PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

A1 Calibration Laboratory S.A.

TERRUM 25 Condominium, Rio Segundo, Alajuela, Costa Rica

(Hereinafter called the Organization) and hereby declares that Organization is accredited in accordance with the recognized International Standard:

ISO/IEC 17025:2017

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system
(as outlined by the joint ISO-ILAC-IAF Communiqué dated April 2017):

Chemical, Dimensional, Electrical, Mass (Weighing Devices, Individual Weight), Mechanical, Thermodynamic, Time & Frequency Calibrations Thermo Hygrometer, and RPM Digital Measurement Instrument
(As detailed in the supplement)

Accreditation claims for such testing and/or calibration services shall only be made from addresses referenced within this certificate. This Accreditation is granted subject to the system rules governing the Accreditation referred to above, and the Organization hereby covenants with the Accreditation body's duty to observe and comply with the said rules.

For PJLA:

Tracy Szerszen
President

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

Initial Accreditation Date:	*Issue Date:*	*Expiration Date:*
April 9, 2008	October 04, 2022	December 31, 2024

Accreditation No:	*Certificate No:*
59381	L22-653

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

A1 Calibration Laboratory S.A.
TERRUM 25 Condominium, Rio Segunda, Alajuela, Costa Rica
Contact Name: Felix Hernandez Phone: 506-2440-4010

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

Chemical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
pH Meters[FO]	Up to 14 pH	0.03 pH	Buffers Solutions Method I-30

Dimensional

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Caliper[FO]	Up to 600 mm	(0.007 L + 6) µm	Gage Blocks Method I-03 Method I-09 Method I -18
Micrometer[FO] (inside)	Up to 305 mm	(0.007 L + 6) µm	
Micrometer[FO] (outside)	Up to 400 mm	(0.007 L + 6) µm	
Depth Micrometer[FO]	Up to 150 mm	(0.007 L + 6) µm	
Dial Indicator[FO]	Up to 50 mm	(0.007 L + 6) µm	Gage Blocks Method I-02
Steel Rule[F]	Up to 1 000 mm	0.06 mm	Gage Block Portable microscope OMAX M51B Method I-01
Pin Gages[F]	Up to 25.4 mm	0.002 mm	Laser Micrometer Method I-04
Measuring Tape[F]	Up to 12 000 mm	0.8 mm	Standard Steel Rule Method I-01
Protractor[FO]	0° to 90°	0.1 °	Angle Gage Blocks Method I-12 Method -35

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TERRUM 25 Condominium, Rio Segunda, Alajuela, Costa Rica
Contact Name: Felix Hernandez Phone: 506-2440-4010

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

Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Hypot Tester[FO]	100 V to 9 000 V	280 µV/V + 15 mV	Vitrek 4700 Method I-45
pH Meters[FO]	-2 000 mV to 2 000 mV	0.3 mV	Fluke 753 Method I-11
	15 °C to 40 °C	0.5 °C	Fluke 753/K Thermocouple
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type T[FO]	0 °C to 400 °C	0.7 °C	Process Calibrator 753 8.5 DMM 8104 Method I-14 Method I-20 Method I-51
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type R[FO]	50 °C to 1 700 °C	1.2 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type J[FO]	-210 °C to 750 °C	0.5 °C	
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type K[FO]	-140 °C to 1 340 °C	0.4 °C	
Temperature Calibration Indication & Control Equipment used RTD Type Pt 385, 100 Ω[FO]	-200 °C to 800 °C	0.23 °C	Process Calibrator 753 Method I-14 Method I-20 Method I-51
Temperature Calibration Indication & Control Equipment used RTD Type Pt 3926, 100 Ω[FO]	-200 °C to 630 °C	0.12 °C	

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Temperature Calibration Indication & Control Equipment used RTD Type Pt 3916, 100 Ω[FO]	-200 °C to 360 °C	0.25 °C	Process Calibrator 753 Method I-14 Method I-20 Method I-51
Temperature Calibration Indication & Control Equipment used RTD Type Pt 385, 200 Ω[FO]	-200 °C to 630 °C	0.16 °C	
Temperature Calibration Indication & Control Equipment used RTD Type Pt 385, 500 Ω[FO]	-200 °C to 630 °C	0.12 °C	
Temperature Calibration Indication & Control Equipment used RTD Type Pt 385, 1000 Ω[FO]	-200 °C to 630 °C	0.23 °C	
Temperature Calibration Indication & Control Equipment used RTD Type Pt Ni 672, 120 Ω[FO]	-200 °C to 260 °C	0.14 °C	
Temperature Calibration Indication & Control Equipment used RTD Type Cu 427, 10 Ω[FO]	-100 °C to 260 °C	0.3 °C	
Temperature Calibration Indication & Control Equipment used RTD Type Pt 3926, 100 Ω[FO]	-200 °C to 630 °C	0.5 °C	
Temperature Calibration Indication & Control Equipment used RTD Type Pt 385, 100 Ω[FO]	-200 °C to 800 °C	0.8 °C	
Temperature Calibration Indication & Control Equipment used RTD Type Pt 385, 200 Ω[FO]	-200 °C to 630 °C	0.8 °C	
Temperature Calibration Indication & Control Equipment used RTD Type Pt 385, 500 Ω[FO]	-200 °C to 630 °C	0.8 °C	

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Equipment to Output DC Voltage[FO]	0 mV to 100 mV	5.8 µV/V + 0.9 µV	8.5 DMM 8104 Method I-11 Method I-19 Method I-38
	100 mV to 1 V	4.6 µV/V + 2.5 µV	
	1 V to 10 V	4.8 µV/V + 4.5µV	
	10 V to 100 V	8.5 µV/V + 72 µV	
	100 V to 1 000 V	25 µV/V + 250 µV	
Equipment to Output AC Voltage at the listed Frequencies[FO]			
10 Hz to 40 Hz	0 mV to 100 mV	86 µV/V + 99 µV	
40 Hz to 200 Hz	0 mV to 100 mV	86 µV/V + 45µV	
200 Hz to 2 kHz	0 mV to 100 mV	86 µV/V + 38 µV	
2 kHz to 20 kHz	0 mV to 100 mV	86 µV/V + 53 µV	
20 kHz to 100 kHz	0 mV to 100 mV	86 µV/V + 160 µV	
Equipment to Output AC Voltage at the listed Frequencies[FO]			
10 Hz to 40 Hz	100 mV to 1 V	92 µV/V + 50 µV	
40 Hz to 200 Hz	100 mV to 1 V	92 µV/V + 31 µV	
200 Hz to 2 kHz	100 mV to 1 V	170 µV/V + 31 µV	
2 kHz to 20 kHz	100 mV to 1 V	350 µV/V + 31 µV	
20 kHz to 100 kHz	100 mV to 1 V	930 µV/V + 31 µV	
100 kHz to 1 MHz	100 mV to 1 V	3.5 mV/V + 120 µV	
Equipment to Output AC Voltage at the listed Frequencies[FO]			
10 Hz to 40 Hz	1 V to 10 V	92 µV/V + 50 µV	
40 Hz to 200 Hz	1 V to 10 V	92 µV/V + 31 µV	
200 Hz to 2 kHz	1 V to 10 V	170 µV/V + 31 µV	
2 kHz to 20 kHz	1 V to 10 V	350 µV/V + 31 µV	
20 kHz to 100 kHz	1 V to 10 V	930 µV/V + 31 µV	
100 kHz to 200 kHz	1 V to 10 V	3.5 mV/V + 120 µV	
Equipment to Output AC Voltage at the listed Frequencies[FO]			
10 Hz to 40 Hz	10 V to 100 V	450 µV/V + 2.7 mV	
40 Hz to 200 Hz	10 V to 100 V	450 µV/V + 2.7 mV	
200 Hz to 2 kHz	10 V to 100 V	450 µV/V + 2.7 mV	
2 kHz to 20 kHz	10 V to 100 V	560 µV/V + 2.7 mV	
20 kHz to 50 kHz	10 V to 100 V	1.5 mV/V + 2.7 mV	

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Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Equipment to Output AC Voltage at the listed Frequencies[FO]			8.5 DMM 8104 Method I-11 Method I-19 Method I-38
10 Hz to 40 Hz	100 V to 1 000 V	450 µV/V + 2.7 mV	
40 Hz to 200 Hz	100 V to 1 000 V	450 µV/V + 2.7 mV	
200 Hz to 2 kHz	100 V to 1 000 V	560 µV/V + 2.7 mV	
2 kHz to 20 kHz	100 V to 1 000 V	1.5 mV/V + 2.7 mV	
20 kHz to 50 kHz	100 V to 1 000 V	4.7 mV/V + 2.7 mV	
Equipment to Output DC Current[FO]	1 nA to 10 nA	4 µA/A + 0.2 nA	
	10 nA to 100 nA	8 µA/A + 0.8 nA	
	100 nA to 1 µA	12 µA/A + 1.2 nA	
	1 µA to 10 µA	24 µA/A + 1.2 nA	
	10 µA to 100 µA	24 µA/A + 1 nA	
	100 µA to 1 mA	24 µA/A + 7.1 nA	
	1 mA to 10 mA	24 µA/A + 69 nA	
	10 mA to 100 mA	41 µA/A + 680 nA	
	100 mA to 1 A	130 µA/A + 13 µA	
	1 A to 10 A	130 µA/A + 26 µA	
	10 A to 30 A	130 µA/A + 80 µA	
Equipment to Output AC Current at the listed Frequencies[FO]			
10 Hz to 40 Hz	0 µA to 100 µA	0.47 % of Reading + 35 nA	
40 Hz to 1 kHz	0 µA to 100 µA	0.18 % of Reading + 35 nA	
1 kHz to 10 kHz	0 µA to 100 µA	0.07 % of Reading + 35 nA	
Equipment to Output AC Current at the listed Frequencies[FO]			
10 Hz to 40 Hz	100 µA to 1 mA	0.47 % of Reading + 35 nA	
40 Hz to 1 kHz	100 µA to 1 mA	0.18 % of Reading + 35 nA	
1 kHz to 10 kHz	100 µA to 1 mA	0.07 % of Reading + 35 nA	
Equipment to Output AC Current at the listed Frequencies[FO]			
10 Hz to 40 Hz	1 mA to 10 mA	0.18 % of Reading + 240 nA	
40 Hz to 1 kHz	1 mA to 10 mA	0.07 % of Reading + 240 nA	
1 kHz to 10 kHz	1 mA to 10 mA	0.035 % of Reading + 240 nA	
Equipment to Output AC Current at the listed Frequencies[FO]			
10 Hz to 40 Hz	10 mA to 100 mA	0.18 % of Reading + 38 µA	
40 Hz to 1 kHz	10 mA to 100 mA	0.07 % of Reading + 43 µA	
1 kHz to 10 kHz	10 mA to 100 mA	0.035 % of Reading + 24 µA	

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Contact Name: Felix Hernandez Phone: 506-2440-4010

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Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Equipment to Output AC Current at the listed Frequencies[FO]			8.5 DMM 8104 Method I-11 Method I-19 Method I-38
10 Hz to 40 Hz	100 mA to 1 A	0.47 % of Reading + 240 µA	
40 Hz to 1 kHz	100 mA to 1 A	0.19 % of Reading + 240 µA	
1 kHz to 10 kHz	100 mA to 1 A	0.12 % of Reading + 240 µA	
Equipment to Output AC Current at the listed Frequencies[FO]			
10 Hz to 40 Hz	1 A to 10 A	0.13 % of Reading + 150 µA	
40 Hz to 1 kHz	1 A to 10 A	0.1 % of Reading + 150 µA	
Equipment to Output AC Current at the listed Frequencies[FO]			
10 Hz to 40 Hz	10 A to 30 A	0.16 % of Reading + 1.5 mA	
40 Hz to 1 kHz	10 A to 30 A	0.11 % of Reading + 1.5 mA	
Equipment to Output Resistance[FO]	0 Ω to 1 Ω	22 µΩ/Ω + 80 µΩ	8.5 DMM 8104 Method I-37 Method I-32
	1 Ω to 10 Ω	18 µΩ/Ω + 130 µΩ	
	10 Ω to 100 Ω	14 µΩ/Ω + 1.1 mΩ	
	100 Ω to 1 kΩ	12 µΩ/Ω + 1 mΩ	
	1 kΩ to 10 kΩ	12 µΩ/Ω + 7.4 mΩ	
	10 kΩ to 100 kΩ	12 µΩ/Ω + 320 mΩ	
	100 kΩ to 1 MΩ	18 µΩ/Ω + 7.1 Ω	
	1 MΩ to 10 MΩ	59 µΩ/Ω + 46 Ω	
	10 MΩ to 100 MΩ	58 µΩ/Ω + 5.7 kΩ	
	100 MΩ to 1 GΩ	58 µΩ/Ω + 0.11 MΩ	
	1 GΩ to 10 GΩ	58 µΩ/Ω + 130 kΩ	
	10 GΩ to 100 GΩ	58 µΩ/Ω + 1.1 MΩ	
	100 GΩ to 1 TΩ	58 µΩ/Ω + 11 MΩ	
Equipment to Output Capacitance[FO]	0 nF to 1 nF	2 % of Reading + 0.025 nF	8.5 DMM 8104 Method I-11 Method I-19 Method I-38
	1 nF to 10 nF	1 % of Reading + 0.05 nF	
	10 nF to 100 nF	1 % of Reading + 0.5 nF	
	100 nF to 1 µF	1 % of Reading + 5 nF	
	1 µF to 10 µF	1 % of Reading + 50 nF	
	10 µF to 100 µF	1 % of Reading + 0.5 µF	
	100 µF to 1 mF	1 % of Reading + 5 µF	
	1 mF to 10 mF	1 % of Reading + 50 µF	
	10 mF to 100 mF	1 % of Reading + 0.2 mF	

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TERRUM 25 Condominium, Rio Segunda, Alajuela, Costa Rica
Contact Name: Felix Hernandez Phone: 506-2440-4010

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

Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Pressure Gauge, Differential Pressure Indicators, Sensors and Transducer[FO]	0 kPa to 2.49 kPa	0.014 kPa	Ashcroft ATE-2/AM2-1 Transducer Method I-07 Method I-06
	2.49 kPa to 206 kPa	0.042 kPa	DPI 150 Method I-08
Vacuum Gauges, Vacuum transducers and Sensors[FO]	-75.8 kPa to 0 kPa	0.042 kPa	
Aneroid Sphygmomanometer and Sphygmomanometer with Mercury[FO]	0 kPa to 40 kPa	0.39 kPa	DPI 104 Method I-42
Pressure Gauge, Sensors and Transducer[FO]	206 kPa to 2 068 kPa	0.18 kPa	UPM Module Method I-07
	2 068 kPa to 3 447 kPa	0.41 kPa	
Pressure Gauge[FO]	0 kPa to 6 894 kPa	0.40 kPa	
	6 894 kPa to 20 684 kPa	0.56 kPa	
	20 684 kPa to 34 473 kPa	4.5 kPa	Module 700P30 Method I-07
	34 473 kPa to 68 948 kPa	8.0 kPa	Module DP 104 Method I-07
Torque Wrench[FO]	0.5 Nm to 5.6 Nm	0.75 % of Reading	Transducer 2000-400-2 Method I-16
	3.4 Nm to 45.2 Nm	0.75 % of Reading	
	9.0 Nm to 113 Nm	0.75 % of Reading	
	27.1 Nm to 339 Nm	0.75 % of Reading	
	271.2 Nm to 2 711 Nm	0.75 % of Reading	Transducer 2000-14-02 Method I-16
Volume Delivery Instruments (Pipettes)[F]	(20 to 100) µL	0.8 µL	MICROBALANCE RADWAG BALANCES &SCALES XA 21.4Y.M.A PLUS ANALITICAL BALANCE OHAUS PA224 Method ISO 8655-6
	(100 to 1 000) µL	1.8 µL	
	(1 000 to 5 000) µL	8.9 µL	
	(5 000 to 10 000) µL	18 µL	

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

Mass, Force, and Weighing Devices

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Balance[FO]	0 g to 100 g	(0.45 + 0.003Wt) mg	Class F1 Weight Set Method I-13
	101 g to 300 g	(0.62 + 0.003Wt) mg	
	301 g to 1 000 g	(1.2 + 0.003Wt) mg	
	1 001 g to 2 000 g	(10 + 0.003Wt) mg	
	2 001 g to 10 000 g	(150 + 0.003Wt) mg	
	10 001 g to 30 000 g	(320 + 0.003Wt) mg	
	30 005 g to 60 000 g	(36 + 0.003Wt) g	
	60 005 g to 425 kg	(210 + 0.003Wt) g	
Weight (Mass)[FO]	0.5 g	0.06 mg	OIML F2, M1, M2 CEM Weight Calibration Procedure Method I-27
	1 g	0.07 mg	
	2 g	0.08 mg	
	5 g	0.1 mg	
	10 g	0.14 mg	
	20 g	0.16 mg	
	50 g	0.24 mg	
	100 g	0.46 mg	
	200 g	0.92 mg	
	500 g	2.4 mg	
	1 000 g	4.6 mg	
	2 000 g	9.6 mg	
	5 000 g	24 mg	
	10 000 g	46 mg	
	20 000 g	92 mg	
Liquid Volume Measuring Devices to include Graduated Cylinders, Beakers, Burets, Erlenmeyer, Glass Micro Pipettes, Volumetric Balls, Imhoff Cones, Seraphin Test Measures, Gallon “to contain’ container or bucket[F]	(Up to 200) mL	0.003 mL	DIGITAL BALANCE OHAUS PA2202 DIGITAL BALANCE METTLER TOLEDO MS32001LE Gravimetric Method Method CENAM Technical Guide
	(200 to 6 000) mL	0.46 mL	
	(6 000 to 25 000) mL	2.8 mL	

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Thermodynamic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
RTD Thermometer[FO]	-25 °C to 420 °C	0.08 °C	PTR 5615 / 1521 Method I-14
	250 °C to 420 °C	0.1 °C	
Temperature Bath [FO]	-25 °C to 300 °C	0.15 °C	PTR 5613 / 1521 Method I-14
Liquid in Glass Thermometer, Digital Thermometer, Bimetallic Thermometer[FO]	-25 °C to 300 °C	0.3 °C	PTR 5615 / 1521 Dry Well 650 S Liquid Bath TE-10D Method I-14 Method I-51
Oven, Freezer, Furnace, Digital Thermometer with thermocouple.[FO]	-25 °C to 650 °C	1.7 °C	Fluke 753 / /TC type J and K / Graphtec GL 220/Dry Well 650 S Method I-14
Digital Infrared Thermometer[FO]	-25 °C to 35 °C	1.8 °C	Liquid Bath TE-10D with blackbody target with TC type K Method I-15
	35 °C to 400 °C	0.3 °C	
Thermo Hygrometer[FO]	15 °C to 30 °C	0.3 °C	Standard Thermo Hygrometer 635-1 Method I-42
	20 % RH to 95 % RH	2.5 % RH	

Time & Frequency

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Time and Frequency Simulation[FO]	1 µHz to 80 MHz	3×10^{-5} Hz/Hz	Function Generator 4086 Method I-46 Method I-40 Method I-21
	0 GHz to 2.4 GHz	60×10^{-6} Hz/Hz	Frequency Counter C3100
RPM Digital Measurement Instrument[FO]	10 rpm to 90 000 rpm	0.05 % of Reading	Function Generator 4086 Method I-43

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.

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2. The laboratories range of calibration capability for all disciplines for which they are accredited is the interval from the smallest calibrated standard to the largest calibrated standard used in performing the calibration. The low end of this range must be an attainable value for which the laboratory has or has access to the standard referenced. Verification of an indicated value of zero in the absence of a standard is common practice in the procedure for many calibrations but by its definition it does not constitute calibration of zero capacity.

3. The presence of a superscript F means that the laboratory performs calibration of the indicated parameter at its fixed location. Example: Outside Micrometer^{F} would mean that the laboratory performs this calibration at its fixed location.

4. The presence of a superscript FO means that the laboratory performs calibration of the indicated parameter both at its fixed location and onsite at customer locations. Example: Outside Micrometer^{FO} would mean that the laboratory performs this calibration at its fixed location and onsite at customer locations.

5. Measurement uncertainties obtained for calibrations performed at customer sites can be expected to be larger than the measurement uncertainties obtained at the laboratories fixed location for similar calibrations. This is due to the effects of transportation of the standards and equipment and upon environmental conditions at the customer site which are typically not controlled as closely as at the laboratories fixed location.