

Calibration Summary Report for Complete Measurement Solution Device

Device Overview

Model: PG103-G

Serial Number: Website Example

Manufacturer: Bladewear Inc.

Calibration Date: xxxxx xx, 2024

Calibration Standards and Procedures

This angle-finding goniometer device has been calibrated following principles and guidelines and standards set by the National Institute of Standards and Technology (NIST). The specialized machinist angle plates standards were used for calibration and inspection. The calibration process adhered to principles outlined in the following specific NIST documentation:

1. NIST Special Publication 250-41: principles followed similar to calibration services for spectroradiometric detectors and photodiodes.
2. NIST Technical Note 1297: Guidelines for evaluating and expressing the uncertainty of NIST measurement results.
3. NIST Handbook 150: NVLAP Procedures and General Requirements related to environmental control considerations during testing.

Calibration Process

The calibration was performed in a controlled environment similar to principles outlined in NIST Handbook 150, maintaining stable temperature, humidity, and lighting conditions to minimize potential measurement errors. The procedure involved:

- Using high-precision calibrated reference angle blocks.
- Measuring known angles with the goniometer and comparing the readings against the reference standards.
- Documenting all measurements and ensuring traceability comparable to NIST standards.
- Controlling environmental factors like vibration, air quality, humidity, temperature and lighting.

Measurement Uncertainty

The measurement uncertainty was calculated according to NIST Technical Note 1297, taking into account:

- Device resolution
- Repeatability
- Environmental factors like vibration, air quality, humidity, temperature and lighting.
- Reference standard uncertainty

The total measurement uncertainty was found to be within acceptable limits, ensuring high confidence in the calibration results.

Calibration Results

The goniometer device was tested at various angles, and the results were compared to the calibrated reference standards. The device passed all tests with a tolerance of ± 0.5 degrees. All measured angles were within the specified tolerance of ± 0.5 degrees, indicating excellent performance and reliability of the device. The summary of the calibration results is as follows: