



SCOPE OF ACCREDITATION TO ISO 17025:2017

X-RITE INCORPORATED
 4300 44th Street SE
 Grand Rapids, MI 49512
 Kevin Irwin Phone: 616 803 2118

CALIBRATION

Valid To: December 31, 2023

Certificate Number: 2108.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations^{1, 7}:

I. Optical Quantities

| Parameter/Equipment ⁵ | Range | CMC ^{2, 4} (±) | Comments ⁶ |
|---|------------------------------------|-------------------------|----------------------------------|
| Spectrophotometers – | | | White reflection standards with: |
| Model 962, 964, 939 (0/45 Optical Geometry) | (400 to 420) nm (430 to 700) nm | 2.0 %R 0.70 %R | SPP X-it 962 |
| Model SP6x (Sphere 0/8° Optical Geometry) | (400 to 410) nm (420 to 700) nm | 0.89 %R 0.65 %R | SPP X-it SP |
| Model CI60, CI61, CI62, CI64, CI64 UV, CI4xxx | 400 nm (410 to 700) nm | 0.99 %R 0.45 %R | SPP CI6x |
| Model CI7xxx ³ | (360 to 400) nm (410 to 750) nm | 1.0 %R 0.42 %R | SPP CI7x |
| Model 504, 508, 518, 528, 530 (0/45 Optical Geometry) | 400 nm (410 to 700) nm | 1.9 %R 0.65 %R | SPP X-it 500 |
| Model Exact (0/45 Optical Geometry) | 400 nm (410 to 700) nm | 2.0 %R 0.55 %R | SPP exact |

| Parameter/Equipment ⁵ | Range | CMC ^{2,4} (±) | Comments ⁶ |
|--|------------------------------------|------------------------|-------------------------------------|
| Spectrophotometers – (cont) | | | White reflection standards with: |
| Model Ci5/Ci7 ³ (Sphere 0/8° Optical Geometry) | (360 to 390) nm (400 to 740) nm | 0.88 %R 0.49 %R | SPP CtestXP |
| Model MA9X (Aspecular Optical Geometry) | | | SPP final 2 MA9x |
| -15 degree | (400) nm (410 to 700) nm | 0.89 %R 0.68 %R | |
| 15 degree | (400 to 410) nm (420 to 700) nm | 0.79 %R 0.53 %R | |
| 25 degree | (400) nm (410 to 700) nm | 0.79 %R 0.44 %R | |
| 45 degree | (400) nm (410 to 700) nm | 0.81 %R 0.45 %R | |
| 75 degree | (400) nm (410 to 700) nm | 0.77 %R 0.42 %R | |
| 110 degree | (400) nm (410 to 700) nm | 0.89 %R 0.61 %R | |

| Parameter/Equipment ⁵ | Range | CMC ^{2,4} (\pm) | Comments ⁶ |
|---|---------------------------|------------------------------|----------------------------------|
| Spectrophotometers – (cont) | | | White reflection standards with: |
| Model MA-x Series and OEM variants (TOP Spectro-photometer) (Aspecular Optical Geometry) | | | |
| 15 degree | 400 nm (410 to 700) nm | 1.1 %R 0.83 %R | Topaz Service Manual |
| 25 degree | 400 nm (410 to 700) nm | 1.1 %R 0.79 %R | |
| 45 degree | 400 nm (410 to 700) nm | 1.1 %R 0.78 %R | |
| 75 degree | 400 nm (410 to 700) nm | 0.99 %R 0.76 %R | |
| 110 degree | 400 nm (410 to 700) nm | 1.1 %R 0.86 %R | |
| Model MA-Tx Series and OEM variants (KOH Spectro-photometer) (Aspecular Optical Geometry) | | | |
| -15 degree | 400 nm (410 to 700) nm | 0.92 %R 0.77 %R | Kohinoor Service Manual |
| 15 degree | 400 nm (410 to 700) nm | 0.86 %R 0.59 %R | |
| 25 degree | 400 nm (410 to 700) nm | 0.85 %R 0.52 %R | |
| 45 degree | 400 nm (410 to 700) nm | 0.83 %R 0.51 %R | |
| 75 degree | 400 nm (410 to 700) nm | 0.79 %R 0.48 %R | |
| 110 degree | 400 nm (410 to 700) nm | 0.90 %R 0.63 %R | |

| Parameter/Equipment ⁵ | Range | CMC ^{2,4} (\pm) | Comments ⁶ |
|--|---|------------------------------|---------------------------------------|
| Optical Radiation ³ (Lightbooth) | 2300 K (Horizon) 2856 K (Illuminate A) | 20 K 22 K | X-Rite LightSpex Pro radiometer |

¹ This laboratory offers commercial calibration service and field 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 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 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.

⁴ In the statement of CMC, R is the reflectance.

⁵ The product families have the same optical geometries and calibration procedures. The features on the display and outputs are the only differences.

⁶ White reflection standards apply to the calibration of approximately 80 % reflectance on a neutral white ceramic. Color calibration is mainly based on inter-instrument agreement.

⁷ This scope meets A2LA's *P112 Flexible Scope Policy*.



Accredited Laboratory

A2LA has accredited

X-RITE INCORPORATED

Grand Rapids, MI

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 24th day of March 2022.

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

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2108.01
Valid to December 31, 2023

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