



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

OPTI-TECH SCIENTIFIC INC.
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CALIBRATION

Valid To: May 31, 2026

Certificate Number: 6961.01

In recognition of the successful completion of the A2LA evaluation process (including an assessment of the organization's compliance with A2LA's Calibration Program Requirements), accreditation is granted to this laboratory to perform the following calibrations^{1,6}:

I. Dimensional

Parameter/Equipment	Range	CMC ² (±)	Comments
Dimensional ³	Up to 4 in Up to 100 mm	(0.45L + 120) μin (0.01L + 3.1) μm	Calibration of camera-aided linear measurement systems, using measurement software. L= length in inches or mm
Displacement Measuring System ³	Up to 4 in 100 mm	(0.45d + 160) μin (0.01d + 4.1) μm	Displacement calibration of X-Y stages using mechanical or digital micrometers. d = displacement in inches or mm
Optical Comparison ³	Up to 4 in Up to 100 mm	(0.45L + 900) μin (0.01L + 24) μm	Verification of lens distortion (variance) in analog forensic (ballistic) comparison microscopes. L= length in inches or mm

Parameter/Equipment	Range	CMC ² (±)	Comments
Reticles and Filar Eyepiece ³	Up to 0.08 in 2000 μm	(0.45L + 130) μin (0.01L + 3.2) μm	ASTM E1951 Section 5.4 Eyepiece Micrometer Calibration and Section 5.6 Filar Eyepiece Calibration. L = length in inches or mm

II. Mechanical

Parameter/Equipment	Range	CMC ² (±)	Comments
Rockwell Hardness and Rockwell Superficial Hardness ³			ASTM E18 Indirect Verification method.
HRA:	Low Medium High	0.33 HRA 0.35 HRA 0.15 HRA	ASTM E110 Indirect Verification Method for Portable Rockwell Hardness Testers
HRBW:	Low Medium High	1.1 HRBW 0.53 HRBW 0.55 HRBW	
HRC:	Low Medium High	0.27 HRC 0.29 HRC 0.27 HRC	
HREW:	Low Medium High	0.38 HREW 0.28 HREW 0.17 HREW	
HRFW:	Low Medium High	0.85 HRFW 0.26 HRFW 0.43 HRFW	
HRHW:	Low High	0.34 HRHW 0.26 HRHW	
HRLW:	Low High	0.46 HRLW 0.41 HRLW	
HR15N:	Low Medium High	0.27 HR15N 0.15 HR15N 0.15 HR15N	

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Rockwell Hardness and Rockwell Superficial Hardness ³ (cont.)			ASTM E18 Indirect Verification method.
HR15TW:	Low Medium High	0.25 HR15TW 0.28 HR15TW 0.25 HR15TW	ASTM E110 Indirect Verification Method for Portable Rockwell Hardness Testers
HR15YW:	Low High	0.51 HR15YW 0.42 HR15YW	
HR30N:	Low Medium High	0.35 HR30N 0.56 HR30N 0.43 HR30N	
HR30TW:	Low Medium High	0.40 HR30TW 0.36 HR30TW 0.30 HR30TW	
HR45N:	Low Medium High	0.21 HR45N 0.37 HR45N 0.21 HR45N	
HR45TW:	Low Medium High	0.48 HR45TW 0.88 HR45TW 0.52 HR45TW	
Vickers and Knoop Hardness ³	(100 to 240) HV (250 to 600) HV > 600 HV	11 HV 8.7 HV 18 HV	ASTM E92 100 g < F ≤ 1000 g (force = 100 g to 1000 g)
	(100 to 240) HV (250 to 600) HV > 600 HV	5.2 HV 7.9 HV 11 HV	F > 1000 ≤ 50 000 g
	(100 to 250) HK (250 to 650) HK > 650 HK	5.7 HK 7.5 HK 13 HK	100 g < F ≤ 1000 g (force = 100 g to 1000 g)

Parameter/Equipment	Range	CMC ^{2,5} (±)	Comments
Brinell Hardness at Test Conditions ³ :			ASTM E10, ISO/IEC 6506 Indirect Verification Method. And ASTM E110 Indirect Verification Method for Portable Brinell Hardness Testers.
10/3000/15	(96 to 225) HBW (226 to 650) HBW	1.6 HBW 3.3 HBW	
10/1000/15	(129 to 218) HBW	1.8 HBW	
10/500/15	(64 to 109) HBW	0.69 HBW	
5/250/15	(129 to 218) HBW	1.6 HBW	
2.5/187.5/15	(96 to 225) HBW (226 to 650) HBW	1.1 HBW 17 HBW	
2.5/62.5/15	(32 to 218) HBW	0.54 HBW	
1/30/15	(96 to 225) HBW (226 to 650) HBW	2.4 HBW 37 HBW	
1/10/15	(32 to 218) HBW	1.3 HBW	
1/5/15	(16 to 109) HBW	0.51 HBW	
Brinell Hardness ³			ASTM E10 and ISO 6506-2 Direct Verification Method
Verification of Test Force	62.5 to 3000 kgf	0.25 kgf	Verification of the test force is by elastic device.
Verification of the Device for Measuring Indentation Diameters	Up to 6 mm	0.002 mm	By comparison to stage micrometer
Verification of Testing Cycle (Time)	Up to 30 s	0.5 s	Stopwatch
Leeb Hardness ³	(600 to 800) HLD	13 HLD	ASTM A956/956M Indirect Verification Method of portable Leeb Hardness testers
Verification of Analytical Balances ³	Up to 1000 g	1.6R ¹ mg	ASTM E898, using OMIL Class E ₂ Weights

III. Thermodynamics

Parameter/Equipment	Range	CMC ² (±)	Comments
Temperature – Measure ³	(250 to 1100) °C	5.1 °C	Temperature calibration of ovens and furnaces.

¹ This laboratory offers commercial calibration service and field calibration service.

² Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMCs represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

³ Field calibration service is available for this calibration. Please note the actual measurement uncertainties achievable on a customer's site can normally be expected to be larger than the Calibration and Measurement Capability Uncertainty (CMC) found on the A2LA Scope. Allowance must be made for aspects such as the environment at the place of calibration and for other possible adverse effects such as those caused by transportation of the calibration equipment. The usual allowance for the uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the actual measurement uncertainty achievable on a customer's site being larger than the CMC.

⁴ F is the resolution of the unit under test.

⁵ R is the resolution of the unit under test.

⁶ This scope meets A2LA's *P112 Flexible Scope Policy*.



Accredited Laboratory

A2LA has accredited

OPTI-TECH SCIENTIFIC INC.

Whitby, Ontario, CANADA

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets R205 – Specific Requirements: Calibration Laboratory Accreditation Program. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 18th day of June 2024.

A blue ink signature of Mr. Trace McInturff, written over a horizontal line.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 6961.01
Valid to May 31, 2026

For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.