PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

UMT Calibration Laboratory

5421 NW 74th Avenue, Miami, FL 33166

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:

Acoustic, Dimensional, Electrical, Mass, Force and Weighing Devices, Mechanical, Thermodynamic, and Time and Frequency 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:	*Issue Date:*	*Expiration Date:*
Febraury 26, 2021	June 27, 2025	June 30, 2027

Accreditation No.:	*Certificate No.:*
112595	L25-480

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

Certificate of Accreditation: Supplement

UMT Calibration Laboratory

5421 NW 74th Avenue, Miami, FL 33166
Contact Name: Guillermo Blanco Phone: 1 (800) 222-5771

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)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED	LOCATION OF ACTIVITY
Acoustic	Equipment to Measure Acoustic	94 dB @ 1 kHz	0.27 dB	Acoustic Calibrator	CM-1039	F, O
Acoustic	Equipment to Measure Acoustic	114 dB @ 1 kHz	0.27 dB	Acoustic Calibrator	CM-1039	F, O
Dimensional	Micrometer (Outside)	Up to 20 in	(5.4 + 7L) µin	Gage Blocks Precision Sphere	CM-1005	F, O
Dimensional	Micrometer (Inside)	Up to 20 in	(100 + 7L) µin	Gage Blocks	CM-1005	F, O
Dimensional	Micrometer (Depth)	Up to 20 in	(50 + 7L) µin	Gage Blocks	CM-1005	F, O
Dimensional	Caliper (Dial/Digital)	Up to 60 in	(512 + 7L) µin	Gage Blocks	CM-1006	F, O
Dimensional	Indicators (Dial/Digital)	Up to 8 in	(14.1 + 6L) µin	Gage Blocks	CM-1010	F, O
Dimensional	Crimp Tools	0.011 in to 0.25 in	119 µin	Plug Gages	CM-1011	F, O
Dimensional	Wire Stripper	0.011 in to 0.25 in	119 µin	Plug Gages	CM-1011	F, O
Electrical	Equipment to Measure DC Voltage	Up to 300 mV	60 µV/V + 3 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure DC Voltage	330 mV to 3.3 V	50 µV/V + 5 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure DC Voltage	3.3 V to 33 V	50 µV/V + 50 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure DC Voltage	33 V to 330 V	55 µV/V + 500 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure DC Voltage	330 V to 1 000 V	55 µV/V + 1 500 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure DC Current	Up to 3.3 mA	0.13 mA/A + 0.05 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure DC Current	3.3 mA to 33 mA	0.10 mA/A + 0.25 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure DC Current	33 mA to 330 mA	0.10 mA/A + 3.3 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure DC Current	330 mA to 2.2 A	0.30 mA/A + 44 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure DC Current	2.2 A to 11 A	0.6 mA/A + 330 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Resistance	Up to 11 Ω	0.12 mΩ/Ω + 8 mΩ	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Resistance	11 Ω to 33 Ω	0.12 mΩ/Ω + 15 mΩ	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Resistance	33 Ω to 110 Ω	90 µΩ/Ω + 15 mΩ	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Resistance	110 Ω to 330 Ω	90 µΩ/Ω + 15 mΩ	Fluke 5500A	OEM Manual	F, O

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Electrical	Equipment to Measure Resistance	330 Ω to 1.1 kΩ	90 µΩ/Ω + 0.06 Ω	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Resistance	1.1 kΩ to 3.3 kΩ	90 µΩ/Ω + 0.06 Ω	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Resistance	3.3 kΩ to 11 kΩ	90 µΩ/Ω + 0.6 Ω	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Resistance	11 kΩ to 33 kΩ	90 µΩ/Ω + 0.6 Ω	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Resistance	33 kΩ to 110 kΩ	0.11 mΩ/Ω + 6 Ω	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Resistance	110 kΩ to 330 kΩ	0.12 mΩ/Ω + 6 Ω	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Resistance	330 kΩ to 1.1 MΩ	0.15 mΩ/Ω + 55 Ω	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Resistance	1.1 MΩ to 3.3 MΩ	0.15 mΩ/Ω + 55 Ω	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Resistance	3.3 MΩ to 11 MΩ	0.6 mΩ/Ω + 550 Ω	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Resistance	11 MΩ to 33 MΩ	1 mΩ/Ω + 550 Ω	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Resistance	33 MΩ to 110 MΩ	5 mΩ/Ω + 5.5 kΩ	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Resistance	110 MΩ to 330 MΩ	5 mΩ/Ω + 16.5 kΩ	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Capacitance	0.33 nF to 0.5 nF	5 mF/F + 0.01 nF	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Capacitance	0.5 nF to 1.1 nF	5 mF/F + 0.01 nF	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Capacitance	1.1 nF to 3.3 nF	5 mF/F + 0.01 nF	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Capacitance	3.3 nF to 11 nF	5 mF/F + 0.01 nF	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Capacitance	11 nF to 33 nF	2.5 mF/F + 0.1 nF	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Capacitance	33 nF to 110 nF	2.5 mF/F + 0.1 nF	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Capacitance	110 nF to 330 nF	2.5 mF/F + 0.3 nF	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Capacitance	0.33 µF to 1.1 µF	2.5 mF/F + 1 nF	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Capacitance	1.1 µF to 3.3 µF	3.5 mF/F + 3 nF	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Capacitance	3.3 µF to 11 µF	3.5 mF/F + 10 nF	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Capacitance	11 µF to 33 µF	4 mF/F + 30 nF	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Capacitance	33 µF to 110 µF	5 mF/F + 100 nF	Fluke 5500A	OEM Manual	F, O

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Electrical	Equipment to Measure Capacitance	110 µF to 330 µF	7 mF/F + 300 nF	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure Capacitance	330 µF to 1.1 mF	1 mF/F + 300 nF	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 10 Hz to 45 Hz)	1 mV to 33 mV	1.5 mV/V + 90 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 45 Hz to 10 kHz)	1 mV to 33 mV	0.4 mV/V + 90 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 10 kHz to 20 kHz)	1 mV to 33 mV	0.6 mV/V + 90 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 20 kHz to 50 kHz)	1 mV to 33 mV	1.5 mV/V + 90 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 50 kHz to 100 kHz)	1 mV to 33 mV	2.5 mV/V + 90 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 100 kHz to 500 kHz)	1 mV to 33 mV	3 mV/V + 90 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 10 Hz to 45 Hz)	33 mV to 330 mV	1.5 mV/V + 90 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 45 Hz to 10 kHz)	33 mV to 330 mV	0.4 mV/V + 90 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 10 kHz to 20 kHz)	33 mV to 330 mV	0.6 mV/V + 90 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 20 kHz to 50 kHz)	33 mV to 330 mV	1.5 mV/V + 90 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 50 kHz to 100 kHz)	33 mV to 330 mV	2 mV/V + 90 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 100 kHz to 500 kHz)	33 mV to 330 mV	2 mV/V + 90 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 45 Hz to 10 kHz)	0.33 V to 3.3 V	0.4 mV/V + 90 µV	Fluke 5500A	OEM Manual	F, O

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Electrical	Equipment to Measure AC Voltage (@ 10 kHz to 20 kHz)	0.33 V to 3.3 V	0.6 mV/V + 90 µV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 45 Hz to 10 kHz)	3.3 V to 33 V	0.35 mV/V + 2 mV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 10 kHz to 20 kHz)	3.3 V to 33 V	0.8 mV/V + 2 mV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 45 Hz to 1 kHz)	33 V to 329.999 V	1.5 mV/V + 10 mV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 45 Hz to 1 kHz)	330 V to 1 000 V	1.5 mV/V + 30 mV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Voltage (@ 1 kHz to 10 kHz)	330 V to 1 000 V	0.7 mV/V + 30 mV	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Current (@ 10 Hz to 20 Hz)	0.03 mA to 0.33 mA	2.5 mA/A + 0.15 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Current (@ 20 Hz to 45 Hz)	0.03 mA to 0.33 mA	1.25 mA/A + 0.15 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Current (@ 45 Hz to 1 kHz)	0.03 mA to 0.33 mA	1.25 mA/A + 0.25 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Current (@ 1 kHz to 5 kHz)	0.03 mA to 0.33 mA	4 mA/A + 0.15 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Current (@ 5 kHz to 10 kHz)	0.03 mA to 0.33 mA	12.5 mA/A + 0.15 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Current (@ 10 Hz to 20 Hz)	0.33 mA to 3.3 mA	2 mA/A + 0.3 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Current (@ 20 Hz to 45 Hz)	0.33 mA to 3.3 mA	1 mA/A + 0.3 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Current (@ 45 Hz to 1 kHz)	0.33 mA to 3.3 mA	1 mA/A + 0.3 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Current (@ 1 kHz to 5 kHz)	0.33 mA to 3.3 mA	2 mA/A + 0.3 µA	Fluke 5500A	OEM Manual	F, O

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Electrical	Equipment to Measure AC Current (@ 5 kHz to 10 kHz)	0.33 mA to 3.3 mA	6 mA/A + 0.3 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Current (@ 10 Hz to 20 Hz)	33 mA to 330 mA	2 mA/A + 30 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Current (@ 20 Hz to 45 Hz)	33 mA to 330 mA	1 mA/A + 30 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Current (@ 45 Hz to 1 kHz)	33 mA to 330 mA	0.9 mA/A + 30 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Current (@ 1 kHz to 5 kHz)	33 mA to 330 mA	2 mA/A + 30 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Measure AC Current (@ 5 kHz to 10 kHz)	33 mA to 330 mA	6 mA/A + 30 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Measure AC Current (@ 10 Hz to 45 Hz)	0.33 mA to 2.2 A	2 mA/A + 300 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Measure AC Current (@ 45 Hz to 1 kHz)	0.33 mA to 2.2 A	1 mA/A + 300 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Measure AC Current (@ 1 kHz to 5 kHz)	0.33 mA to 2.2 A	7.5 mA/A + 300 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Measure AC Current (@ 45 Hz to 65 Hz)	2.2 A to 11 A	0.6 mA/A + 2 000 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Measure AC Current (@ 65 Hz to 500 Hz)	2.2 A to 11 A	1 mA/A + 2 000 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Measure AC Current (@ 500 Hz to 1 kHz)	2.2 A to 11 A	3.3 mA/A + 2 000 µA	Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type E	-250 ° C to -100 ° C	0.5 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type E	-100 ° C to -25 ° C	0.16 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O

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Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type E	-25 ° C to 350 ° C	0.14 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type E	350 ° C to 650 ° C	0.16 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type E	650 ° C to 1 000 ° C	0.21 °C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type J	-210 ° C to -100 ° C	0.27 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type J	-100 ° C to -30 ° C	0.16 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type J	-30 ° C to 150 ° C	0.14 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type J	150 ° C to 760 ° C	0.17 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type J	760 ° C to 1 200 ° C	0.23 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type K	-200 ° C to -100 ° C	0.33 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type K	-100 ° C to -25 ° C	0.18 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O

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Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type K	-25 ° C to 120 ° C	0.16 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type K	120 ° C to 1 000 ° C	0.26 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type K	1 000 ° C to 1 372 ° C	0.4 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type T	-250 ° C to -150 ° C	0.63 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type T	-150 ° C to 0 ° C	0.24 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type T	0 ° C to 120 ° C	0.16 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type T	120 ° C to 400 ° C	0.14 ° C	Electrical Simulation of Thermocouple Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 100Ω	-200 °C to -80 °C	0.1 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 100Ω	-80 °C to 0 °C	0.1 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 100Ω	0 °C to 100 °C	0.14 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O

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Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 100Ω	100 °C to 300 °C	0.18 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 100Ω	300 °C to 400 °C	0.2 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 100Ω	400 °C to 630 °C	0.24 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 100Ω	630 °C to 800 °C	0.46 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 3916 100Ω	-200 °C to -190 °C	0.5 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 3916 100Ω	-190 °C to -80 °C	0.08 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 3916 100Ω	-80 °C to 0 °C	0.1 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 3916 100Ω	0 °C to 100 °C	0.12 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 3916 100Ω	100 °C to 260 °C	0.14 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 3916 100Ω	260 °C to 300 °C	0.16 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O

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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, Indication and Control Equipment Used With RTD Pt 3916 100Ω	300 °C to 400 °C	0.18 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 3916 100Ω	400 °C to 600 °C	0.2 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 3916 100Ω	600 °C to 630 °C	0.46 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 200Ω	-200 °C to -80 °C	0.08 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 200Ω	-80 °C to 0 °C	0.08 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 200Ω	0 °C to 100 °C	0.08 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 200Ω	100 °C to 260 °C	0.1 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 200Ω	260 °C to 300 °C	0.24 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 200Ω	300 °C to 400 °C	0.26 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 200Ω	400 °C to 600 °C	0.28 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O

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Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 200Ω	600 °C to 630 °C	0.32 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 1000Ω	-200 °C to -80 °C	0.1 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 1000Ω	-80 °C to 0 °C	0.06 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 1000Ω	0 °C to 100 °C	0.06 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 1000Ω	100 °C to 300 °C	0.08 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 1000Ω	100 °C to 260 °C	0.2 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 1000Ω	260 °C to 300 °C	0.12 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 1000Ω	300 °C to 400 °C	0.14 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 1000Ω	400 °C to 600 °C	0.14 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Pt 385 1000Ω	600 °C to 630 °C	0.46 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O

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Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD PtNi 385 120Ω	-80 °C to 0 °C	0.16 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD PtNi 385 120Ω	0 °C to 100 °C	0.16 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD PtNi 385 120Ω	100 °C to 260 °C	0.28 °C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Temperature Calibration, Indication and Control Equipment Used With RTD Cu 427, 10Ω	-10 ° C to 260 ° C	0.6 ° C	Electrical Simulation of RTD Output Fluke 5500A	OEM Manual	F, O
Electrical	Equipment to Output DC Current Clamp Meters (10 Turn Coil)	3.2 A to 32 A	0.6 mA/A + 1.18 mA	Fluke 5500A Fluke 9100-200	OEM Manual	F, O
Electrical	Equipment to Output DC Current Clamp Meters (10 Turn Coil)	32 A to 105 A	0.55 mA/A + 9.4 mA	Fluke 5500A Fluke 9100-200	OEM Manual	F, O
Electrical	Equipment to Output DC Current Clamp Meters (10 Turn Coil)	105 A to 200 A	0.55 mA/A + 45 mA	Fluke 5500A Fluke 9100-200	OEM Manual	F, O
Electrical	Equipment to Output DC Current Clamp Meters (50 Turn Coil)	16 A to 160 A	0.6 mA/A + 5.9 mA	Fluke 5500A Fluke 9100-200	OEM Manual	F, O
Electrical	Equipment to Output DC Current Clamp Meters (50 Turn Coil)	160 A to 525 A	0.055 mA/A + 47 mA	Fluke 5500A Fluke 9100-200	OEM Manual	F, O
Electrical	Equipment to Output DC Current Clamp Meters (50 Turn Coil)	525 A to 1 000 A	0.055 mA/A + 225 mA	Fluke 5500A Fluke 9100-200	OEM Manual	F, O
Electrical	Equipment to Output DC Voltage	10 nV to 100 mV	10 µV/V + 0.52 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output DC Voltage	100 mV to 1 V	9.3 µV/V + 1.0 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output DC Voltage	1 V to 10 V	9.3 µV/V + 7.1 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output DC Voltage	10 V to 100 V	12 µV/V + 83 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output DC Voltage	100 V to 1 000 V	12 µV/V + 0.90 mV	Keysight 3458A	OEM Manual	F, O

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Electrical	Equipment to Output Resistance	10 µΩ to 10 Ω	17 µΩ/Ω + 53 µΩ	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output Resistance	10 Ω to 100 Ω	14 µΩ/Ω + 0.63 mΩ	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output Resistance	100 Ω to 1 kΩ	12 µΩ/Ω + 3.7 mΩ	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output Resistance	1 kΩ to 10 kΩ	12 µΩ/Ω + 30 mΩ	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output Resistance	10 kΩ to 100 kΩ	12 µΩ/Ω + 0.24 Ω	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output Resistance	100 kΩ to 1 MΩ	17 µΩ/Ω + 3.7 Ω	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output Resistance	1 MΩ to 10 MΩ	58 µΩ/Ω + 0.18 kΩ	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output Resistance	10 MΩ to 100 MΩ	0.58 mΩ/Ω + 1.2 kΩ	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output Resistance	100 MΩ to 1 GΩ	5.8 mΩ/Ω + 13 kΩ	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output DC Current	10 µA to 100 µA	23 µA/A + 1.2 nA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output DC Current	100 µA to 1 mA	23 µA/A + 8.1 nA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output DC Current	1 mA to 10 mA	23 µA/A + 80 nA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output DC Current	10 mA to 100 mA	41 µA/A + 1.4 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output DC Current	100 mA to 1 A	0.13 mA/A + 12 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output DC Current	1 A to 3 A	0.14 % of reading + 0.73 mA	Agilent 34401A	OEM Manual	F, O
Electrical	Equipment to Output DC Current	3 A to 6 A	1.2 % of reading + 4.1 mA	Fluke 179	OEM Manual	F, O
Electrical	Equipment to Output DC Current	6 A to 10 A	1.2 % of reading + 35.9 mA	Fluke 179	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 1 Hz to 40 Hz)	10 nV to 10 mV	0.03 % of reading + 4.3 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 40 Hz to 1 kHz)	10 nV to 10 mV	0.02 % of reading + 2.9 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 1 kHz to 20 kHz)	10 nV to 10 mV	0.03 % of reading + 2.9 µV	Keysight 3458A	OEM Manual	F, O

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Electrical	Equipment to Output AC Voltage (@ 20 kHz to 50 kHz)	10 nV to 10 mV	0.12 % of reading + 2.9 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 100 kHz to 300 kHz)	10 nV to 10 mV	4.6 % of reading + 3.5 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 1 Hz to 40 Hz)	10 mV to 100 mV	0.01 % of reading + 13 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 40 Hz to 1 kHz)	10 mV to 100 mV	0.01 % of reading + 12 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 1 kHz to 20 kHz)	10 mV to 100 mV	0.02 % of reading + 12 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 20 kHz to 50 kHz)	10 mV to 100 mV	0.03 % of reading + 12 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 50 kHz to 100 kHz)	10 mV to 100 mV	0.09 % of reading + 12 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 100 kHz to 300 kHz)	10 mV to 100 mV	0.35 % of reading + 17 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 300 kHz to 1 MHz)	10 mV to 100 mV	1.2 % of reading + 17 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 1 MHz to 2 MHz)	10 mV to 100 mV	1.7 % of reading + 17 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 1 Hz to 40 Hz)	100 mV to 1 V	0.01 % of reading + 65 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 40 Hz to 1 kHz)	100 mV to 1 V	0.01 % of reading + 52 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 1 kHz to 20 kHz)	100 mV to 1 V	0.02 % of reading + 52 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 20 kHz to 50 kHz)	100 mV to 1 V	0.03 % of reading + 52 µV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 50 kHz to 100 kHz)	100 mV to 1 V	0.09 % of reading + 52 µV	Keysight 3458A	OEM Manual	F, O

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Electrical	Equipment to Output AC Voltage (@ 100 kHz to 300 kHz)	100 mV to 1 V	0.35 % of reading + 0.12 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 300 kHz to 1 MHz)	100 mV to 1 V	1.2 % of reading + 0.12 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 1 MHz to 2 MHz)	100 mV to 1 V	1.7 % of reading + 0.12 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 1 Hz to 40 Hz)	1 V to 10 V	0.01 % of reading + 0.46 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 40 Hz to 1 kHz)	1 V to 10 V	0.01 % of reading + 0.23 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 1 kHz to 20 kHz)	1 V to 10 V	0.02 % of reading + 0.23 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 20 kHz to 50 kHz)	1 V to 10 V	0.03 % of reading + 0.23 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 50 kHz to 100 kHz)	1 V to 10 V	0.09 % of reading + 0.23 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 100 kHz to 300 kHz)	1 V to 10 V	0.35 % of reading + 1.2 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 300 kHz to 1 MHz)	1 V to 10 V	1.2 % of reading + 1.2 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 1 MHz to 2 MHz)	1 V to 10 V	1.7 % of reading + 1.2 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 1 Hz to 40 Hz)	10 V to 100 V	0.02 % of reading + 4.6 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 40 Hz to 1 kHz)	10 V to 100 V	0.02 % of reading + 2.3 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 1 kHz to 20 kHz)	10 V to 100 V	0.02 % of reading + 2.3 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 20 kHz to 50 kHz)	10 V to 100 V	0.04 % of reading + 2.3 mV	Keysight 3458A	OEM Manual	F, O

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Electrical	Equipment to Output AC Voltage (@ 50 kHz to 100 kHz)	10 V to 100 V	0.14 % of reading + 2.3 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 100 kHz to 300 kHz)	10 V to 100 V	0.46 % of reading + 12 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 300 kHz to 1 MHz)	10 V to 100 V	1.7 % of reading + 12 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 1 Hz to 40 Hz)	100 V to 1 000 V	0.05 % of reading + 46 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 40 Hz to 1 kHz)	100 V to 1 000 V	0.05 % of reading + 23 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 1 kHz to 20 kHz)	100 V to 1 000 V	0.07% of reading + 23 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 20 kHz to 50 kHz)	100 V to 1 000 V	0.14 % of reading + 23 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Voltage (@ 50 kHz to 100 kHz)	100 V to 1 000 V	0.35 % of reading + 23 mV	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 1 Hz to 20 Hz)	100 pA to 100 µA	0.46 % of reading + 35 nA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 20 Hz to 45 Hz)	100 pA to 100 µA	0.17 % of reading + 35 nA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 45 Hz to 100 Hz)	100 pA to 100 µA	0.07 % of reading + 35 nA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 100 Hz to 5 kHz)	100 pA to 100 µA	0.07 % of reading + 35 nA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 1 Hz to 20 Hz)	100 µA to 1 mA	0.46 % of reading + 0.23 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 20 Hz to 45 Hz)	100 µA to 1 mA	0.17 % of reading + 0.23 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 45 Hz to 100 Hz)	100 µA to 1 mA	0.07 % of reading + 0.23 µA	Keysight 3458A	OEM Manual	F, O

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Electrical	Equipment to Output AC Current (@ 100 Hz to 5 kHz)	100 µA to 1 mA	0.03 % of reading + 0.23 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 5 kHz to 20 kHz)	100 µA to 1 mA	0.07 % of reading + 0.23 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 20 kHz to 50 kHz)	100 µA to 1 mA	0.46 % of reading + 0.23 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 50 kHz to 100 kHz)	100 µA to 1 mA	0.64 % of reading + 0.23 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 1 Hz to 20 Hz)	1 mA to 10 mA	0.46 % of reading + 2.3 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 20 Hz to 45 Hz)	1 mA to 10 mA	0.17 % of reading + 2.3 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 45 Hz to 100 Hz)	1 mA to 10 mA	0.07 % of reading + 2.3 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 100 Hz to 5 kHz)	1 mA to 10 mA	0.03 % of reading + 2.3 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 5 kHz to 20 kHz)	1 mA to 10 mA	0.07 % of reading + 2.3 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 20 kHz to 50 kHz)	1 mA to 10 mA	0.46 % of reading + 2.3 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 50 kHz to 100 kHz)	1 mA to 10 mA	0.64 % of reading + 2.3 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 1 Hz to 20 Hz)	10 mA to 100 mA	0.46 % of reading + 23 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 20 Hz to 45 Hz)	10 mA to 100 mA	0.17 % of reading + 23 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 45 Hz to 100 Hz)	10 mA to 100 mA	0.07 % of reading + 23 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 100 Hz to 5 kHz)	10 mA to 100 mA	0.03 % of reading + 23 µA	Keysight 3458A	OEM Manual	F, O

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Electrical	Equipment to Output AC Current (@ 5 kHz to 20 kHz)	10 mA to 100 mA	0.07 % of reading + 23 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 20 kHz to 50 kHz)	10 mA to 100 mA	0.46 % of reading + 46 µA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 50 kHz to 100 kHz)	10 mA to 100 mA	0.64 % of reading + 0.17 mA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 1 Hz to 20 Hz)	100 mA to 1 A	0.46 % of reading + 0.23 mA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 20 Hz to 45 Hz)	100 mA to 1 A	0.18 % of reading + 0.23 mA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 45 Hz to 100 Hz)	100 mA to 1 A	0.09 % of reading + 0.23 mA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 100 Hz to 5 kHz)	100 mA to 1 A	0.12 % of reading + 0.23 mA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 5 kHz to 20 kHz)	100 mA to 1 A	0.35 % of reading + 0.23 mA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 20 kHz to 50 kHz)	100 mA to 1 A	1.2 % of reading + 0.46 mA	Keysight 3458A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 3 Hz to 5 Hz)	1 A to 3 A	1.3 % of reading + 2.1 mA	Agilent 34401A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 5 Hz to 10 Hz)	1 A to 3 A	0.4 % of reading + 2.1 mA	Agilent 34401A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 10 Hz 5 kHz)	1 A to 3 A	0.17 % of reading + 2.1 mA	Agilent 34401A	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 45 Hz to 1 kHz)	3 A to 6 A	1.7 % of reading + 5 mA	Fluke 179	OEM Manual	F, O
Electrical	Equipment to Output AC Current (@ 45 Hz to 1 kHz)	6 A to 10 A	1.7 % of reading + 43 mA	Fluke 179	OEM Manual	F, O
Electrical	Equipment to Measure Resistance (Resistor Based)	10 mΩ to 100 mΩ	60 µΩ/Ω + 0.20 mΩ	QuadTech 1433-29	OEM Manual	F, O

Certificate of Accreditation: Supplement

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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	Equipment to Measure Resistance (Resistor Based)	100 mΩ to 1 Ω	62 µΩ/Ω + 0.2 mΩ	QuadTech 1433-29	OEM Manual	F, O
Electrical	Equipment to Measure Resistance (Resistor Based)	1 Ω to 10 Ω	44 µΩ/Ω + 7.2 µΩ	QuadTech 1433-29	OEM Manual	F, O
Electrical	Equipment to Measure Resistance (Resistor Based)	10 Ω to 100 Ω	35 µΩ/Ω + 7.2 µΩ	QuadTech 1433-29	OEM Manual	F, O
Electrical	Equipment to Measure Resistance (Resistor Based)	100 Ω to 1 kΩ	31 µΩ/Ω + 58 µΩ	QuadTech 1433-29	OEM Manual	F, O
Electrical	Equipment to Measure Resistance (Resistor Based)	1 kΩ to 10 kΩ	31 µΩ/Ω + 0.58 mΩ	QuadTech 1433-29	OEM Manual	F, O
Electrical	Equipment to Measure Resistance (Resistor Based)	10 kΩ to 100 kΩ	31 µΩ/Ω + 5.8 mΩ	QuadTech 1433-29	OEM Manual	F, O
Electrical	Equipment to Measure Resistance (Resistor Based)	100 kΩ to 1 MΩ	24 µΩ/Ω + 21 mΩ	IET Labs HRRS-B-5-100k	OEM Manual	F, O
Electrical	Equipment to Measure Resistance (Resistor Based)	1 MΩ to 10 MΩ	42 µΩ/Ω + 61 mΩ	IET Labs HRRS-B-5-100k	OEM Manual	F, O
Electrical	Equipment to Measure Resistance (Resistor Based)	10 MΩ to 100 MΩ	0.12 mΩ/Ω + 0.58 Ω	IET Labs HRRS-B-5-100k	OEM Manual	F, O
Electrical	Equipment to Measure Resistance (Resistor Based)	100 MΩ to 1 GΩ	0.15 mΩ/Ω + 5.8 Ω	IET Labs HRRS-B-5-100k	OEM Manual	F, O
Electrical	Equipment to Measure Resistance (Resistor Based)	1 GΩ to 10 GΩ	0.65 mΩ/Ω + 58 Ω	IET Labs HRRS-B-5-100k	OEM Manual	F, O
Mass, Force, and Weighing Devices	Analytical Balances	1 mg to 20 mg	0.003 5 mg	Class ASTM 1 Weight	CM-1009	F, O
Mass, Force, and Weighing Devices	Analytical Balances	20 mg to 500 mg	0.003 8 mg	Class ASTM 1 Weight	CM-1009	F, O
Mass, Force, and Weighing Devices	Analytical Balances	500 mg to 2 g	0.006 7 mg	Class ASTM 1 Weight	CM-1009	F, O
Mass, Force, and Weighing Devices	Analytical Balances	2 g to 5 g	0.007 6 mg	Class ASTM 1 Weight	CM-1009	F, O

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Mass, Force, and Weighing Devices	Analytical Balances	5 g to 10 g	0.010 4 mg	Class ASTM 1 Weight	CM-1009	F, O
Mass, Force, and Weighing Devices	Analytical Balances	10 g to 20 g	0.015 3 mg	Class ASTM 1 Weight	CM-1009	F, O
Mass, Force, and Weighing Devices	Analytical Balances	20 g to 50 g	0.025 2 mg	Class ASTM 1 Weight	CM-1009	F, O
Mass, Force, and Weighing Devices	Analytical Balances	50 g to 100 g	0.05 mg	Class ASTM 1 Weight	CM-1009	F, O
Mass, Force, and Weighing Devices	Analytical Balances	100 g to 200 g	0.1 mg	Class ASTM 1 Weight	CM-1009	F, O
Mass, Force, and Weighing Devices	Analytical Balances	200 g to 500 g	0.25 mg	Class ASTM 1 Weight	CM-1009	F, O
Mass, Force, and Weighing Devices	Bench Scales/Balances	500 g to 1 kg	0.07 mg	Class ASTM 1 Weight	CM-1008	F, O
Mass, Force, and Weighing Devices	Bench Scales/Balances	1 kg to 2 kg	0.51 mg	Class ASTM 1 Weight	CM-1008	F, O
Mass, Force, and Weighing Devices	Bench Scales/Balances	2 kg to 5 kg	1.3 mg	Class ASTM 2 Weight	CM-1008	F, O
Mass, Force, and Weighing Devices	Bench Scales/Balances	5 kg to 10 kg	1.3 mg	Class ASTM 1 Weight	CM-1008	F, O
Mass, Force, and Weighing Devices	Bench Scales/Balances	10 kg to 20 kg	5.2 mg	Class ASTM 1 Weight	CM-1008	F, O
Mass, Force, and Weighing Devices	Bench Scales/Balances	20 kg to 25 kg	11 mg	Class ASTM 1 Weight	CM-1008	F, O
Mass, Force, and Weighing Devices	Bench Scales/Balances	25 kg to 125 kg	30 mg	Class NIST F Weights	CM-1008	F, O
Mass, Force, and Weighing Devices	Equipment to Measure Force – Tension and Compression	0.001 gf to 500 gf	0.001 7 % of reading + 0.001 8 gf	ASTM Class 1 Weights	CM-1015	F, O
Mass, Force, and Weighing Devices	Equipment to Measure Force – Tension and Compression	0.5 kgf to 25 kgf	0.001 7 % of reading + 0.000 033 kgf	ASTM Class 1 Weights	CM-1015	F, O

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Mass, Force, and Weighing Devices	Equipment to Measure Force – Tension and Compression	55 lbf to 1 000 lbf	0.003 8 % of reading + 0.13 lbf	Morehouse Precision	CM-1015	F, O
Mass, Force, and Weighing Devices	Equipment to Measure Force – Tension and Compression	1 000 lbf to 25 000 lbf	0.003 0 % of reading + 1.2 lbf	Morehouse Precision	CM-1015	F, O
Mass, Force, and Weighing Devices	Mass Standards	1 mg	0.001 5 mg	Weights, AD4212B-101 Analytical Balance	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	2 mg	0.001 5 mg	Weights, AD4212B-101 Analytical Balance	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	5 mg	0.001 5 mg	Weights, AD4212B-101 Analytical Balance	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	10 mg	0.001 5 mg	Weights, AD4212B-101 Analytical Balance	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	20 mg	0.001 6 mg	Weights, AD4212B-101 Analytical Balance	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	50 mg	0.001 6 mg	Weights, AD4212B-101 Analytical Balance	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	100 mg	0.001 6 mg	Weights, AD4212B-101 Analytical Balance	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	200 mg	0.001 7 mg	Weights, AD4212B-101 Analytical Balance	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	500 mg	0.002 1 mg	Weights, AD4212B-101 Analytical Balance	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	1 g	0.002 0 mg	Weights, AD4212B-101 Analytical Balance	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	2 g	0.002 8 mg	Weights, AD4212B-101 Analytical Balance	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	5 g	0.003 8 mg	Weights, AD4212B-101 Analytical Balance	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	10 g	0.014 mg	Weights, AD4212B-101 Analytical Balance	CM-1059	F

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Mass, Force, and Weighing Devices	Mass Standards	20 g	0.015 mg	Weights, AD4212B-101 Analytical Balance	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	50 g	0.030 mg	Weights, AD4212B-101 Analytical Balance	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	100 g	0.035 mg	Weights, AD4212B-101 Analytical Balance	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	200 g	0.13 mg	Weights, MC-1000S Mass Comparator	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	500 g	0.14 mg	Weights, MC-1000S Mass Comparator	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	1 kg	0.15 mg	Weights, MC-1000S Mass Comparator	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	2 kg	1.5 mg	Weights, MC-10KS Mass Comparator	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	5 kg	1.9 mg	Weights, MC-10KS Mass Comparator	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	10 kg	2.2 kg	Weights, MC-10KS Mass Comparator	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	20 kg	15 mg	Weights, MC-30KS Mass Comparator	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	25 kg	18 mg	Weights, MC-30KS Mass Comparator	CM-1059	F
Mass, Force, and Weighing Devices	Mass Standards	30 kg	18 mg	Weights, MC-30KS Mass Comparator	CM-1059	F
Mechanical	Pipettes	1 µL to 100 µL	0.29 µL	A&D AD-4212B-PT	CM-1023	F, O
Mechanical	Pipettes	100 µL to 1 000 µL	0.47 µL	A&D AD-4212B-PT	CM-1023	F, O
Mechanical	Pipettes	1 000 µL to 10 000 µL	3.8 µL	A&D AD-4212B-PT	CM-1023	F, O
Mechanical	Burettes	5 mL	7.2 µL	Weights, AD-4212B-PT	CM-1060	F, O

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Mechanical	Burettes	10 mL	27 µL	Weights, AD-4212B-PT	CM-1060	F, O
Mechanical	Burettes	50 mL	51 µL	Weights, AD-4212B-PT	CM-1060	F, O
Mechanical	Burettes	100 mL	0.15 mL	Weights, AD-4212B-PT	CM-1060	F, O
Mechanical	Syringes	1 µL to 5 000 µL	0.30 µL	AD-4212B-PT	CM-1060	F, O
Mechanical	Syringes	5 mL to 30 mL	4.9 µL	AD-4212B-PT	CM-1060	F, O
Mechanical	Diluters/Dispensers	1 mL	5.2 µL	AD-4212B-PT	CM-1060	F, O
Mechanical	Diluters/Dispensers	10 mL	28 µL	AD-4212B-PT	CM-1060	F, O
Mechanical	Diluters/Dispensers	50 mL	0.30 mL	AD-4212B-PT	CM-1060	F, O
Mechanical	Diluters/Dispensers	100 mL	0.61 mL	AD-4212B-PT	CM-1060	F, O
Mechanical	Beakers, Graduated Cylinders, Flasks and Test Tubes	0.1 mL to 500 mL	7.2 µL	Weights, MC-1000S Gravimetric Method	CM-1060	F, O
Mechanical	Beakers, Graduated Cylinders, Flasks and Test Tubes	500 mL to 2 L	6.1 mL	Weights, MC-10KS Gravimetric Method	CM-1060	F, O
Mechanical	Pressure Gauge and Transducer	-10 inH2O to 10 inH2O	0.006 1 inH2O	Fluke 700P01	CM-1007	F, O
Mechanical	Pressure Gauge and Transducer	-1 psi to 1 psi	0.000 45 psi	Fluke 718 1G	CM-1007	F, O
Mechanical	Pressure Gauge and Transducer	0 psi to 30 psi	0.023 psi	Fluke 700P05	CM-1007	F, O
Mechanical	Pressure Gauge and Transducer	-12 psi to 100 psi	0.032 psi	Fluke 700G06	CM-1007	F, O
Mechanical	Pressure Gauge and Transducer	100 psi to 500 psi	0.12 psi	Fluke 700G07	CM-1007	F, O
Mechanical	Pressure Gauge and Transducer	500 psi to 2 000 psi	0.41 psi	Fluke 700G10	CM-1007	F, O
Mechanical	Pressure Gauge and Transducer	2 000 to 10 000 psi	2.2 psi	Fluke 700G31	CM-1007	F, O
Mechanical	Pressure Gauge and Transducer	0.204 6 inHg to 32.148 0 inHg	0.002 % of reading + 0.001 4 inHg	TestVonics Air Data Calibrator Static (Ps) Transducer	CM 1007	F, O
Mechanical	Pressure Gauge and Transducer	0.644 9 inHg to 112.323 0 inHg	0.002 % of reading + 0.002 6 inHg	TestVonics Air Data Calibrator	CM1007	F, O

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				Pitot (Pt) Transducer		
Mechanical	Torque Wrench and Screwdriver	20 lbf•in to 200 lbf•in	0.12 % of reading	AKO TSD011/020 AKO TSD821	CM-1001	F, O
Mechanical	Torque Wrench and Screwdriver	200 lbf•in to 800 lbf•ft	0.2 % of reading	AKO TSD011/020 AKO TSD821	CM-1001	F, O
Mechanical	Gas Flow Meter	0.05 SCCM to SCCM	0.25 % of reading + 0.12 SCCM	MC-500SCCM-D	CM-1031	F, O
Mechanical	Gas Flow Meter	0.5 SLPM to 500 SLPM	0.52 % of reading + 0.17 SLPM	MCR-500SLPM-D	CM-1031	F, O
Thermodynamic	Temperature Measurement Devices	-196 ° C to 350 ° C	0.02 ° C	GE M2801/IRTD-400 Hart Scientific 7320 Fluke 9103 Fluke 9140 Liquid Nitrogen Cylinder	CM-1003	F, O
Thermodynamic	Temperature Sources	-196 ° C to 420 ° C	0.016 ° C	GE M2801/IRTD-400	CM-1002	F, O
Thermodynamic	Infrared Temperature Measurement Devices	50 °C to 500 °C	0.37 °C	Fluke 9132	CM-1042	F, O
Thermodynamic	Humidity Measurement Devices	5 % RH to 30 % RH	0.53 % RH	Vaisala HMP75 Folyon H300	CM-1004	F, O
Thermodynamic	Humidity Measurement Devices	30 % RH to 45 % RH	0.62 % RH	Vaisala HMP75 Folyon H300	CM-1004	F, O
Thermodynamic	Humidity Measurement Devices	45 % RH to 60 % RH	0.72 % RH	Vaisala HMP75 Folyon H300	CM-1004	F, O
Thermodynamic	Humidity Measurement Devices	60 % RH to 80 % RH	0.82 % RH	Vaisala HMP75 Folyon H300	CM-1004	F, O
Thermodynamic	Humidity Measurement Devices	80 % RH to 95 % RH	0.92 % RH	Vaisala HMP75 Folyon H300	CM-1004	F, O
Thermodynamic	Humidity Chambers	Up to 30 % RH	0.53 % RH	Vaisala HMP75	CM-1004	F, O
Thermodynamic	Humidity Chambers	30 % RH to 45 % RH	0.62 % RH	Vaisala HMP75	CM-1004	F, O

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Thermodynamic	Humidity Chambers	45 % RH to 60 % RH	0.72 % RH	Vaisala HMP75	CM-1004	F, O
Thermodynamic	Humidity Chambers	60 % RH to 80 % RH	0.82 % RH	Vaisala HMP75	CM-1004	F, O
Thermodynamic	Humidity Chambers	80 % RH to 95 % RH	0.92 % RH	Vaisala HMP75	CM-1004	F, O
Time and Frequency	Stopwatch, Timers	Up to 24 h	38 ms	HP Universal Counter Agilent Function Generator	CM-1014 Totalize Method NIST 960-12	F, O
Time and Frequency	Time Intervals	Up to 24 h	761 ms	Direct Comparison Method- Stopwatch	CM-1014	F, O
Time and Frequency	Equipment to Output Frequency	1 Hz to 40 Hz	0.58 mHz/Hz + 50 µHz	Keysight 3458A	OEM Manual	F, O
Time and Frequency	Equipment to Output Frequency	40 Hz to 1 MHz	0.12 mHz/Hz + 50 µHz	Keysight 3458A	OEM Manual	F, O
Time and Frequency	Equipment to Output Frequency	1 MHz to 100 MHz	0.12 mHz/Hz + 5 Hz	Keysight 3458A	OEM Manual	F, O

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

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 Code	Location
F	Conformity assessment activity is performed at the CABs fixed facility
O	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.