45 Hz to 1 kHz)	0.33 A to 1.1 A	0.039 % of reading + 78 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 1 kHz to 5 kHz)	0.33 A to 1.1 A	0.47 % of reading + 780 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 5 kHz to 10 kHz)	0.33 A to 1.1 A	1.9 % of reading + 3.9 mA	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 10 Hz to 20 Hz)	1.1 A to 3 A	0.14 % of reading + 78 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 45 Hz to 1 kHz)	1.1 A to 3 A	0.05 % of reading + 78 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Equipment to Output AC Current (@ 1 kHz to 5 kHz)	1.1 A to 3 A	0.47 % of reading + 780 $\mu$ A	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O



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Electrical	Equipment to Output AC Current (@ 5 kHz to 10 kHz)	1.1 A to 3 A	1.9 % of reading + 3.9 mA	Agilent 3458A	EL-001 CEM-Procedure	F1, F2	F, O
Electrical	Oscilloscopes Voltage p-p (50 $\Omega$ ) (@ 50 kHz to 600 MHz)	5 mV to 5.5 V	6 % of output + 300 $\mu$ V	Fluke 5522A/SC600	Euramet-cg-7	F1, F2	F, O
Time and Frequency	Oscilloscope (Timing Accuracy)	2 ns to 20 ms	0.000 25 % of reading	Fluke 5522A/SC600	Euramet-cg-7	F1, F2	F, O

- The CMC (Calibration and Measurement Capability) is expressed in terms of measurement instrument/aspect being calibrated, range, expanded measurement uncertainty, equipment, and method/procedure. The expanded measurement uncertainty 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 measurement uncertainty included on this scope 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.
- The laboratory's range of calibration capability for all disciplines for which it is 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.
- Location of activity:  

<b>Location Code</b>	<b>Location</b>
F	Conformity assessment activity is performed at the CAB's fixed facility
O	Conformity assessment activity is performed onsite at the CAB's customer location
- Measurement uncertainties obtained for calibrations performed at customer sites can be expected to be larger than the measurement uncertainties obtained at the laboratory's 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



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typically not controlled as closely as at the laboratory's fixed location.

5. This location is linked to Metrologia Aplicada y Servicios S. de R.L. de C.V., Ramon Rayon 1520-9, Pino Seco/Lote Bravo, Cd. Juárez, Chihuahua, México. C.P. 32550 due to a shared quality management system.

6. Flex Codes

F0: When no flexibility is identified. There are no changes to items calibrated, characteristics identified or versions of methods except for updating to the most recent version of a standard method after verification.

F1: The laboratory has the capability to introduce a new instrument, quantity, or gauge for an accredited calibration method.

F2: The laboratory has the capability to introduce the newest revision of an accredited authoritative standard method (with no modifications) identified on the scope

F3: The laboratory has the capability to introduce a new revision of an accredited non-standard method using the same technology or technique identified on the scope

F4: The laboratory has the capability to introduce a validated method that is equivalent to an accredited method (using the same Calibration Equipment or Reference Standards identified on the scope for the same parameter, component, or analyte identified on the line item of the scope.

