



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017  
& ANSI/NCSL Z540-1-1994

QUALITY VISION SERVICES, INC.  
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CALIBRATION

Valid To: September 30, 2024

Certificate Number: 1864.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations<sup>1, 6</sup>:

I. Dimensional

| Parameter/Equipment                                       | Range   | CMC <sup>2, 4</sup> (±)                            | Comments   |
|---|---|--|--|
| Optical Comparators,<br>Contour Projectors <sup>3</sup> – |   |  |  |
| Length  | Up to 18 in<br>(18 to 48) in                          | (64 + 0.54L) μin<br>(47 + 1.5L) μin                | Reticle/linescale/square<br>L = length in inches                       |
| Squareness  | Up to 12 in   | 150 μin  |  |
| Magnification<br>5× to 200×                               | Up to 50 in screen                                    | 130 μin  |  |
| Chart Rotation  | Up to 50 in screen                                    | 200 μin  |  |
| Video Measurement<br>Systems <sup>3</sup>                 | Up to 18 in<br><br>(18 to 48) in<br><br>(48 to 63) in | 31 μin<br><br>53 μin<br><br>48 μin + 1.64 μin/in*L | Reticle/linescale/laser/<br>stairstep gage<br><br>L = length in inches |
| Toolmaker's<br>Microscopes <sup>3</sup>                   | Up to 12 in   | 200 μin  | Reticle/linescale  |

| Parameter/Equipment                | Range               | CMC <sup>2</sup> (±)   | Comments  |
|------------------------------------|---------------------|--|---|
| Coordinate Measuring Machine (CMM) |                     |  | In accordance with ISO 10360-2:2009             |
| Length (3D)                        | Up to 400 mm        | 0.40 μm  | Ball beam / step gage                           |
|                                    | (400 to 850) mm     | 0.68 μm  | Ball beam / step gage                           |
|                                    | (850 to 1150) mm    | 0.83 μm  | Ball beam / step gage                           |
|                                    | (1150 to 1600) mm   | 1.1 μm   | Ball beam / step gage                           |
| Probe Performance                  |                     |  | In accordance with ISO 10360-5:2020             |
| Scanning Probe                     | Up to 25.1 mm       | 0.20 μm  | Sphere  |
| Touch Probe                        | Up to 25.1 mm       | 0.20 μm  | Sphere  |
| Probe Form                         | Up to 25.1 mm       | 0.09 μm  | Sphere  |
|                                    |                     |  | In accordance with ISO 10360-7:2011             |
| Length (3D)                        | Up to 300 mm        | 0.19 μm  | Linescale                                       |
|                                    | (300 to 770) mm     | 0.33 μm  | Linescale                                       |
|                                    | (770 to 1000) mm    | 0.40 μm  | Linescale                                       |
| Probe Performance                  | (0.2 to 10) mm      | 0.22 μm  | Circle standard                                 |
|                                    | Up to 10 mm         | 0.10 μm  | Linescale                                       |
| Precision Linescale                | Up to 2400 mm       | $Q [22, 0.072L] \text{ nm}^{4,5}$<br>(for length, $L$ in mm) | Video microscope and (HeNe) interferometer      |
| Precision Grids                    | Up to 25 in × 25 in | 30 μin   | Grid inspection system                          |
| Precision Scales                   | Up to 40 in         | 30 μin   | Grid inspection system/SIP measuring instrument |

| Parameter/Equipment          | Range             | CMC <sup>2</sup> (±) | Comments  |
|------------------------------|-------------------|----------------------|---|
| Precision Reticles           | Up to 24 in       | 30 μin               | Grid inspection system/SIP measuring instrument |
| Z-Axis Step Gages – Video    |                   |                      |   |
| Step Height                  | (0.125 to 6) in   | 28 μin               | Laseruler/indi-square/indicator                 |
| Perpendicularity             |                   | 36 μin               |   |
| Calibration Spheres Diameter | (0.25 to 1.0) in  | 28 μin               | Laseruler                                       |
| Step Gages – Cobra           | (0.125 to 1.0) in | 12 μin               | Laseruler                                       |
| QVS Width Gage               | Up to 60 mm       | 0.36 μm              | QVI Quest 625                                   |

<sup>1</sup> This laboratory offers commercial and field calibration services.

<sup>2</sup> 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.

<sup>3</sup> 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 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 actual 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.

<sup>4</sup>  $Q[a, b] = \sqrt{(a^2 + b^2)}$

<sup>5</sup> For certain types of linescales with lengths over 314 mm, the CMC claim is smaller than that of the expanded uncertainty claim for NIST as listed in the BIPM Key Comparison Database. A2LA has evaluated the laboratory's CMC claim and has verified this information to be correct and appropriate.

<sup>6</sup> This scope meets A2LA's *P112 Flexible Scope Policy*.



## Accredited Laboratory

A2LA has accredited

### QUALITY VISION SERVICES, INC.

Rochester, NY

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 the requirements of ANSI/NCCL 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 22<sup>nd</sup> day of August 2022.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 1864.01  
Valid to September 30, 2024  
Revised August 16, 2024

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