INTERNATIONAL STANDARD

**ISO
8514-1**

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Micrographics — Alphanumeric computer output microforms — Quality control —

Part 1:
Characteristics of the test slide and test data

Micrographie — Microformes COM alphanumériques — Contrôle de la qualité —

Partie 1: Caractéristiques du cadre de surimpression et des données-test

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 8514-1 was prepared by Technical Committee ISO/TC 171, *Micrographics and optical memories for document and image recording, storage and use.*

ISO 8514 consists of the following parts, under the general title *Micrographics — Alphanumeric computer output microforms — Quality control*:

— *Part 1: Characteristics of the test slide and test data*

— *Part 2: Method*

Introduction

The continued advancement and expansion of alphanumeric computer output microforms (alphanumeric COM) for the storage of information indicates that there is a need to establish valid, reliable methods by which the quality of the images can be controlled. This is necessary if consistent usable output is desired. Of primary importance in the production of microforms containing alphanumeric information is the legibility of the information presented to the user. This is true whether the microform used is the original (first generation) or a duplicate.

ISO 8514 specifies a method for setting up and controlling the quality of computer output microforms (COM) and specifies a test form slide and test data to be used for applying this method. It applies to microforms containing variable data produced using a cathode-ray tube, light-emitting diodes or a laser, and fixed data such as that contained on a form slide, with effective reduction ratios of 1:24 through 1:48, in accordance with ISO 9923. This International Standard applies only to COM recorders that use a physical form slide.

Since it is not possible to supply a single International Standard for all the various systems and equipment configurations that are in use, it is necessary to establish test guidelines whereby the user can establish and maintain a given level of performance using the minimum of sophisticated equipment. To carry out the testing described in this part of ISO 8514, the most that is required is a densitometer and a microscope. If they are not available it is possible to conduct the tests, once a reference sample is established, using only a microform reader.

The method requires a test form slide, hereunder called a "test slide", and test data generated from the COM image generator.

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Micrographics — Alphanumeric computer output microforms — Quality control —

Part 1:
Characteristics of the test slide and test data

1 Scope

This part of ISO 8514 specifies the characteristics of the test slide and the test data used for controlling the quality of alphanumeric COM microforms.

ISO 8514-2 describes the method itself.

ISO 8514-1 and ISO 8514-2 apply only to COM recorders that use a physical form slide.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8514. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 8514 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

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

ISO 5-3:1984, Photography — Density measurements — Part 3: Spectral conditions.

ISO 5-4:1983, Photography — Density measurements — Part 4: Geometric conditions for reflection density.

ISO 446:1991, Micrographics — ISO character and ISO test chart No. 1 — Description and use.

ISO 3334:1989, Micrographics — ISO resolution test chart No. 2 — Description and use.

ISO 6196-7:—[1], Micrographics — Vocabulary — Part 07: Computer micrographics.

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

ISO 9923:—[1], Micrographics — Transparent A6 microfiche image arrangements.

3 Definitions

For the purposes of this part of ISO 8514, the definitions given in ISO 6196-7 and the following definition apply.

3.1 test slide: A form slide, designed for use in monitoring the quality of output from a COM system.

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1) To be published.

4 Description of the original artwork

The original artwork from which the test slide is made shall be as the test slide shown in figure 1[2] and described in 4.1 to 4.6.

NOTE 1   All dimensions are from the usual size as indicated in 4.1 (270,9 mm × 335,3 mm).

The specified values which are valid for a 1:1 ratio, shall be checked on the test slide by multiplying them by the reduction indicated by the manufacturer (see 5.2). The quality of the original artwork shall be such that it enables test slides conforming to this part of ISO 8514 to be produced.

4.1 Alignment grid ①

The alignment grid shall comprise elements from a standard grid of 132 characters per line by 64 lines per page, located along each side and along the median lines of the test slide.

The grid shall have a height of 270,9 mm and width of 335,3 mm. The dimensional tolerance shall be ±0,1 mm.

The character pitch along the x axis shall be 2,540 mm (1/10 in).

The character pitch along the y axis shall be 4,233 mm (1/6 in).

The centre of each line shall be addressed on the corresponding theoretical axis of the grid with a tolerance of ±0,02 mm.

The line width shall be between 0,12 mm and 0,17 mm; regardless of the line width chosen, the tolerance shall be ±0,01 mm.

4.2 Density measuring areas ②

The density measuring areas shall contain two circles, each with a minimum diameter of 95 mm, to allow measurement with a densitometer after reduction up to 1:48. One shall be a 50 %[3], 25 lines per centimetre (65 lines per inch) halftone screen pattern (A) and the other shall be opaque (B). The difference in visual reflection density, measured in accordance with ISO 5-3 and ISO 5-4, between the

opaque pattern (B) and the background of the artwork shall be at least 2,0.

4.3 Test chart area ③

The test chart area consists of the ISO test chart No. 1 characters from 45 to 280 (extension of ISO test chart No. 1 specified in ISO 446) and the ISO resolution test chart No. 2, patterns 1 to 10, in accordance with ISO 3334.

4.4 Density balancing areas ④

The density balancing areas are composed of nine 25 lines per centimetre (65 lines per inch) halftones ranging from 10 % to 90 % in increments of 10 %. Each is identified by a number, one-half white and one-half black, used as reference when analysing the scale.

4.5 COM character legibility test areas ⑤

The COM character legibility test areas consist of five identical patterns located in the centre and near the corners of the test slide.

Each pattern contains the characters "E" and "H" arranged in columns in pairs of identical size. Each group of two characters increases horizontally in height and in width in accordance with table 1, and vertically in line width in accordance with table 2. The character height, H, is the vertical distance between the base line and the top of the upper-case letter (see figure 2). The character width, L, is measured on the overall character similarly. Two character spaces are provided between characters horizontally to ease the alignment of the image generator letters with the image of the test slide.

4.6 Control area of the test slide data ⑥

The control area shall contain examples of the data used in preparing a standard form slide. Sans serif characters without over-inking shall be used. The height of the upper-case letters are 1,60 mm, 1,85 mm, 2,10 mm, 2,35 mm and 2,60 mm.

The minimum line spacing shall be 3/2 of the upper-case letter height. Bold face and light type characters should be avoided.

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2) The artwork is positive-appearing whereas the actual test slide will be negative-appearing.

3) A 50 % halftone refers to the ratio of the dotted area to the whole area.
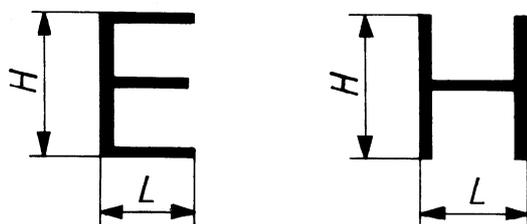
Figure 1 — Original artwork

Figure 2 — Examples of character measurements

Table 1 — Variations of the characters in height and width

Dimensions in millimetres

Column	1	2	3	4	5
Character height	2,55	2,75	2,95	3,15	3,35
Character width	1,78	1,92	2,05	2,20[1]	2,20[1]
1) Maximum character width allowing sufficient space between two characters.					

Table 2 — Line width variation

Dimensions in millimetres

Row	A	B	C	D
Line width	0,20	0,32	0,44	0,56

5 Quality of the test slide

The information given in this clause is intended as a guide for test slide manufacturers and users for the preparation of specifications.

5.1 Holder

The test slide should be held in a rigid holder.

5.2 Reduction ratio

The reduction ratio of the test slide in relation to the 1:1 ratio (see 4.1) shall be the nominal ratio indicated by the manufacturer of the COM recorder, with a tolerance of ± 0,05 %.

5.3 Polarity

The test slide shall be negative-appearing, that is, clear lines on a dark background.

5.4 Density

The visual diffuse transmission density of the clear areas, measured in accordance with ISO 5-2 and ISO 5-3, shall be not greater than 0,20. The background density shall be not less than 2,0.

5.5 Defects

In the image area of the test slide there shall be no defects the dimensions of which would be greater than 0,05 mm at a 1:1 ratio of the artwork (see clause 4).

5.6 Graphic quality of the reproduction

The quality of manufacture of the test slide shall be such that the character 80 of the ISO test chart No. 1 or the pattern 5.0 of the ISO resolution test chart No. 2 is resolved on the test slide. A tolerance of ± 10 % applies to the nominal width of the clear or black lines of the test charts.

5.7 Conformance

The manufacturer shall supply with each test slide a certificate of its compliance with the requirements of this part of ISO 8514.

6 Description of the test data (see figure 3)

Data shall be generated in the following areas:

6.1 Alignment area ①

The alignment consists of the character "H" generated in the overall grid.

6.2 COM character control area ⑤

The COM character control area consists of the characters "E" and "H" accurately located as indicated in figure 3. They shall be juxtaposed with the same characters in the test slide.

6.3 COM character set area ⑦

A typical set of COM characters, upper-case letters, numbers and symbols, and when appropriate the lower-case letters, shall be generated in this area, in alphabetical order, according to the space available.

It is also useful to generate a line consisting of adjacent characters of similar appearance, e.g. I, 1, 0, O, Q, B, 8, G, 6, 5, S, Z, 7, 2, etc.

Figure 3 — Test data