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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

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Foreword

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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.

Attention is drawn to the possibility that some of the elements of this part of ISO 8514 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 8514-1 was prepared by Technical Committee ISO/TC 171, *Document imaging applications*, Subcommittee SC 1, *Quality*.

This second edition cancels and replaces the first edition (ISO 8514-1:1992), which has been technically revised.

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*

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Introduction

The use of alphanumeric computer output microforms (alphanumeric COM) for the storage of information requires valid, reliable methods by which the quality of the images can be measured. This is necessary to achieve consistent usable output. 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 measuring 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.

This International Standard describes various systems and equipment to establish test guidelines whereby the user can establish and maintain a given level of performance using the minimum of sophisticated equipment.

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

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 measuring the output quality of alphanumeric COM recorders that use a physical form slide.

2   Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 8514. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 8514 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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

ISO 5-3:1995, *Photography — Density measurements — Part 3: Spectral conditions.*

ISO 5-4:1995, *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 6196-7:1992, *Micrographics — Vocabulary — Part 7: Computer micrographics.*

ISO 9923:1994, *Micrographics — Transparent A6 microfiche — Image arrangements.*

3   Terms and definitions

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

3.1
test slide
form slide designed for use in measuring the quality of output from a COM system

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4 Description of the original artwork

Artwork from which a test slide is made shall be as shown in Figure 1[1)] and described in 4.1 to 4.6.

Dimensions given are based on artwork in which the alignment grid (4.1) is 270,9 mm ± 0,1 mm × 335,3 mm ± 0,1 mm.

NOTE   The numbers in circles in subsequent clause headings refer to the relevant area in Figure 1.

4.1   Alignment grid   ①

The alignment grid shall comprise elements from standard grid of 132 characters per line by 64 lines per page, located along each side and filling line 33 and columns 66 and 67 of the artwork.

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

Each element of the alignment grid shall be 2,540 mm × 4,233 mm ± 0,1 mm.

Each element shall be positioned to within ± 0,02 mm of its nominal position.

The width of the element boundary line 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 comprise 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 %[2)], 25 screen halftone (Figure 1 area A) and the other shall be solid black (Figure 1 area B). The difference in visual reflection density, measured with a densitometer complying to ISO 5-3 and ISO 5-4, between pattern (Figure 1 area B) and the background of the artwork shall be at least 2,00.

4.3 Test chart area   ③

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

4.4 Density balancing areas   ④

The density balancing areas shall comprise of nine 25 screen halftones ranging from 10 % to 90 % in increments of 10 %. Each is identified by a solid number, one-half white and one-half black indicating the appropriate percentage.

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

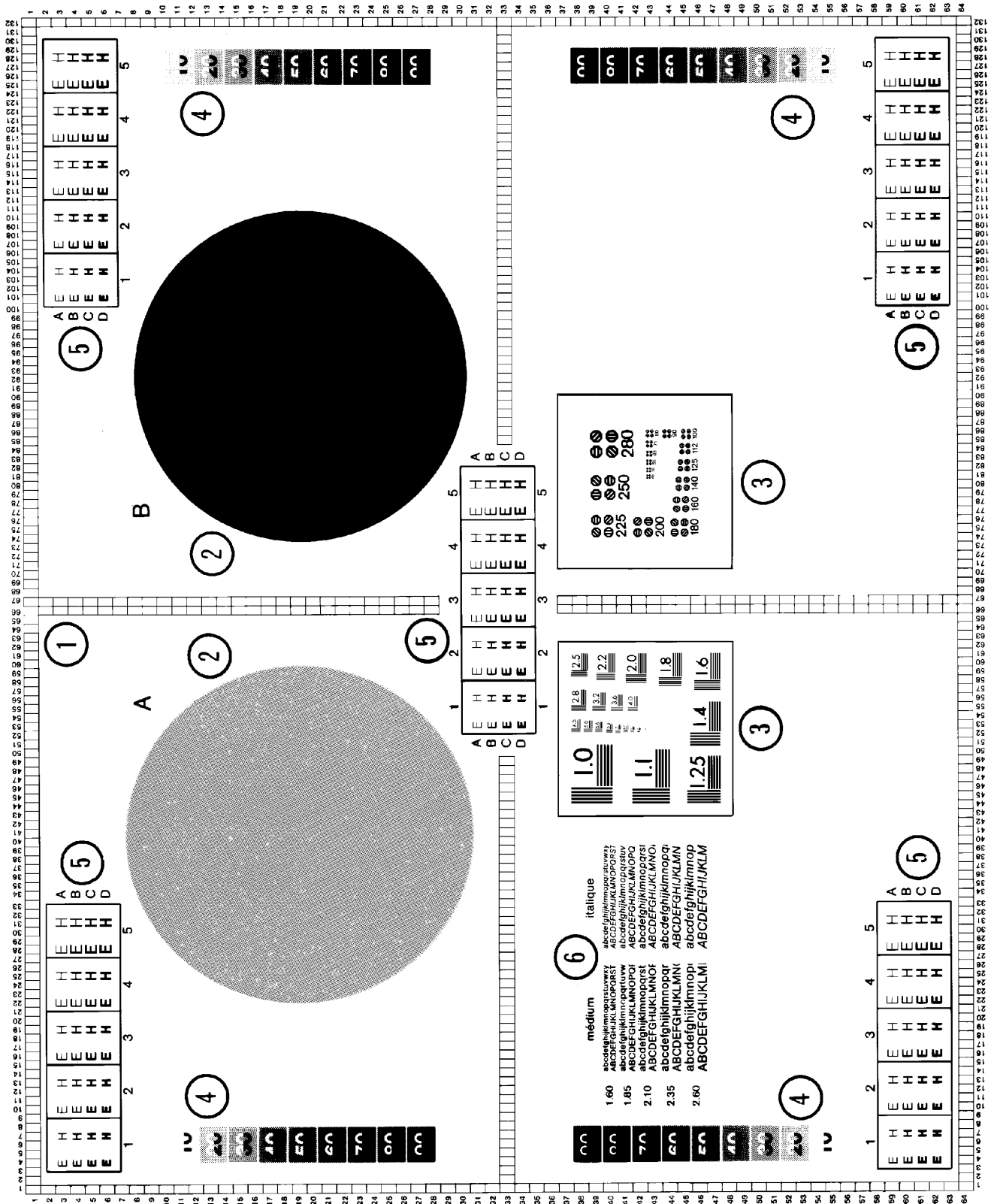[2)] A 50 % halftone refers to the ratio of the dotted area to the whole area.

Figure 1 — Sample layout of original artwork

4.5 COM character legibility test areas ⑤

The COM character legibility test areas shall comprise 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. Two character spaces shall be allowed between characters horizontally to facilitate the alignment of the image generator letters with the image of the test slide. Character height and width shall be measured as indicated in Figure 2.
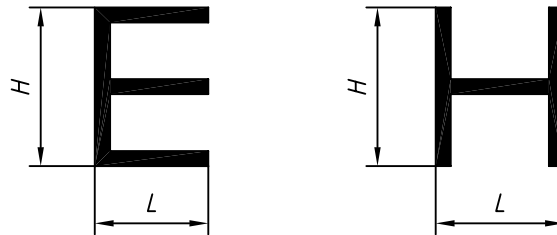

Figure 2 — Examples of character measurements

Table 1 — Character height and width

Dimensions in millimetres

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

Table 2 — Character line width

Dimensions in millimetres

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

4.6 Character test area ⑥

The character area shall comprise two blocks of pairs of lines of alphabetic characters in alphabetical order, upper case and lower case, normal weight, upright in one column and italic in the other. Sanserif characters are preferred. The height in millimetres of upper case characters in each pair of lines shall be as indicated in Figure 1. The minimum line spacing shall be 1,5 of the height of upper case characters.

5   Test slide characteristics

The information given in this clause is intended as a guide for test slide manufacturers and for users to prepare specifications.

5.1 Holder

The test slide shall be held in a rigid holder.

5.2 Reduction ratio

The reduction ratio of the test slide shall be as specified by the manufacturer of the COM recorder, with a tolerance of $\pm$ 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 with a densitometer complying to ISO 5-2 and ISO 5-3 shall be not greater than 0,20. The background density shall be not less than 2,00.

5.5 Defects

In the image area of the test slide used for test purposes there shall be no defects, which when enlarged by the nominal reduction ratio of the test slide, shall be larger than 0,05 mm.

5.6 Resolution

The quality of manufacture of the test slide shall be such that at a minimum 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 $\pm$ 10 % applies to the nominal width of the clear or black lines of the test chart.

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   Test data

Data shall be generated in the following areas (see Figure 3):

6.1   Alignment area   ①

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

6.2   COM character legibility test areas   ⑤

The COM character legibility test areas consist 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.

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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:
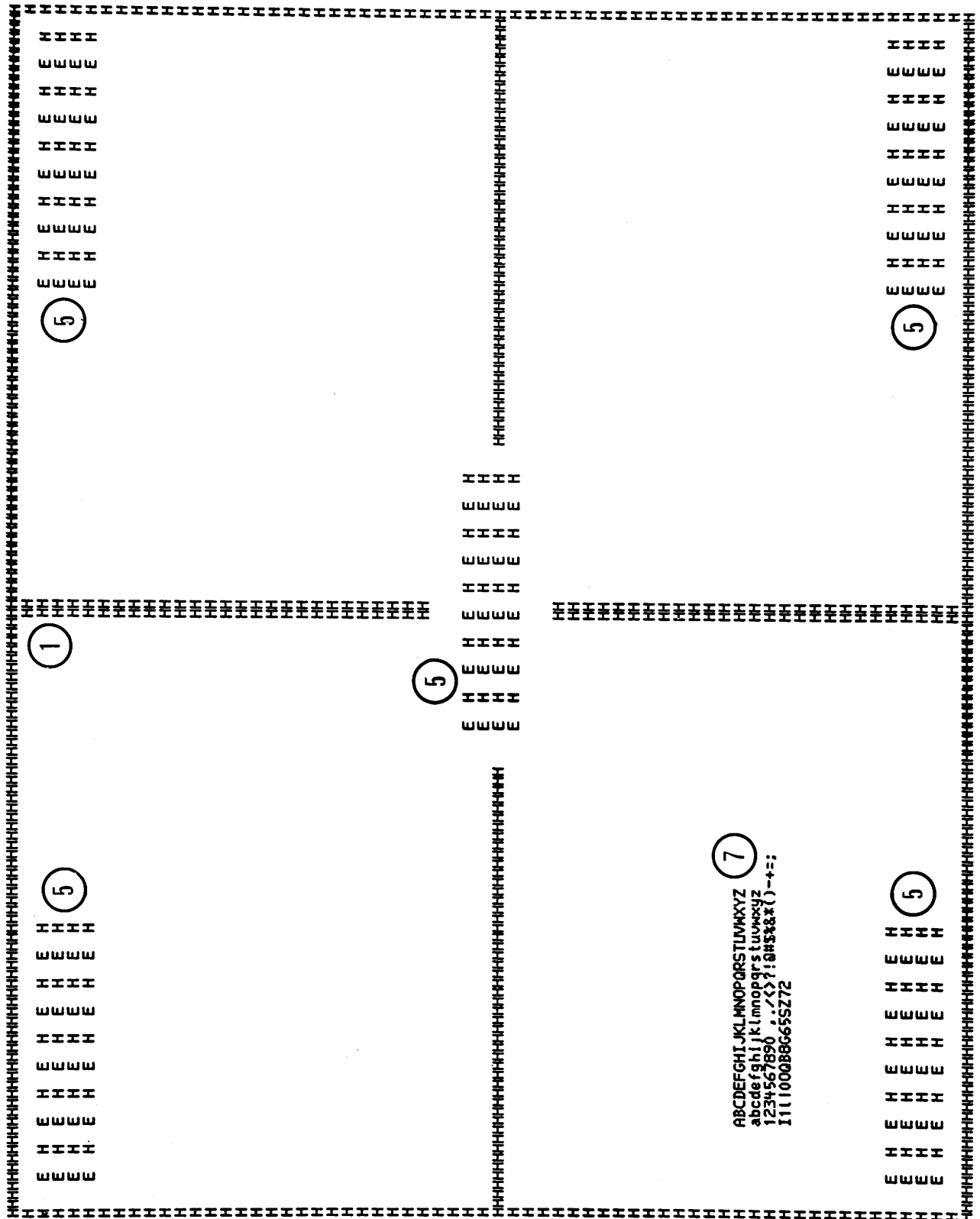
— I, 1;

— 0, O, Q;

— B, 8;

— G, 6, 5, S;

— Z, 7, 2.

Figure 3 — Sample layout of test data

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