



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005
& ANSI/NCSL Z540-1-1994

OXFORD INSTRUMENTS X-RAY TECHNOLOGY, INC.
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CALIBRATION

Valid To: November 30, 2019

Certificate Number: 1809.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations¹:

I. Dimensional

Parameter/Equipment	Range	CMC ^{2, 3, 4} (±)	Comments
Coating Thickness – Measuring Equipment	Up to 0.0015 in	3.7 %	ASTM E376 (eddy current) Zn/Fe, Cd/Fe, Cu/Fe, & Ni/Fe
	(0.001 to 0.05) in	3.7 %	ASTM B244 (eddy current) non-conductive over conductive
	Up to 0.1 in	4.2 %	ASTM B499 (magnetic induction)
	(35 to 200) µin	3.8 %	Microresistance (rate panel)
	(0.0003 to 0.0055) in	5.4 %	Microresistance (Cu fine line)
	Up to 0.0055 in	3.8 %	ASTM B530 (Ni over non-magnetic)
Plated Thru-Hole Measuring Equipment	Up to 0.004 in	5.4 %	ASTM E376 (eddy current - ETP)

Parameter/Equipment	Range	CMC ^{2, 3, 4} (±)	Comments
Coating Thickness Measurement Standards	(1 to 2000) µin (1 st layer)	4.3 %	ASTM B568 (X-ray)
	(1 to 2000) µin (2 nd layer)	6.5 %	
	Up to 0.0015 in	4.2 %	ASTM E376 (eddy current) Zn/Fe, Cd/Fe, Cu/Fe, & Ni/Fe
	(0.001 to 0.05) in	4.2 %	ASTM B244 (eddy current) non-conductive over conductive
	Up to 0.1 in	4.7 %	ASTM B499 (magnetic induction)
	(35 to 200) µin	4.4 %	Microresistance (rate panel)
	(0.0003 to 0.0055) in	5.9 %	Microresistance (Cu fine line)
	Up to 0.0055 in	4.4 %	ASTM B530 (Ni over non-magnetic)
Plated Thru-Hole Standards	Up to 0.004 in	5.9 %	ASTM E376 (eddy current - ETP)

¹ This laboratory offers commercial calibration services.

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 of 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 In the statement of CMC uncertainty, the value is defined as the percentage of reading unless otherwise noted.

⁴ The CMC for this Parameter/Equipment applies for performance verification of the "best existing" device under test and not for the assignment of reference values, and therefore certain characteristics of the "best existing" device under test (e.g. repeatability) are not included in this CMC uncertainty estimate.



Accredited Laboratory

A2LA has accredited

OXFORD INSTRUMENTS X-RAY TECHNOLOGY, INC.

Scotts Valley, CA

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and 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 July 2018.

A handwritten signature in blue ink, appearing to read "L. A. Smith", written over a horizontal line.

President and CEO
For the Accreditation Council
Certificate Number 1809.01
Valid to November 30, 2019

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