PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Evident Scientific Inc.

Evident Scientific Inc.
48 Woerd Avenue, Waltham, MA 02453
Evident Canada Inc.
3415, Rue Pierre-Ardouin, Quebec City, Quebec, Canada G1P 0B3
Evident Scientific Inc.
110 Magellan Circle, Webster, TX 77598

(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):

Dimensional & Electrical 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

Initial Accreditation Date:	*Issue Date:*	*Expiration Date:*
December 14, 2015	May 26, 2022	July 31, 2024
Revision Date:	*Accreditation No.:*	*Certificate No.:*
October 10, 2022	87902	L22-391-R1

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

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

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Contact Name: Eric St. Pierre Phone: +1-418-263-3688

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

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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
Ultrasonic Thickness Gages[F]	0.01 in to 4 in	$(85 + 5.01 \times 10^{-1})$ µin	Test Blocks Evident Manufacturer Procedure

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
Verification of Ultrasonic Flaw Detection Equipment for the following capabilities[F]			Evident Manufacturer Procedure, ASTM E-317 & EN12668-1:2010
Pulse Voltage[F]	50 V to 450 V	3 %	
Rise Time[F]	5 ns to 50 ns	3 %	
Reverberation[F]	5 ns to 50 ns	3 %	
Duration[F]	50 ns to 2 µs	1 %	
Amplifier Frequency Response[F]	40 kHz to 26.2 MHz	0.9 %	
Center Frequency[F]	17.8 MHz	2 %	
Bandwidth[F]	3 dB	3 %	
Equivalent Input Noise[F]	10 nV/√Hz to 100 nV/√Hz	3 %	
Internal Attenuator /Gain[F]	10 dB to 110 dB	0.3 dB	
Linearity of Vertical Display[F]	50 V to 450 V	1 %	
Linearity of Time Base[F]	3 µs to 7 ms	1 %	
Linearity of Time Base for Digital Ultrasonic Instruments[F]	3 µs to 7 ms	1 %	

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Ultrasonic Flaw Detector Equipment			
Stability after warm-up time[F]	Amplitude at 80 % Screen Height PositionVariation at 50 % Screen Width	0.9 % 0.03 %	ASTM E-317 EN12668-1:2010
Display Jitter[F]	Amplitude at 80 % Screen Height Position Variation at 50 % Screen Width	0.32 % 0.03 %	ASTM E-317 EN12668-1:2010
Stability against Voltage Variation[F]	Amplitude @ 80 % Screen Height Position Variation at 50 % Screen Width	0.32 % 0.03 %	ASTM E-317 EN12668-1:2010

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Verification of Ultrasonic Phased Array Equipment			
Transmitter Pulse Voltage[F]	50 V to 450 V	3 % of reading	ISO 18563-1:2015
Rise Time[F]	5 ns to 50 ns	3 % of reading	
Duration[F]	50 ns to 2 µs	3 % of reading	
Linearity of Time Base[F]	3 µs to 7 ms	3 % of reading	
Amplifier Frequency Response[F]	40 kHz to 26.2 MHz	0.9 % of reading	
Channel Variation Gain[F]	at 3 dB	3 % of reading	

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Verification of Ultrasonic Phased Array Equipment			
Equivalent Input Noise[F]	10 nV/√Hz to 100 nV/√Hz	3 % of reading	ISO 18563-1:2015
Linearity of Vertical Display[F]	50 V to 450 V	1 % of reading	

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Eddy Current Flaw Detector & Bond Master Flaw Detector			
Excitation Frequency F[F]	10 MHz	8.2 kHz	ISO 15548-1:2013
Excitation Frequency F2[F]	10 MHz	8.2 KHz	
Harmonic Distortion F1[F]	10 MHz	8.2 KHz	
Harmonic Distortion F2[F]	10 MHz	8.2 KHz	
Maximum Output Voltage F1 at 10 Hz[F]	2 Vpp	2.3 mVpp	
Maximum Output Voltage F1 at 10 MHz[F]	2 Vpp	2.4 mVpp	
Maximum Output Voltage F1 at 10 Hz[F]	5 Vpp	0.9 mVpp	
Maximum Output Voltage F1 at 10 MHz[F]	5 Vpp	0.9 mVpp	
Maximum Output Voltage F1 at 10 Hz[F]	8 Vpp	0.6 mVpp	
Maximum Output Voltage F1 at 10 MHz[F]	8 Vpp	0.6 mVpp	

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Eddy Current Flaw Detector & Bond Master Flaw Detector			
Maximum Output Voltage F2 at 10 Hz[F]	2 Vpp	2.3 mVpp	ISO 15548-1:2013
Maximum Output Voltage F2 at 10 MHz[F]	2 Vpp	2.4 mVpp	
Maximum Output Voltage F2 at 10 Hz[F]	5 Vpp	0.9 mVpp	
Maximum Output Voltage F2 at 10 MHz[F]	5 Vpp	0.9 mVpp	
Maximum Output Voltage F2 at 10 Hz[F]	8 Vpp	0.6 mVpp	
Maximum Output Voltage F2 at 10 MHz[F]	8 Vpp	0.6 mVpp	
Maximum Allowable Input Voltage at 10 Hz[F]	14.4 Vpp	2.5 mVpp	
Frequency Response of Digital Signal Processing at -3 dB[F]	75 Hz	0.006 Hz	
Frequency Response of Digital Signal Processing at -3 dB[F]	2 450 Hz	0.006 Hz	
Frequency Response of Digital Signal Processing at 3 dB[F]	2 450 Hz	0.006 Hz	
Phase Linearity at 10 Hz[F]	10 °	0.006 °	
Phase Linearity at 10 Hz[F]	360 °	0.006 °	
Phase Linearity at 10 MHz[F]	10 °	0.006 °	
Phase Linearity at 10 MHz[F]	360 °	0.006 °	
Gain Setting Accuracy at 10 Hz[F]	6 dB	0.07 dB	
Gain Setting Accuracy at 10 Hz[F]	42 dB	0.07 dB	
Gain Setting Accuracy at 10 MHz[F]	6 dB	0.07 dB	

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Eddy Current Flaw Detector & Bond Master Flaw Detector			
Gain Setting Accuracy at 10 MHz[F]	42 dB	0.07 dB	ISO 15548-1:2013
Maximum Instrument Noise at 10 Hz[F]	16 Vpp	0.19 Vpp	
Maximum Instrument Noise at 10 MHz[F]	16 Vpp	0.19 Vpp	
Maximum Output Voltage TX MIA at 2 kHz[F]	3.3 Vpp	1.4 mVpp	
Maximum Output Voltage TX MIA at 50 kHz[F]	3.3 Vpp	1.4 mVpp	
Maximum Output Voltage TX MIA at 2 kHz[F]	7.7 Vpp	1.1 mVpp	
Maximum Output Voltage TX MIA at 50 kHz[F]	7.7 Vpp	1.2 mVpp	
Maximum Output Voltage TX MIA at 2 kHz[F]	16.0 Vpp	1.1 mVpp	
Maximum Output Voltage TX MIA at 50 kHz[F]	16.0 Vpp	1.1 mVpp	
Maximum Output Voltage TX Resonance at 1 kHz[F]	1.0 Vpp	4.7mVpp	
Maximum Output Voltage TX Resonance at 500 kHz[F]	3.3 Vpp	4.6 mVpp	
Maximum Output Voltage TX Resonance at 1 kHz[F]	7.7 Vpp	4.6 mVpp	
Maximum Output Voltage TX Resonance at 500 kHz[F]	7.7 Vpp	4.6 mVpp	
Maximum Output Voltage TX Resonance at 1 kHz[F]	16.0 Vpp	4.6 mVpp	
Maximum Output Voltage TX Resonance at 500 kHz[F]	16.0 Vpp	4.6 mVpp	
Maximum Output Voltage HV at 2 kHz[F]	26.5 Vpp	13.5mVpp	
Maximum Output Voltage HV at 50 kHz[F]	26.5 Vpp	13.5mVpp	

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Eddy Current Flaw Detector & Bond Master Flaw Detector			
Maximum Output Voltage HV at 2 kHz[F]	61.0 Vpp	5.9 mVpp	ISO 15548-1:2013
Maximum Output Voltage HV at 50 kHz[F]	61.0 Vpp at 50 kHz	5.9 mVpp	
Maximum Output Voltage HV at 2 kHz[F]	126.0 Vpp	2.8 mVpp	
Maximum Output Voltage HV at 50 kHz[F]	126.0 Vpp	2.8 mVpp	

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. The term L represents length in inches or millimeters as appropriate to the uncertainty statement