

Graphical symbols — Test methods —

Part 1: Methods for testing comprehensibility

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National foreword

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A list of organizations represented on this subcommittee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Partie 1: Méthodes de vérification de la compréhensibilité



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 9186-1 was prepared by Technical Committee ISO/TC 145, *Graphical symbols*, Subcommittee SC 1, *Public information symbols*.

This first edition of ISO 9186-1, together with ISO 9186-2, cancels and replaces ISO 9186:2001, which has been technically revised.

ISO 9186 consists of the following parts, under the general title *Graphical symbols — Test methods*:

- *Part 1: Methods for testing comprehensibility*
- *Part 2: Method for testing perceptual quality*

Introduction

The reason for the publication of this International Standard is the increasing use of non-verbal presentation of information in buildings and other places, and for services to the public.

Continued growth of international travel, tourism and trade requires graphical symbols to be understood. This part of ISO 9186 specifies methods for assessing the comprehensibility of graphical symbols.

ISO 9186-1 is intended to be used by all Technical Committees within ISO charged with developing specific graphical symbols for their industry, to ensure that there is only one symbol for each meaning. It is also intended to be used by any other organization concerned with establishing the comprehensibility of graphical symbols.

Graphical symbols — Test methods —

Part 1: Methods for testing comprehensibility

1 Scope

This part of ISO 9186 specifies methods for testing the comprehensibility of graphical symbols. It includes:

- the method to be used in testing the extent to which a variant of a graphical symbol communicates its intended message; and
- the method to be used in testing which variant of a graphical symbol is judged the most comprehensible.

The purpose of this part of ISO 9186 is to ensure that graphical symbols, and signs using graphical symbols, are readily understood. The intention is to develop graphical symbols which are correctly understood by users when no supplementary (i.e. explanatory) text is presented. When such a graphical symbol cannot be obtained, it might be necessary to present a graphical symbol together with supplementary text explaining its meaning in the language of the intended users.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 9241-3, *Ergonomic requirements for office work with visual display terminals (VDTs) — Part 3: Visual display requirements*

ISO 9241-4, *Ergonomic requirements for office work with visual display terminals (VDTs) — Part 4: Keyboard requirements*

ISO 9241-5, *Ergonomic requirements for office work with visual display terminals (VDTs) — Part 5: Workstation layout and postural requirements*

ISO 9241-8, *Ergonomic requirements for office work with visual display terminals (VDTs) — Part 8: Requirements for displayed colours*

ISO 9241-12, *Ergonomic requirements for office work with visual display terminals (VDTs) — Part 12: Presentation of information*

ISO 17724, *Graphical symbols — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 17724 and the following apply.

3.1

comprehension test

procedure for quantifying the degree of understanding of a proposed graphical symbol

3.2

function

meaning of a referent which the symbol is intended to convey

3.3

judgement test

procedure for eliciting judgements of the comprehensibility of the proposed graphical symbol

NOTE In previous versions of ISO 9186, the judgement test was referred to as the “comprehensibility judgement test”.

3.4

referent

idea or object that a graphical symbol is intended to represent

4 Principle

Variants of referents are assessed for the ease with which they can be understood by carrying out one or two tests on them. In the comprehension test, each respondent is presented with one variant for any single referent and asked “What do you think this symbol means?” Each variant is scored in terms of the percentage of correct answers. In the judgement test, each participant is presented with all the variants being tested for a single referent and a statement of the intended meaning, and asked to estimate for each variant the percentage of the population that would be expected to understand the meaning. The judgement test results can be used to select variants for the comprehension test, which is normally not conducted on more than three variants for any one referent.

NOTE 1 When there are four or more variants for a single referent, the judgement test can be used to reduce the number of variants which might have to be tested using the comprehension test.

NOTE 2 The findings from the comprehensibility testing can be used by the submitter of the variants as supporting information which is required when variants are submitted for standardization.

NOTE 3 In some circumstances, the submitter of the variants might consider that the findings from the judgement test provide sufficient information and decide not to continue to the comprehension test.

NOTE 4 The submitter of the variants might intend to submit a variant as a proposal for standardization by organizations such as ISO, CEN, national or industry standards bodies. These organizations can require that testing for comprehensibility is conducted in a minimum number of countries, specify which test needs to be conducted and lay down the score which it is essential for a variant to obtain before it can be recommended as the most acceptable one for that referent.

NOTE 5 This part of ISO 9186 refers to testing using printed or screen presentations of the materials. Tests may be conducted using the internet, but only under supervised conditions to ensure that the test is administered as specified in this part of ISO 9186 and particularly, that respondents work alone and enter their personal details and responses correctly.

5 Pre-test information

The submitter of the referents and variants shall provide information which includes the following:

- a) the number of variants for each test;
- b) the name and contact details of the organization to which the test findings are to be submitted;

- c) details of the information that is required from the submitter by that organization;
- d) a completed application form for each variant of a referent as required by the standards organization. Where the standards organization does not have a specified application form for the submission of graphical symbols or safety signs for standardization, the submitter shall complete an application form for each variant.

NOTE 1 Application forms for submission of public information symbols for standardization by ISO/TC 145/SC 1 are available on www.iso.org/tc145/sc1 or from the ISO/TC 145/SC 1 Secretary. Application forms for submission of safety signs for standardization by ISO/TC 145/SC 2 are available on www.iso.org/tc145/sc2 or from the ISO/TC 145/SC 2 Secretary.

- e) any additional information on the meaning of the referent, acceptable answers to the comprehension test, context of use;
- f) confirmation that the proposed graphical symbol or safety sign has been designed in accordance with the relevant design principles and design criteria;

NOTE 2 Design principles and design criteria for public information symbols for standardization in ISO 7001 are specified in ISO 22727; design principles and design criteria for safety signs for standardization in ISO 7010 are specified in ISO 3864-1 and ISO 3864-3.

- g) an eps (or tiff) computer file for each variant as required by the standards organization;
- h) how many countries the testing is to be conducted in;
- i) whether findings from the judgement test or comprehension test or both is required by the standards organization.

NOTE 3 The Secretary to the relevant standards committee can provide necessary information relevant to (f), (g) (h) and (i).

It is recommended that three is the maximum number of variants for any one referent in the comprehension test. Although the judgement and comprehension tests are applicable to cases where only one variant is tested, a standards organization can require a minimum number of variants for a single referent to be tested in either test.

Where the tests are to be conducted in a number of countries, the submitter shall provide the same necessary information and material to the test administrators involved. If printed materials are used, it is necessary to ensure that all graphical materials are of the same standard and are prepared as one production batch. If a computer screen presentation is used, it is necessary to ensure that all pages are of the same standard. They shall be prepared at one programming site and the programs and files then made available to the test administrators in the format that they need.

6 Comprehension test

6.1 General

Carry out the tests using either a printed presentation or a computer screen presentation, depending on which is most practicable.

NOTE For the description of the tests using a computer screen presentation, the word “page” is used for a predefined presentation of text and/or graphic elements and their layout on a computer screen.

For a screen presentation, use a screen size of at least 380 mm when measured on the diagonal, with minimum resolution of 800 pixels × 600 pixels to ensure that the graphical symbol images presented are not distorted and that a sufficient number of graphical symbol variants can be displayed simultaneously. If the graphical symbol images presented show jagged lines or curves to the extent that the symbol image or image elements cannot be correctly interpreted, apply anti-aliasing methods or increase the minimum screen resolution to improve the quality of the image.