PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

International Light Technologies

Maybachstraße 11, Ostfildern, Germany 73760

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

ISO/IEC 17025:2017
& Meets the Requirements of ANSI/NCSI Z540.1-1994
& ANSI/NCSI Z540.3-2006 subclause 5.3

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):

Electrical & Optical Calibrations
(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:*
September 07, 2023	September 07, 2023	December 31, 2025

Accreditation No.:	*Certificate No.:*
66765	L22-44-1

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

International Light Technologies
Maybachstraße 11, Ostfildern, Germany 73760
Contact Name: Mr. John Ellis Phone: 407-961-6383

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
Research Radiometers & Photometers Fixed pints [F]	1 mA	3.6×10^{-7} A	Keithley Current Calibrator TP-0135
	100 uA	3.4×10^{-8} A	
	10 uA	6.2×10^{-9} A	
	1 uA	6.5×10^{-10} A	
	100 nA	7.3×10^{-11} A	
	10 nA	7.9×10^{-12} A	
	1 nA	8.4×10^{-13} A	
	100 pA	2.6×10^{-13} A	
	10 pA	1.3×10^{-13} A	
	1 pA	4.2×10^{-14} A	

Optical

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
Belt Radiometers at the listed Wavelengths [F]			
200 nm to 500 nm	10 m W/cm (2) to 200 m W/cm (2)	11 % of Reading	Silicon Photodiodes Phototubes OP-0030
250 nm to 400 nm	1×10^{-10} W/cm (2) to 7×10^{-3} W/cm (2)	5 % of Reading	Silicon Photodiodes Phototubes OP-0030, OP-0098, OP-0131
Irradiance Response at the listed Wavelengths [F]			
200 nm to 250 nm	1×10^{-10} W/cm (2) to 8×10^{-6} W/cm (2)	11 % of Reading	Silicon Photodiodes Phototubes OP-0131
250 nm to 400 nm	1×10^{-10} W/cm (2) to 7×10^{-3} W/cm (2)	4.5 % of Reading	Silicon Photodiodes Phototubes OP-0131, OP-0018, OP-0098, OP-0019, OP-0007, OP-0029
400 nm to 960 nm	1×10^{-10} W/cm (2) to 2×10^{-2} W/cm (2)	3 % of Reading	Silicon Photodiodes Phototubes OP-0131, OP-0029, OP-0018
960 nm to 1 000 nm	1×10^{-10} W/cm (2) to 1×10^{-4} W/cm (2)	4.5 % of Reading	Silicon Photodiodes Phototubes OP-0131, OP-0029
Illuminance Sensitivity at the listed Wavelengths [F]			
400 nm to 700 nm	.002 Lux to 9 500 Lux	2.4 % of Reading	Silicon Photodiode OP-0070

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Luminance Sensitivity at the listed Wavelengths [F]			
400 nm to 700 nm	.000 4 cd/m to 3 100 cd/m (2)	2.4 % of Reading	Silicon Photodiode OP-0071
Radiance Response At the listed Wavelengths [F]			
200 nm to 250 nm	3×10^{-11} W/cm^{2}/sr to 3×10^{-6} W/cm^{2}/sr	11 % of Reading	Silicon Photodiode OP-0041
250 nm to 400 nm	3×10^{-11} W/cm^{2}/sr to 3×10^{-3} W/cm^{2}/sr	4.5 % of Reading	
400 nm to 960 nm	3×10^{-11} W/cm^{2}/sr to 7×10^{-3} W/cm^{2}/sr	3 % of Reading	
960 nm to 1 000 nm	3×10^{-11} W/cm^{2}/sr to 3×10^{-5} W/cm^{2}/sr	4.5 % of Reading	
1 000 nm to 1 100 nm	3×10^{-11} W/cm^{2}/sr to 3×10^{-5} W/cm^{2}/sr	5 % of Reading	
Spectroradiometers Spectral Irradiance At the listed Wavelengths [F]			
200 nm to 350 nm	3×10^{-7} W/cm^{2}cm to 1×10^{-6} W/cm^{2}cm	4 % of Reading	Calibration Standard Lamp OP-0152
350 nm to 400 nm	4×10^{-8} W/cm^{2}cm to 2×10^{-6} W/cm^{2}cm	3 % of Reading	
400 nm to 900 nm	6×10^{-6} W/cm^{2}cm to 2×10^{-5} W/cm^{2}cm	3 % of Reading	
900 nm to 1 050 nm	6×10^{-6} W/cm^{2}cm to 2×10^{-5} W/cm^{2}cm	7 % of Reading	
1 050 nm to 1 250 nm	6×10^{-6} W/cm^{2}cm to 2×10^{-5} W/cm^{2}cm	15 % of Reading	
1 250 nm to 2 050 nm	5×10^{-6} W/cm^{2}cm to 1.5×10^{-5} W/cm^{2}cm	7 % of Reading	
1 250 nm to 2 500 nm	2×10^{-6} W/cm^{2}cm to 6×10^{-6} W/cm^{2}cm	14 % of Reading	
Spectroradiometers Spectral Radiance At the listed Wavelengths [F]			
350 nm to 400 nm	2×10^{-7} W/sr cm^{2}cm to 6×10^{-7} W/sr cm^{2}cm	3 % of Reading	Calibration Standard Lamp OP-0152
400 nm to 900 nm	2×10^{-6} W/sr cm^{2}cm to 7×10^{-6} W/sr cm^{2}cm	3 % of Reading	
900 nm to 1 050 nm	2×10^{-6} W/sr cm^{2}cm to 7×10^{-6} W/sr cm^{2}cm	7 % of Reading	

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

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 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. This location is linked to 10 Technology Drive Peabody MA 01960