

SOP: Preparation and Calibration of Imaging Equipment

1. Purpose

This SOP details the **preparation and calibration of imaging equipment**, covering the necessary steps to ensure accurate and consistent imaging performance. It includes procedures for equipment setup, routine calibration checks, adjustments to imaging parameters, maintenance protocols, and quality control measures. The goal is to optimize image quality, ensure reliable data acquisition, and maintain equipment functionality for diagnostic or analytical purposes.

2. Scope

This SOP applies to all personnel responsible for the operation, calibration, and maintenance of imaging equipment within the facility.

3. Responsibilities

- **Operators:** Ensure daily preparation, calibration, and operation of imaging equipment.
- **Technicians:** Perform scheduled maintenance and calibration checks as outlined.
- **Supervisors/Managers:** Verify compliance with this SOP and address deviations.

4. Equipment and Materials

- Imaging system (specify model)
- Calibration tools/phantoms (as appropriate)
- Cleaning supplies (lint-free cloths, wipes, approved cleaning solution)
- Protective equipment (gloves, etc.)
- Maintenance logbook or electronic record system

5. Procedure

5.1 Preparation

1. Ensure the imaging area is clean and free from obstruction.
2. Verify power supply to the equipment and turn on the system.
3. Inspect all cables, connectors, and accessories for damage or wear.
4. Clean optical surfaces, sensors, or panels as recommended by manufacturer.
5. Allow the equipment to reach operating temperature if required.

5.2 Calibration

1. Follow manufacturer's instructions for system calibration.
2. Utilize calibration standards or reference phantoms specific to the equipment.
3. Record baseline calibration values and verify they fall within accepted ranges.
4. If necessary, adjust imaging parameters (e.g., exposure, contrast, focus) according to standard settings.
5. Document calibration results in the maintenance log.

5.3 Quality Control Checks

1. Run standardized image acquisition tests (e.g., test patterns, phantom imaging).
2. Review image quality for artifacts, resolution, and contrast.
3. Repeat calibration or contact technical support if results are outside acceptable limits.
4. Document outcomes and corrective actions, if any.

5.4 Maintenance

1. Perform scheduled preventative maintenance as per manufacturer's recommendations.
2. Inspect and replace worn or defective parts as needed.
3. Update the maintenance log after each event.

6. Documentation

- Record all steps, results, and issues in the maintenance and calibration logbook.
- Retain records for the period required by institutional or regulatory policy.

7. References

- Manufacturer's user manuals and calibration guides
- Facility-specific quality assurance procedures

8. Revision History

Version	Date	Description	Author
1.0	2024-06-01	Initial SOP creation	[Author Name]