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Foreword

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Abstract

This guideline announces the adoption of the American National Standard for Information and Image Management—Recommended Practice for Quality Control of Image Scanners ANSI/AIIM MS44-1988 as a Federal Information Processing Standards Publication Guideline. MS44 provides procedures and physical test objects that can be used by document processing system analysts, designers, and operators for calibrating monochrome, digital image scanners. In addition, MS44 procedures and test objects are designed to be used to maintain an acceptable image quality level through periodic testing of scanners and other system components, i.e., displays, typesetters, laser printers, and accompanying software systems, etc. MS44 procedures and test objects can also be used to set scanner parameters to match specific characteristics of documents being scanned so that the system produces optimum image quality. The test objects provided with the Guideline are the Association for Information and Image Management (AIIM) #2 Scanner Test Chart, Institute for Electrical and Electronics Engineers, Inc., (IEEE) 167A-1987 Facsimile Test Chart, and the Rochester Institute of Technology (RIT) Process Ink Gamut (PIG) Chart.

Key words: calibration; digital; document; image scanner; Federal Information Processing Standards Publication Guideline; image quality; monochrome; scanner; scanner parameters; test objects.
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Announcing the

GUIDELINE FOR QUALITY CONTROL OF IMAGE SCANNERS

Federal Information Processing Standards Publications (FIPS PUBS) are issued by the National Institute of Standards and Technology (NIST) after approval by the Secretary of Commerce pursuant to Section 111(d) of the Federal Property and Administrative Services Act of 1949 as amended by the Computer Security Act of 1987, Public Law 100-235.


3. Explanation. This Guideline announces the adoption of the American National Standard for Information and Image Management—Recommended Practice for Quality Control of Image Scanners, ANSI/AIIM MS44-1988, as a Federal Information Processing Standards Publication Guideline. MS44 provides procedures and physical test objects that can be used by document processing system analysts, designers, and operators for calibrating monochrome, digital image scanners. In addition, MS44 procedures and test objects are designed to be used to maintain an acceptable image quality level through periodic testing of scanners and other system components, i.e., displays, typesetters, laser printers, accompanying software systems, etc. MS44 procedures and test objects can also be used to set scanner parameters to match specific characteristics of documents being scanned so that the system produces optimum image quality. The test objects that are included with this Guideline are recommended for use when implementing the Guideline. Using reproductions of these test objects will not provide meaningful results.

This Guideline includes MS44 Appendices A through F which cover producing custom test objects, scanning low contrast materials, preparing continuous tone images for scanning, issues of using line/space resolution test targets on digital systems, and thresholding/enhancement scanning characteristics.


6. Related Documents (Test Object Packages).
   a. This Guideline includes Association for Information and Image Management (AIIM) "X440: Scanner Test Targets," which consists of 10 copies of #2 AIIM Scanner Test Charts, one copy of the Institute of Electrical and Electronics Engineers, Inc., (IEEE) 167A-1987 Facsimile Test Chart and two copies of a Rochester Institute of Technology (RIT) Process Ink Gamut (PIG) Chart.
      - Additional copies of X440 can be purchased from AIIM, 1100 Wayne Avenue, Suite 1100, Silver Spring, MD 20910.
      - Additional, individual copies of IEEE 167A can be purchased from the IEEE Publications Department, 445 Hoes Lane, Post Office Box 1331, Piscataway, NJ 08855-1331. The IEEE 167A target can also be purchased from AIIM.
      - Additional, individual copies of the RIT PIG Chart can be purchased from AIIM, 1100 Wayne Avenue, Suite 1100, Silver Spring, MD 20910.
7. Objectives. The objectives of this Guideline are to:

- provide procedures that can be used to ensure the calibration and maintenance of adequate image quality in a document processing system.
- maintain cost-effectiveness in office document processing systems by maximizing the quality and throughput of the scanning, display, and printing processes.
- assist managers in understanding and evaluating scanning systems and services.
- disseminate a complete package of physical test objects that can be used to evaluate visual density, tone reproduction, and resolution of office scanners.

8. Applicability. This Guideline is intended to provide procedures and test objects for Federal ADP managers, document processing system analysts, designers, and operators to use to ensure the calibration and maintenance of adequate image quality in scanners and other system components, i.e., displays, typesetters, laser printers, accompanying software systems, etc., that are used in document processing systems. Its use is encouraged but not mandatory.

9. Implementation. This Guideline can be used whenever Federal departments or agencies evaluate new scanning equipment and associated software, undertake major expansions to existing scanning equipment and software, or evaluate work performed by a service bureau for document conversion.


11. Qualifications. The recommendations of this Guideline are directed toward office document processing systems that use monochrome, digital image scanners for document input. These scanners may require adjustments during calibration and daily use, to ensure an adequate image quality. The procedures and test objects in this Guideline can be used to make these adjustments, in addition to setting scanner parameters to match specific characteristics of documents that are being scanned, so that the system produces optimum image quality.

12. Where to Obtain Copies of this Guideline. Copies of this publication are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161. Sale of the included specification is by arrangement with the Association for Information and Image Management (AIIM). When ordering, refer to Federal Information Processing Standards Publication 157 (FIPSPUB157), and title. Payment should be made by check, money order, or deposit account.