

Standard Operating Procedure (SOP)

Calibration and Maintenance of Testing Equipment

This SOP details the **calibration and maintenance of testing equipment** to ensure accuracy, reliability, and optimal performance. It covers procedures for regular calibration schedules, verification of equipment functionality, routine maintenance tasks, documentation of calibration results, and corrective actions for equipment discrepancies. The goal is to maintain integrity in testing processes, minimize equipment downtime, and comply with quality standards.

1. Purpose

To establish standard procedures for calibrating and maintaining testing equipment to ensure measurement accuracy and reliability.

2. Scope

This SOP applies to all laboratory and field staff responsible for the use, calibration, or maintenance of testing equipment.

3. Responsibilities

- **Laboratory/Field Staff:** Perform calibration, routine maintenance, and record results as specified.
- **Quality Manager:** Review calibration records and ensure compliance with standards.
- **Equipment Custodian:** Schedule calibrations and maintenance, coordinate corrective actions.

4. Definitions

- **Calibration:** Comparing equipment readings with a known standard and adjusting as necessary.
- **Maintenance:** Routine activities to ensure equipment remains operational (e.g., cleaning, lubrication).
- **Verification:** Checking equipment performance against standards without adjustment.

5. Procedure

1. Calibration Schedule

- Maintain a calibration schedule for all relevant equipment.
- Perform calibration at manufacturer-recommended intervals or as per regulatory requirements.

2. Calibration Procedure

- Ensure equipment is clean and operational before calibration.
- Use appropriate certified reference standards.
- Record pre-calibration measurements.
- Adjust equipment as needed to align with reference standards.
- Record post-calibration results and sign the calibration log.

3. Verification of Equipment

- Periodically verify equipment accuracy without adjustment.
- Document any deviations and notify the Quality Manager if limits are exceeded.

4. Routine Maintenance

- Clean equipment regularly as specified in the user manual.
- Check for wear and tear, and replace parts as necessary.
- Lubricate moving parts where applicable.

5. Documentation

- Record all calibration, verification, and maintenance activities in the Equipment Logbook (see example below).

- Attach calibration certificates and maintenance reports to equipment records.

6. **Corrective Actions**

- If equipment fails calibration or verification, immediately remove from service.
- Label as "Out of Service" and initiate corrective action (recalibration, repair, replacement).

6. **Documentation Example**

Date	Equipment ID	Activity	Performed By	Results/Comments	Next Due
2024-06-01	EQ-12345	Calibration	J. Doe	Within tolerance	2025-06-01

7. **References**

- Manufacturer Equipment Manuals
- ISO/IEC 17025:2017 “ General requirements for the competence of testing and calibration laboratories
- Internal Quality Assurance Guidelines

8. **Revision History**

Version	Date	Changes	Approved By
1.0	2024-06-15	Initial creation	Quality Manager