

American National Standard for Information and Image Management —

Recommended Practice for COM Recording Systems Having an Internal Electronic Forms Generating System — Operational Practices for Inspection and Quality Control

An American National Standard prepared by
the Association for Information and Image Management International

Approved as an American National Standard

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Abstract:

This American National Standard describes software forms used for the image quality evaluation of Computer Output Microfilm (COM) recorder systems. It also describes a preferred method of using the test forms for initial COM recorder testing to establish a quality reference baseline and for periodic testing of COM image quality that may signal the need for adjustment or maintenance.

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Foreword

(This Foreword is not part of ANSI/AIIM MS62-1999 — *Recommended Practice for COM Recording Systems Having an Internal Electronic Forms Generating System — Operational Practices for Inspection and Quality Control*.)

As Computer Output Microfilm (COM) recording systems have evolved from the 1960s, they have gone through the exclusive use of hard (optical) forms initially to systems today that have either only software forms capability or an option of hard forms or software forms. Where systems only have software forms capability, there is a need to develop a standard for the components of a form that will test the image quality output of such systems. The software form will provide the same kind of image quality tests as the hard forms have, as specified in ANSI/AIIM MS1-1988 and ANSI/AIIM MS28-1983. The software forms may also complement the testing of systems that have both hard forms capability and soft forms capability.

The software test form exists as a bit map within the electronics of the page formatting section of the COM recorder systems, whereas the hard form is an actual picture on a substrate such as glass or paper. The other primary difference between the soft form and the hard form is in the fineness of detail that may be designed into the form. For example, in the case of the hard form, a resolution chart can be presented having any desired resolution pattern that is limited only by the photographic or fabrication methods used to create the form's patterns. The software form is limited by the smallest dot, or pixel, size that the recorder is capable of producing. All images on the form are built from these basic dots so that the smallest imaging unit possible is a single dot. The thinnest line or space must be a single dot wide. The dot itself is generally larger than the allowable dot-to-dot center spacing so that consecutive dots are smoothed together, giving the appearance of a line segment (see Figure 1). Consequently, it may not always be possible, in using a resolution test pattern, to resolve the finest element of the pattern that is made of single dot lines and spaces. The single dot space between a pair of lines will be partially filled in as a result of the dot-size-to-dot-separation ratio. It also puts limitations on the construction of some characters such as Japanese Kanji characters where lines and spaces are frequently only a dot wide. The test form described here is designed to test for this characteristic limitation and other quality requirements.

This American National Standard consists of two parts. Part 1 describes the location and design of all the components (legibility fonts, resolution test patterns, density areas, etc.) of a software form for use in testing the image quality output of COM recorder systems. Two test forms are described for COM systems generating images on microforms by dot addressing methods. One of the software test forms is for systems having limited memory capability and is identified as Form 1 in this American National Standard. The other form is for systems having greater memory capability and is identified as Form 2. Form 1 and Form 2 are shown in Part 1 of this American National Standard in Figures 3 and 4. The test forms have been designed so that they can be used to evaluate recorded images from any type of microfilm recorder, such as cathode ray tube (CRT), laser scanner, light emitting diode (LED), etc.

Part 2 of this document describes the preferred method for using the test form described in Part 1. The primary uses of the forms are to establish a baseline for image quality for a new COM recorder system and to use that baseline for future reference to detect any variation in quality that may occur with time and use that may signal the need for adjustment or maintenance. The test form may also be incorporated in customer job software that, for example, images the form at the beginning and the end of a job to assure that acceptable quality is being achieved.

Suggestions for improving this American National Standard are welcome. They should be sent to the Chair, AIIM Standards Board, Association for Information and Image Management, 1100 Wayne Avenue, Silver Spring, Maryland, 20910-5603.

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Part 1 — Description of the Software Test Form

1 Scope

This American National Standard describes the components of a software test form to be used in COM recorder systems that can accept electronic forms. The software test form serves to generate by electronic means an image corresponding to the components of the form as defined in this American National Standard. The components have been designed to check or test certain capabilities of the COM recorder system to assure that good image quality is being obtained and that during the use of the COM recorder system, the quality is being maintained. The recording method (i.e., laser scanner method, cathode ray tube method, light emitting diode method, or the like) is not relevant in establishing the software test form components. The test target form could also complement the quality control of alphanumeric COM recorder systems that use a hard test form slide, such as that described in ANSI/AIIM MS28.

2 References

2.1 Referenced American National Standards

ANSI/AIIM MS1-1996, *Recommended Practice for Alphanumeric Computer-Output Microforms — Operational Practices for Inspection and Quality Control*.

ANSI/AIIM MS28-1996, *American National Standard for Information and Image Management — Alphanumeric COM Quality Test Slide*.

ANSI/AIIM MS43-1998, *Standard Recommended Practice — Operational Procedures — Inspection and Quality Control of Duplicate Microforms of Documents and From COM*.

ANSI/AIIM TR2-1998, *Technical Report for Information and Image Management — Glossary of Document Technologies*.

ANSI/NAPM IT2.18-1996, *Photography — Density Measurements — Part 3: Spectral Conditions* (revision and redesignation of ANSI/ISO 5-3-1984, ANSI PH2.18-1985) (ISO 5-3:1995, *Photography — Density measurements — Part 3: Spectral conditions*).

ANSI/NAPM IT2.19-1994, *Photography — Density Measurements — Part 2: Geometric Conditions for Transmission Density* (revision and redesignation of ANSI IT2.19-1990).

2.2 Other related standards

ANSI/AIIM MS39-1987, *Recommended Practice for Operational Procedures, Quality Control and Inspection of Graphic Computer-Output Microforms*.

ANSI/AIIM TR26-1993, *Resolution as it Relates to Photographic and Electronic Imaging*.

ISO 5-2:1991, *Photography — Density measurements — Part 2: Geometric conditions for transmission density*.

ISO 3334:1991, ANSI/AIIM MS51-1991, *Micrographics — ISO Resolution Test Chart No. 2 — Description and Use*.

ISO 8514-1:1992, *Micrographics — Alphanumeric computer output microforms — Quality control — Part 1: Characteristics of the test slide and test data*.

ISO/DIS 8514-1, *Micrographics — Alphanumeric computer output microforms — Quality control — Part 1: Characteristics of the test slide and test data*.

ISO 8514-2:1992, *Micrographics — Alphanumeric computer output microforms — Quality control — Part 2: Method*.

ISO/DIS 8514-2, *Micrographics — Alphanumeric computer output microforms — Quality control — Part 2: Method*.

3 Definitions

For the purposes of this American National Standard, the terms and definitions given in ANSI/AIIM TR2 and the following apply.

3.1

COM

computer output microfilm — data generated on a computer that is output to microfilm by a recording system that generates images by CRT, laser, LED, or other means.

3.2

dpi

dots per inch

NOTE When applied to COM applications, this term is generally intended to mean the number of dots per inch in the full equivalent original size, not the dots per inch as actually recorded on film.

3.3

hard form

any type of form that exists as a physical entity, usually on glass for projection purposes or paper.