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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION
R 435

ISO CONVENTIONAL TYPOGRAPHICAL CHARACTER FOR LEGIBILITY TESTS (ISO CHARACTER)

1st EDITION

April 1965

For each individual country the only valid standard is the national standard of that country.

Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

BRIEF HISTORY

The ISO Recommendation R 435, *ISO Conventional Typographical Character for Legibility Tests (ISO Character)*, was drawn up by Technical Committee ISO/TC 46, *Documentation*, the Secretariat of which is held by the Nederlands Instituut voor Documentatie en Registratuur (N.I.D.E.R.) on behalf of the Stichting Nederlands Normalisatie-instituut (NNI).

Work on this question by the Technical Committee began in 1952 and led, in 1958, to the adoption of a Draft ISO Recommendation.

In November 1961, this Draft ISO Recommendation (N° 482) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

Australia	Greece	Poland
Austria	Hungary	Portugal
Belgium	India	Romania
Brazil	Israel	Spain
Canada	Italy	Sweden
Czechoslovakia	Japan	Switzerland
Denmark	Netherlands	Turkey
France	New Zealand	United Kingdom
Germany	Norway	U.S.A.

No Member Body opposed the approval of the Draft.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in April 1965, to accept it as an ISO RECOMMENDATION.

FOREWORD

No documentary reproduction process can avoid giving a more or less impaired image of the characters and illustrations of the original document.

The user is sensitive to this impairment of the legibility of the image, the effects of which range from the impossibility of identifying certain details to the fatigue caused by prolonged reading.

Introduced in this way, the concept of *legibility* may seem subjective, and therefore more difficult to define than are the characteristics usually taken into consideration in this connection by photographers and opticians: for example, resolving power of optical devices, blurring of networks of parallel lines, graininess of the image. But users are less directly conscious of such characteristics, and it seemed desirable to endeavour to make legibility accessible to experiment and even, up to a point, measurable, by specifying with great accuracy a recommended *conventional typographical character*.

This character, which may vary in orientation and size, is mainly used for making *legibility mires* or *legibility test objects* comparable to the typographic mires or test objects used in printing practice. Microcopies are made from these test objects and are known as *micromires* or *micro-test objects*.

The main practical applications of the ISO character are based especially on the following experimental properties :

(*a*) If from a group of test characters of a certain height a particular document reproduction process produces an *identifiable image*, it can be assumed that the same process will produce, from a printed text of comparable typeface size, a *satisfactory image* and, in particular, one sharp enough to be read for a certain time without undue fatigue for the reader.

(*b*) In general, the identification of one and the same group of ISO characters by different observers gives substantially identical results.

The use of test objects and micro-test objects gives manufacturers of reading apparatus, operators and users on the one hand useful means of investigation, and on the other hand the elements of a common language for judging the quality of their apparatus or work.

ISO Recommendation R 435 April 1965

ISO CONVENTIONAL TYPOGRAPHICAL CHARACTER FOR LEGIBILITY TESTS (ISO CHARACTER)

1. NATURE OF ISO CHARACTER

The ISO character is a conventional typographical character, similar to printing typeface and accurately defined as to shape and size.

2. DESCRIPTION

2.1 Shape

The ISO character consists of a regular octagon with two interior parallel stripes, as shown in Figure 1 below.

The dark stripes and the clear spaces between them are of the same width and can be oriented in four different ways (vertically, horizontally, 45° to the right, 45° to the left).

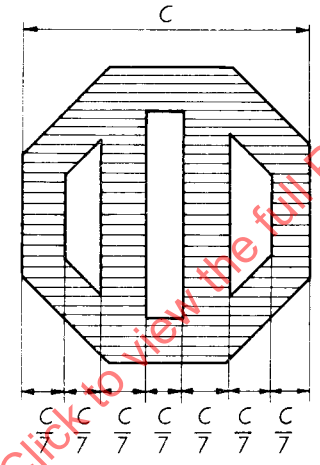

FIG. 1. — **Enlarged drawing of the ISO conventional typographical character for legibility tests**

2.2 Sizes

2.2.1 *Sizes of characters for mires (test objects)*

The standard sizes (see clause 3.1) of the ISO characters to be used for *mires* (test objects) (see clause 4.3) are, in *hundredths* of a millimetre,

50 63 80 100 125 160

This range can be extended at each end in terms of the R 10 series of preferred numbers (see ISO Recommendation R 3, *Preferred Numbers. Series of Preferred Numbers*) *.

2.2.2 *Sizes of characters for micromires (micro-test objects)*

The standard sizes of the ISO characters to be used for *micromires* (micro-test objects) (see clause 4.3.3), are in *thousandths* of a millimetre,

50 63 80 100 125 160

This range also can be extended at each end. *

* Mires (test objects) or micromires (micro-test objects) may also include characters graded according to the following range, taken from the R 20 series of preferred numbers :

56 71 90 112 140

It will be noted that the approximate ratio $\frac{1.4}{1}$ ($\frac{\sqrt{2}}{1}$ being the ratio length/width in the "A" series of paper sizes) is shown by the following pairs of characters :

71 and 50 90 and 63 112 and 80 140 and 100
80 and 56 100 and 71 125 and 90

2.3 Bases, colours, contrasts

The details of the bases, the colours of the stripes and the contrasts should be specified for each separate application. *

3. DESIGNATION

An ISO character is designated by
its size (face size) (term borrowed from printers' language),
the orientation of its stripes.

3.1 Size (face size)

The size (face size) of an ISO character is its height, expressed
in hundredths of a millimetre for mire characters (test object characters),
in thousandths of a millimetre for micromire characters (micro-characters).

3.2 Orientation

The orientation of the stripes of an ISO character is defined by one of the following terms:

vertical 

horizontal 

right-inclined 

left-inclined 

3.3 Examples of designation

ISO character, size (face size) 63, vertical;
ISO micro-character, size (face size) 80, right-inclined.

4. GROUPING ISO CHARACTERS INTO "WORDS", "LINES" AND "TEXTS"

ISO characters are not used singly, but grouped into " words ".

4.1 Standard two-word groups

The standard group consists of two " words " of four characters, separated by a space. The eight characters in question are all of the same size (face size). They are oriented indiscriminately, so that the orientation of a character cannot be guessed from that of the adjacent characters. Most words of four characters, however, should preferably contain the four orientations.

4.2 Lines

The words are grouped into " lines ". In principle, all the words in a given line should consist of characters of the same size (face size), which should preferably be indicated on each line in fairly large figures (63, 80, etc.) so that they can be reproduced legibly, even if the characters on the line are blurred.

4.3 Texts (mires or test objects)

Arrangements of successive lines suitably graded by character size (face size) form a " text " which can be used as a mire (test object).

4.3.1 *Printed mires (test objects)*

It is recommended that all printed mires (test objects) arranged in the form of standard pages to make a reference image at the head of a succession of microcopies (or documentary reproductions of any kind) should be composed partly or entirely of lines of ISO characters conforming with this Recommendation.

* See ISO Recommendation R ..., *Microcopies. Legibility Tests. Description and Use of the ISO Mire (ISO Test Object). Photography*, at present Draft ISO Recommendation No. 593, and
ISO Recommendation R ..., *Essential Characteristics of 35 mm Microfilm Readers*, at present Draft ISO Recommendation No. 485.