PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Quality Instruments Services de México, S.A. de C.V.

Fray Nicolás de Zamora No.73, Col. El Pueblito
Corregidora, Querétaro, México. C.P. 76900

(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):

Time and Frequency, Mechanical, Thermodynamic, Chemical and Optical Calibration
(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:*
January 28, 2020	April 23, 2024	April 23, 2026

Accreditation No.:	*Certificate No.:*
89224	L24-300

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

Quality Instruments Services de México, S.A. de C.V.

Fray Nicolás de Zamora No.73, Col. El Pueblito
Corregidora, Querétaro, México. C.P. 76900
Contact Name: Carolina Cardona Phone: 442-225-4758

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

Time and Frequency

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Stopwatch[O]	60 s to 86 400 s	0.82 s/day	Direct Comparison Stopwatch Control Company	CENAM Technical Guide

Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Pressure Meter[O]	5 psi to 50 psi	0.1 psi	Digital Dwyer DPG-104 Manometer	CENAM Technical Guide

Thermodynamic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Temperature Generation: Ovens, Furnaces, Muffles, Freezers, Incubators[O]	-40 °C to 1 000 °C	0.4 °C	Thermometer Extech Mod. 421502	CENAM Technical Guide
Relative Humidity Meter[O]	11.3 % RH to 97.4 % RH	2 % RH	Thermohigrometer Rotronic Mod. Hydroclip HK-25	

Chemical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
pH Meter[O]	4 pH	0.021 pH	Traceable, Standards Fermont	CENAM Technical Guide
	7 pH	0.02 pH		
	10 pH	0.032 pH		
Conductivity Meter[O]	84 µS/cm	1 µS/cm	NIST Traceable Standards Hanna Solutions	
	1 413 µS/cm	5 µS/cm		

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

Optical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
ρ (λ) Spectral Reflectance^{O}	Color Values:		White Standard Tile	ASTM E1164 D2244
	CIE L*: 0 to 100	0.29 units		
	CIE a*: -26 to 63	0.21 units		
	CIE b*: -26 to 63	0.18 units		
Spectrophotometers Transmittance^{O}	τ: 3 %	0.065 % of reading	Neutral Density Filters Holmium Oxide Glass	ASTM E275
	τ: 50 %	0.208 % of reading		
	τ: 90 %	0.384 % of reading		
	λ: 340 nm to 750 nm	0.58 nm		
Gloss/Specular Reflectance Angle of Incline^{O}	20º	0.18 Gloss Units	Gardner Gloss and Semi-Gloss Standards	ASTM D-523
	60º	0.24 Gloss Units		
	85º	0.26 Gloss Units		
Ev Illuminance Chamber^{O}	100 lux to 3 000 lux	2 % of reading	Sekonic C-700	ASTM D1729
Ev Light Color Chamber^{O}	2 856 K	26 K		
Irradiance: Xenon Test Chamber Filter Daylight Q^{O}	0.25 W/m^2 to 0.68 W/m^2 (@340 nm)	5.8 % of reading	Radiometer Q-LAB CR20/340/D	ASTM G151 ASTM G155
Irradiance: Xenon Test Chamber^{O}	0.45 W/m^2 to 1.5 W/m^2 (@420 nm)	5.8 % of reading	Radiometer Q-LAB CR20/420	ASTM G151
	20 W/m^2 to 70 W/m^2 (@TUV)	5.8 % of reading	Radiometer Q-LAB CR20/TUV	
Irradiance: Xenon Test Chamber Filter UV Extended Q/B^{O}	0.25 W/m^2 to 0.68 W/m^2 (@340 nm)	5.8 % of reading	Radiometer Q-LAB CR20/ 340/ QB	
Irradiance: Xenon Test Chamber Filter Window BSL^{O}	0.45 W/m^2 to 1.5 W/m^2 (@420 nm)	5.8 % of reading	Radiometer Q-LAB CR20/340/BSL	
	20 W/m^2 to 70 W/m^2	5.8 % of reading		
Irradiance: UVA 340^{O}	0.68 W/m^2/nm to 1.38 W/m^2/nm (@340 nm)	5.8 % of reading	Radiometer Q-LAB CR10	ASTM G151 ASTM G154
Irradiance: Lamps UVA 351^{O}	0.87 W/m^2/nm to 1.55 W/m^2/nm (@340 nm)	5.8 % of reading		

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Irradiance: Lamps UVB 313^{O}	0.67 W/m^2/nm to 1.23 W/m^2/nm (@310 nm)	5.8 % of reading	Radiometer Q-LAB CR10	ASTM G151 ASTM G154
Irradiance: Lamps QFS 40^{O}	0.48 W/m^2/nm to 0.86 W/m^2/nm (@310 nm)	5.8 % of reading		

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. The presence of a superscript O means that the laboratory performs calibration of the indicated parameter onsite at customer locations.
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.