Title: **Equipment Quality Control**
Authority: **Records Management Program**
Date: **January 24, 2000; revised November 8, 2004**

Introduction

The following procedures are in accordance with the Local Government Code and standards and procedures outlined in the American National Standard for Information and Image Management--Recommended Practice for Quality Control of Image Scanners [ANSI/AIIM MS44-1988].

These quality control procedures are designed to ensure that all documents entered into the scanning system will be available for output with the necessary quality prior to destruction of the original paper documents. These procedures are designed to:

(1) allow the operator to ascertain that the scanner is properly set up before scanning actual documents; and
(2) give the operator a knowledge of what the scanner can and cannot do. The targets are detailed so that all scanners will fail at some point. The point of failure tells the user what kinds of documents the scanner will not scan properly (for example, colors, type size, etc.).

Establishing a Quality Reference

The definition of good output from a digital image system must be established. This will be accomplished by comparing a test target image against an original (AIIM's) target reference, which will allow the user to make judgments about system quality. The *AIIM Scanner Test Chart* will be used for this purpose.

Because of the copious amount of documents requiring setting alterations, a single quality reference (test target) will be run at the start and end of the day. [Ref.: Pre- and Post-testing Procedures]. It is imperative that any scanner problem be detected and corrected as soon as possible to prevent the need to rescan documents and/or possible loss of documents.

NOTE: Maintenance on a scanner may affect the actual results of the user-controllable settings. For this reason, any time the scanner is recalibrated by a technician, a test run of all document settings should be made. Once a match for the original quality of the targets has been achieved, the new proper settings should be recorded.

If the original quality of targets cannot be achieved, then either the scanner still has a problem, or the calibration was not performed properly. In either case, additional corrective maintenance may be necessary.

Overview of Pre- and Post-testing Procedures [Details follow].

Prior to scanning documents:

1. Run a pre-scan test using the AIIM target. [Refer to *Placement of Target on the Scanner]*
2. Examine the test target on screen, comparing the image with the original target. [Refer to *Determination of Problem Areas]*
3. If the scan result is not acceptable,
   a. print the document,
   b. write the scan settings on the copy
   c. give the copy to the Document Imaging Technician to place a service call.
   d. enter the test results on the Scan Test Target Log.
4. Enter the test results and any comments on the Scan Test Target Log. [Refer to *Record Keeping]*

At the end of a Shift:

5. Run a post-scan test using the AIIM target. [Refer to *Placement of Target on Scanner]*
6. Examine the test target on screen, comparing the image with the original target. [Refer to *Determination of Problem Areas]*
7. If the final pre-scan test and the post-scan test are the same, the scanner can be assumed to have been working properly during the scan session. If the pre- and post-scan test comparison are acceptable, skip to #10, if not continue with #8.
8. If the pre- and post-test review is not acceptable,
   a. print the document
   b. write the scan settings on the copy
   c. give the copy to Eleanor to place a service call
   d. enter the test results on the Scan Test Target Log.
9. Examine a sample batch of the document images to determine which, if any, documents must be scanned again.
10. Enter the scan settings, test results, and any other comments on the Scan Test Target Log. [Refer to *Record Keeping]*

Placement of Target on Scanner

Targets should be placed on the scanner head first, face up. This will allow the user to determine how well the target is aligned on the scanner. This test is defeated if for example, originals are fed via a document feed or the target is carefully hand-aligned.

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Elements of Target Test Runs -- What to Look for

►**The black boxes at the corners** of the original target should run off of the edges of the scanned test target. If the boxes do not run off of the edges of the scanned image, the scanner area may be too large.

►**The digit "0" in the line of numbers at the corners and center of each edge on the original** target should be visible on the test target. If the digit "0" is not visible in all of these sequences, the image has been clipped and the scan area is too small, or the target was not properly aligned.

If the image size (or printout size) is reduced, look for the same number appearing at all points. Different numbers appearing at opposite sides of the target indicate that the target was positioned off-center or rotated.

►Text is displayed in a number of fonts and sizes. This text represents some of the smaller sizes likely to be found in documents. Look for legibility and detail of the small characters. It is important to know at what type size the scanner will lose the distinction between lower case letters such as a, e, c, and o. A properly adjusted scanner with a scan resolution of 300 points per inch should preserve this distinction on 4 point type.

Examine the News Gothic Bold Reversed font for character lines that may be filled with black.

►**There are five horizontal and five vertical lines on the page**. Verify that the thinnest line is visible. Note: Stair-stepping in the lines is normal if the target is not exactly parallel to the scan lines. The line should be smooth and straight. Breaks in the line may indicate that a mechanical transport is not working smoothly, or is being forced to pause and restart.

►**The isolated characters in the middle right** of the target simulate a page number or part of a mathematical equation. Because of the large white space around each character, some scanners will see these characters as dirt specks and eliminate them. Some scanners will fail on the degree symbol (last column, center row) and display it as a solid dot.

►**The black-and-white areas** allow for density checking. Normally, visual examination is sufficient to determine if the white area is clear and the black area is solid black. Failure to show the black area as solid black is usually a printer problem rather than a scanner problem.

►**Halftones**— *Definition: The process of printing a continuous tone picture using small black dots of varying sizes.* Most scanners will not reproduce halftone dots perfectly; therefore, the following evaluation criteria is suggested:

- Examine the scanned target test against the original target to determine the lightest box that the scanner will recognize and the darkest box that the scanner does not recognize as solid black for each halftone mesh. (The threshold setting of the scanner will have a direct effect on this test. See *Miscellaneous, Threshold Setting)*

  This range should be noted, because if a halftone is scanned where most of the detail is in the very light or very dark areas, the scanner may see solid white or solid black, and lose the detail. Generally, little can be done about this, although some scanners can vary the range of capture via an adjustable threshold. This means that to capture all (or most) of the information in these halftones, the scanner must be adjusted for each picture. If a very light picture and a very dark picture appear on the same page, two scans may be necessary. **If two or more scans are needed, the operator must insert a notation on the file to explain the necessity of multiple copies of the same document.**

Record Keeping

A record log of all test target runs (pre- and post-) will be maintained. When a test run seems to point to an equipment problem, all settings used for the scan should be noted on the back of the printed output for the tecimician. This record provides management with the assurance that quality control procedures are being followed and allows a technician to spot a growing problem before it becomes too serious.