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Kuvaritega kontoritöö ergonoomianõuded. Osa 7: Nõuded valgust peegeldavatele kuvaritele

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 9241-7:2000 sisaldab Euroopa standardi EN ISO 9241-7:1998 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.08.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 9241-7:2000 consists of the English text of the European standard EN ISO 9241-7:1998.</p> <p>This document is endorsed on 18.08.2000 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala: Standard kehtestab kujutise kvaliteedinõuded kuvaritele, mida kasutatakse valgustatud töökeskkondades, mis võivad põhjustada valguse peegeldumise ekraanilt. Nõuded on sätestatud tööomaduste või konstruktsiooni kirjeldusena, lisatud on katsetusmeetodid. Standard kehtib selliste vahetult vaadatavate elektrooniliste kuvarite ergonoomilise konstruktsiooni kohta, mis on ette nähtud kontoriülesanneteks, sealhulgas andmesisestuseks, tekstitöötamiseks ja interaktiivseks päringuks. Kontoriülesanded on need, mida tehakse siseruumides, otsese päikesevalguse eest varjatult. Need soovitused võivad sobida ka muudeks ülesanneteks, sealhulgas protsessijuhtimiseks, graafiliseks kujundamiseks ja arvutil projekteerimiseks, kuid kõnealuste soovituste sobivust ei ole nendest vajadustest lähtuvalt kindlaks tehtud. Standard kehtib must-valgete ja värvikuvarite kohta ning muude kuvarite kohta, millele standardi katsetusmeetod sobib.</p>	<p>Scope:</p>
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ICS 13.180, 35.180

Võtmesõnad: andmeterminal, arvuti välisseadmed, eeskirjad (juhised), ergonoomia, kasutus, kontoriseadmed, kuvamisseadmed, tehnilised andmed, tekstitöötlus

Eesti Standardikeskusele kuulub standardite reprodutseerimis- ja levitamiseõigus

ICS 13.180; 35.180

Descriptors: Visual display terminals, VDU, reflections.

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 An-
zeigen bezüglich Reflexionen
(ISO 9241-7 : 1998)

This European Standard was approved by CEN on 1998-03-02.

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.

The European Standards exist 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

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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

Foreword

International Standard

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

which was prepared by ISO/TC 159 'Ergonomics' of the International Organization for Standardization, has been adopted by CEN/CS as a European Standard.

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

In accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the 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 publications are listed in Annex ZA (normative).

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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.

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.

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.

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-user 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*.