

**SLOVENSKI
STANDARD**

SIST EN ISO 9241-7:2001

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junij 2001

Ergonomic requirements for office work with visual display terminals (VDTs) -
Part 7: Requirements for display with reflections (ISO 9241-7:1998)

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ICS 13.180; 35.180

Referenčna številka
SIST EN ISO 9241-7:2001(en)

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EUROPEAN STANDARD
NORME EUROPÉENNE
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EN ISO 9241-7

April 1998

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Descriptors: see ISO document

English version

Ergonomic requirements for office work with visual display
terminals (VDTs) - Part 7: Requirements for display with
reflections (ISO 9241-7:1998)

Exigences ergonomiques pour travail de bureau avec
terminaux à écrans de visualisation (TEV) - Partie 7:
Exigences d'affichage concernant les réflexions (ISO 9241-
7:1998)

Ergonomische Anforderungen für Bürotätigkeiten mit
Bildschirmgeräten - Teil 7: Anforderungen an visuelle
Anzeigen Bezüglich Reflexionen (ISO 9241-7:1998)

This European Standard was approved by CEN on 2 March 1998.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Page 2
EN ISO 9241-7:1998

Foreword

The text of the International Standard ISO 9241-7:1998 has been prepared by Technical Committee ISO/TC 159 "Ergonomics" in collaboration with CEN/CS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 1998, and conflicting national standards shall be withdrawn at the latest by October 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

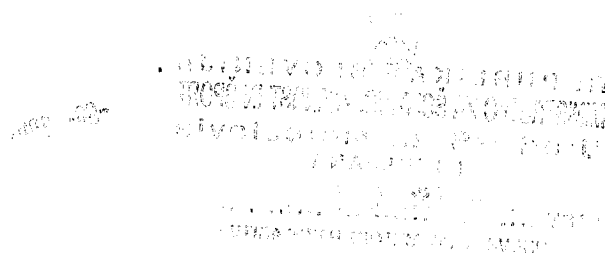
The text of the International Standard ISO 9241-7:1998 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative).

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Annex ZA (normative)
Normative references to international publications
with their relevant European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN</u>	<u>Year</u>
ISO 9241-3	1992	Ergonomic requirements for office work with visual display terminals (VDTs) - Part 3: Visual display requirements	EN 29241-3	1993
ISO 9241-8	1997	Ergonomic requirements for office work with visual display terminals (VDTs) - Part 8: Requirements for displayed colours	EN ISO 9241-8	1997

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INTERNATIONAL STANDARD

ISO
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First edition
1998-04-01

Ergonomic requirements for office work with visual display terminals (VDTs) —

Part 7: Requirements for display with reflections

*Exigences ergonomiques pour travail de bureau avec terminaux à écrans
de visualisation (TEV) —*

Partie 7: Exigences d'affichage concernant les réflexions

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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.

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.

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International Standard ISO 9241-7 was prepared by Technical Committee ISO/TC 159, Ergonomics, Subcommittee SC 4, Ergonomics of human system interaction.

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<https://standards.iteh.ai/catalog/standards/sist/en-iso-9241-7-2001> ISO 9241 consists of the following parts, under the general title *Ergonomic requirements for office work with visual display terminals (VDTs)*:

- *Part 1: General Introduction*
- *Part 2: Guidance on task requirements*
- *Part 3: Visual display requirements*
- *Part 4: Keyboard requirements*
- *Part 5: Workstation layout and postural requirements*
- *Part 6: Environmental requirements*
- *Part 7: Requirements for display with reflections*
- *Part 8: Requirements for displayed colours*
- *Part 9: Requirements for non-keyboard input devices*
- *Part 10: Dialogue principles*
- *Part 11: Guidance on usability*
- *Part 12: Presentation of information*

- *Part 13: User guidance*
- *Part 14: Menu dialogues*
- *Part 15: Command dialogues*
- *Part 16: Direct manipulation dialogues*
- *Part 17: Form-filling dialogues*

Annexes A, B, C and D of this part of ISO 9241 are for information only.

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Introduction

Visual display terminals (VDTs) are subject to reflections of environmental luminance and illuminance from the display device surfaces. Under some conditions, the reflections become disturbing to the user and affect both comfort and task performance. The objective of this part of ISO 9241 is to maintain usable and acceptable VDT image quality in luminous environments that can cause reflections from the screen.

The document is intended for evaluators and users of VDTs. It is intended to be used with ISO 8995, ISO 9241-3, ISO 9241-6 and ISO 9241-8 to provide guidance for the visual ergonomics of the VDT workplace. Compliance with this part of ISO 9241 is dependent on the hardware characteristics of the VDT, except for polarity that can be application-dependent.

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This part of ISO 9241 contains requirements and methods for measurement of the image quality of VDTs used in luminous environments that can cause specular and diffuse reflections from the screen. ISO 9241-3 and ISO 9241-8 contain requirements that deal with luminance and luminance ratios for VDT images measured under conditions that exclude specular reflections. These parts of ISO 9241 interact with this part of ISO 9241. VDTs that meet the interacting requirements and recommendations of ISO 9241-3 and ISO 9241-8 do not necessarily meet those of this part ISO 9241 and vice versa.

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The URL <https://standards.iteh.ai> is the only authorized source for the purchase of the International Standard ISO 9241-7:2001.

ISO 9241-6 and ISO 8995 contain specific recommendations concerning design of the workplace luminous environment to minimize sources of glare. The luminous environment conditions used to determine compliance with this part of ISO 9241 are drawn from, or are consistent with recommendations and requirements of these International Standards. The luminous environment values used to determine compliance to this part of ISO 9241 do not constitute specific recommendations or requirements for workplace lighting.

The burden of a visually acceptable VDT workplace is a tradeoff between the display hardware and the VDT environment. To acknowledge that tradeoff, compliance with this part of ISO 9241 has been developed in three classes, each with rules for decision based on environmental assumptions.

Although the decision rules are not expected to be exactly duplicated in the workplace environment, they do correspond approximately to general types of workplace environment to which VDTs are expected to be suitable:

Class	Environment
I	suitable for general office use
II	suitable for most, but not all, office environments
III	requiring a specially controlled luminous environment for use

An alternative test method is provided for VDTs whose characteristics preclude use of the quantitative test method.

NOTE — ISO 13406 extends the definitions, requirements, and test method of this part of ISO 9241 for flat panels whose colour and/or luminance contrast is strongly dependent on the direction from which they are viewed, and whose reflection characteristics can vary with the logical state of the screen.

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Ergonomic requirements for office work with visual display terminals (VDTs) —

Part 7: Requirements for display with reflections

1 Scope

This part of ISO 9241

- establishes image quality requirements for VDTs used in luminous environments that may cause reflections from the screen. The requirements are stated as performance or design specifications, and test methods are provided.
- applies to the ergonomic design of direct-view electronic displays for office tasks, including such activities as data entry, text processing and interactive inquiry. Office tasks are performed indoors, without exposure to direct sunlight. The recommendations can possibly be appropriate for other tasks, including process control, graphic design and computer-aided design, but their applicability has not been established.
- applies to monochrome and multicolour displays. The following displays and similar types are excluded from the scope of this part of ISO 9241: multi-use projection displays, transparent displays and virtual image displays.
- applies to VDTs for which its test method is suitable. The test method is limited to VDTs whose colour and/or luminance contrast does not vary strongly as a function of the viewing direction, and whose reflection properties do not vary as a function of the logical state of the screen. The test method is suitable for emissive VDT technologies, such as cathode ray tubes, and some flat panels.

NOTE — VDTs using display devices for which the test method of this part of ISO 9241 is not suitable (for example, liquid crystal displays) are directed to ISO 13406-2.

2 Normative references

The following standards contain provisions which, through reference in the text, constitute provisions of this part of ISO 9241. 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 9241 are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 9241-3:1992. *Ergonomic requirements for office work with visual display terminals (VDTs) — Part 3: Visual display requirements.*

ISO 9241-8:1997. *Ergonomic requirements for office work with visual display terminals (VDTs) — Part 8: Requirements for displayed colours.*

CIE 17.4: 1989, *International Lighting Vocabulary.*