SOP Template: Image Quality Assurance and Evaluation Steps

This SOP details the **image quality assurance and evaluation steps**, encompassing the systematic assessment of image resolution, clarity, color accuracy, and consistency. It includes protocols for standardized image capture, criteria for defect identification, tools and software used for analysis, and procedures for documenting and reporting quality issues. The goal is to ensure all images meet predefined quality standards, supporting accurate analysis, reliable results, and overall project integrity.

1. Purpose

To outline the standardized process for ensuring and evaluating image quality in terms of resolution, clarity, color accuracy, and consistency.

2. Scope

This SOP applies to all team members involved in image capture, processing, evaluation, and documentation.

3. Responsibilities

- **Image Capturers:** Adhere to capture protocols.
- **Quality Assessors:** Perform image evaluations and defect identification.
- **Document Controllers:** Maintain records of evaluations and issues.
- **Supervisors/Quality Managers:** Oversee SOP compliance.

4. Procedure

4.1 Standardized Image Capture

1. Ensure correct camera settings (resolution, ISO, white balance).
2. Utilize consistent lighting and background.
3. Capture sample/calibration images at set intervals for benchmarking.
4. Name files using standardized conventions.

4.2 Initial Quality Check

1. Visually inspect images for blurring, improper focus, color casts, and artifacts.
2. Check file integrity and completeness.
3. Discard or flag any failed images for retake.

4.3 Automated Analysis

1. Upload images to designated analysis software (see Section 5).
2. Run automated quality checks for:
    - Resolution (pixel dimensions, DPI)
    - Clarity (sharpness metrics, focus scores)
    - Color accuracy (histogram analysis, color checker reference)
    - Consistency (batch comparison)
3. Review software flags/reports for potential defects.

4.4 Manual Quality Assessment

1. Compare images to reference standards or calibration images.
2. Rate images according to predefined criteria (see Section 6).
3. Document causes for failure if defects are identified.

4.5 Documentation & Reporting

1. Record findings in the Image Quality Assessment Log (see template below).
2. Report any persistent issues to supervisor/quality team.
3. Archive both raw and processed images with assessment results.

5. Tools & Software

- Image viewing and editing software (e.g., Photoshop, GIMP)
- Automated analysis tools (e.g., Imatest, ImageJ, QA software)
- Color reference cards/checkers
- Project-specific asset management platforms

6. Image Quality Criteria

Parameter	Acceptable Criteria	Common Defects
Resolution	≥ Minimum required pixels/DPI	Low pixel count, compression artifacts
Clarity	No visible blurring or focus loss	Motion blur, out of focus
Color Accuracy	Consistent with reference/color checker	Color cast, incorrect white balance
Consistency	Uniform appearance across image set	Exposure variation, lighting irregularities

7. Documentation Template: Image Quality Assessment Log

Date	Image ID/Name	Assessor	Resolution OK	Clarity OK	Color OK	Consistency OK	Notes/Defects	Action Taken
2024-06-15	Img_001	Jane Doe	Yes	No	Yes	Yes	Slight blur detected	Retake scheduled

8. References

- Project-specific quality standards
- Manufacturer/camera documentation
- Industry best practice guidelines

9. Revision History

Date	Version	Description	Approved By
2024-06-15	1.0	Initial release	A. Smith