

SVENSK STANDARD

SS-EN ISO 9241-302:2008

Fastställt/Approved: 2008-12-04

Publicerad/Published: 2009-01-22

Utgåva/Edition: 1

Språk/Language: engelska/English, franska/French

ICS: 12.040; 13.180; 35.180;

Ergonomi vid människa-systeminteraktion – Del 302: Terminologi för elektroniska bildskärmar (ISO 9241-302:2008)

Ergonomics of human-system interaction – Part 302: Terminology for electronic visual displays (ISO 9241-302:2008)

This preview is downloaded from www.sis.se. Buy the entire standard via <https://www.sis.se/std-68427>



SWEDISH
STANDARDS
INSTITUTE

Hitta rätt produkt och ett leveranssätt som passar dig

Standarder

Genom att följa gällande standard både effektiviserar och säkrar du ditt arbete. Många standarder ingår dessutom ofta i paket.

Tjänster

Abonnemang är tjänsten där vi uppdaterar dig med aktuella standarder när förändringar sker på dem du valt att abonnera på.

På så sätt är du säker på att du alltid arbetar efter rätt utgåva.

e-nav är vår online-tjänst som ger dig och dina kollegor tillgång till standarder ni valt att abonnera på dygnet runt. Med e-nav kan samma standard användas av flera personer samtidigt.

Leveranssätt

Du väljer hur du vill ha dina standarder levererade. Vi kan erbjuda dig dem på papper och som pdf.

Andra produkter

Vi har böcker som underlättar arbetet att följa en standard. Med våra böcker får du ökad förståelse för hur standarder ska följas och vilka fördelar den ger dig i ditt arbete. Vi tar fram många egna publikationer och fungerar även som återförsäljare. Det gör att du hos oss kan hitta över 500 unika titlar. Vi har även tekniska rapporter, specifikationer och "workshop agreement".

Matriser är en översikt på standarder och handböcker som bör läsas tillsammans. De finns på sis.se och ger dig en bra bild över hur olika produkter hör ihop.

Standardiseringsprojekt

Du kan påverka innehållet i framtida standarder genom att delta i någon av SIS ca 400 Tekniska Kommittéer.

Find the right product and the type of delivery that suits you

Standards

By complying with current standards, you can make your work more efficient and ensure reliability. Also, several of the standards are often supplied in packages.

Services

Subscription is the service that keeps you up to date with current standards when changes occur in the ones you have chosen to subscribe to. This ensures that you are always working with the right edition.

e-nav is our online service that gives you and your colleagues access to the standards you subscribe to 24 hours a day. With e-nav, the same standards can be used by several people at once.

Type of delivery

You choose how you want your standards delivered. We can supply them both on paper and as PDF files.

Other products

We have books that facilitate standards compliance. They make it easier to understand how compliance works and how this benefits you in your operation. We produce many publications of our own, and also act as retailers. This means that we have more than 500 unique titles for you to choose from. We also have technical reports, specifications and workshop agreements.

Matrices, listed at sis.se, provide an overview of which publications belong together.

Standardisation project

You can influence the content of future standards by taking part in one or other of SIS's 400 or so Technical Committees.

Europastandarden EN ISO 9241-302:2008 gäller som svensk standard. Detta dokument innehåller de officiella engelska och franska versionerna av EN ISO 9241-302:2008.

Denna standard ersätter SS-EN 29241-3, utgåva 1; SS-EN ISO 9241-8, utgåva 1; SS-EN ISO 9241-7, utgåva 1; SS-EN ISO 13406-1, utgåva 1; SS-EN 29241-3/A1, utgåva 1; SS-EN ISO 13406-2, utgåva 1.

The European Standard EN ISO 9241-302:2008 has the status of a Swedish Standard. This document contains the official English and French versions of EN ISO 9241-302:2008.

This standard supersedes the Swedish Standard SS-EN 29241-3, edition 1; SS-EN ISO 9241-8, edition 1; SS-EN ISO 9241-7, edition 1; SS-EN ISO 13406-1, edition 1; SS-EN 29241-3/A1, edition 1; SS-EN ISO 13406-2, edition 1.

© Copyright/Upphovsrätten till denna produkt tillhör SIS, Swedish Standards Institute, Stockholm, Sverige. Användningen av denna produkt regleras av slutanvändarlicensen som återfinns i denna produkt, se standardens sista sidor.

© Copyright SIS, Swedish Standards Institute, Stockholm, Sweden. All rights reserved. The use of this product is governed by the end-user licence for this product. You will find the licence in the end of this document.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), tel +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

SIS Förlag AB, SE 118 80 Stockholm, Sweden. Tel: +46 8 555 523 10. Fax: +46 8 555 523 11.
E-mail: sis.sales@sis.se Internet: www.sis.se

EUROPEAN STANDARD

EN ISO 9241-302

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2008

ICS 13.180; 35.180

Supersedes EN 29241-3:1993, EN ISO 13406-1:1999, EN ISO 13406-2:2001, EN ISO 9241-7:1998, EN ISO 9241-8:1997

English Version

Ergonomics of human-system interaction - Part 302: Terminology for electronic visual displays (ISO 9241-302:2008)

Ergonomie de l'interaction homme-système - Partie 302:
Terminologie relative aux écrans de visualisation
électroniques (ISO 9241-302:2008)

Ergonomie der Mensch-System-Interaktion - Teil 302:
Terminologie für elektronische optische Anzeigen (ISO
9241-302:2008)

This European Standard was approved by CEN on 21 March 2008.

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 CEN Management Centre 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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

SS-EN ISO 9241-302:2008 (E/F)

Contents	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
3.1 Photometry	2
3.2 Colorimetry	6
3.3 Geometry, vision, surround and ergonomics	16
3.4 Display technology	27
3.5 Virtual-image displays	45
3.6 Alphanumeric symbols	64
Annex A (informative) Overview of the ISO 9241 series	66
Bibliography	74
Alphabetical index	76
French alphabetical index (Index alphabétique)	78

Foreword

This document (EN ISO 9241-302:2008) has been prepared by Technical Committee ISO/TC 159 "Ergonomics" in collaboration with Technical Committee CEN/TC 122 "Ergonomics", the secretariat of which is held by DIN.

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 May 2009, and conflicting national standards shall be withdrawn at the latest by May 2009.

This document supersedes EN 29241-3:1993, EN ISO 13406-1:1999, EN ISO 13406-2:2001, EN ISO 9241-7:1998, EN ISO 9241-8:1997.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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

Endorsement notice

The text of ISO 9241-302:2008 has been approved by CEN as a EN ISO 9241-302:2008 without any modification.

Ergonomics of human-system interaction —

Part 302:

Terminology for electronic visual displays

Ergonomie de l'interaction homme-système —

Partie 302:

Terminologie relative aux écrans de visualisation électroniques

1 Scope

This part of ISO 9241 provides a comprehensive terminology for electronic visual displays and explains the terms and definitions used in the other parts of ISO 9241.

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.

CIE 17.4:1987, *International Lighting Vocabulary*²⁾
[IEC 60050-845] *International Electrotechnical Vocabulary — Lighting*

1 Domaine d'application

La présente partie de l'ISO 9241 fournit une terminologie d'ensemble relative aux écrans de visualisation électronique et explique les termes et définitions utilisés dans toutes les autres parties de l'ISO 9241.

2 Références normatives

Les documents de référence suivants sont indispensables pour l'application du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

CIE 17.4:1987, *Vocabulaire International de l'Éclairage*²⁾
[CEI 60050-845] *Vocabulaire Électrotechnique International — Éclairage*

2) International Commission on Illumination.

2) Commission Internationale de l'Éclairage.

SS-EN ISO 9241-302:2008 (E/F)

3 Terms and definitions

3 Termes et définitions

3.1 Photometry

3.1 Photométrie

3.1.1 arbitrary symbol

symbol employing an extended subscript notation convention

NOTE See Table 1 for an example and its explanation.

3.1.1 symbole arbitraire

symbole adoptant la convention de notation d'indice élargie

NOTE Le Tableau 1 donne un exemple et son explication.

**Table 1 — Arbitrary symbol, $A_{ill,object(mdir)}$
Tableau 1 — Symbole arbitraire, $A_{ill,objet(mdir)}$**

Position Position	Explanation Explication	Example Exemple	Explanation for the example Explication pour l'exemple
A A	Physical quantity Grandeur physique	L L	Luminance Luminance
ill ill	Illumination condition Conditions d'éclairage	dark sombre	Darkroom condition Condition de chambre noire
object objet	Measured object Objet mesuré	HS HS	Measuring the high state Mesure de l'état d'activation
mloc mloc	Measurement location Point de mesure	CL CL	Centre location Point central
mdir mdir	Measurement direction Direction de la mesure	UL UL	Upper left En haut à gauche
B B	Spectral wavelength Longueur d'onde spectrale	410 410	Wavelength $\lambda = 410$ nm Longueur d'onde $\lambda = 410$ nm
NOTE If the position B is omitted, then it is not applicable, or refers to the $V(\lambda)$ corrected value. NOTE Si la position B est omise, elle n'est pas applicable, ou elle fait référence à la valeur corrigée $V(\lambda)$.			

3.1.2 area luminance

average luminance of an area of the screen or virtual image that has a diameter that subtends 2° to 10°

NOTE 1 Unit: cd/m².

NOTE 2 It is also defined as the luminance of a circular area of the screen that has a diameter of at least 10 pixels. The point is to assure that the luminance of an individual pixel has less than a 2 % effect on the average luminance of the area being measured.

3.1.2 luminance de surface

luminance moyenne d'une surface de l'écran ou d'une image virtuelle qui a un diamètre qui sous-tend 2° à 10°

NOTE 1 Unité: cd/m².

NOTE 2 Elle est aussi définie comme la luminance d'une surface circulaire de l'écran qui a un diamètre d'au moins 10 pixels. Ce point doit garantir que la luminance d'un pixel individuel a un effet inférieur à 2 % sur la luminance moyenne de la surface qui est mesurée.

3.1.3 background luminance

luminance of an area of the screen or virtual image with no graphic images present

NOTE Unit: cd/m².

3.1.4 contrast

(perceptual sense) assessment of the difference in appearance of two or more parts of a field seen simultaneously or successively (hence: brightness contrast, lightness contrast, colour contrast, etc.)

[CIE 17.4:1987, definition 845-02-47]

**3.1.5 Lambert's cosine law
Lambert's law**

for a surface element whose radiance or luminance is the same in all directions of the hemisphere above the surface

$$I(\theta) = I_n \cos(\theta) \quad (1)$$

where $I(\theta)$ and I_n are the radiant or luminous intensities of the surface element in a direction at an angle, θ , from the normal to the surface and in the direction of that normal, respectively

[CIE 17.4:1987, definition 845-04-56]

3.1.6 Lambertian surface

ideal surface for which the radiation coming from that surface is distributed angularly according to Lambert's cosine law

NOTE 1 For an ideal diffuse reflectance standard:

$$\rho_{STD} = \pi \cdot q_{STD} \quad (2)$$

where

ρ_{STD} is the diffuse reflectance

q_{STD} is the luminance coefficient.

NOTE 2 See CIE 17.4:1987, definition 845-04-57.

3.1.3 luminance d'arrière-plan

luminance d'une surface de l'écran ou d'une image virtuelle en l'absence de toute image graphique

NOTE Unité: cd/m².

3.1.4 contraste

(sens perceptif) évaluation de la différence d'aspect de deux ou plusieurs parties du champ observé, juxtaposées dans l'espace ou dans le temps (d'où: contraste de luminosité, contraste de clarté, contraste de couleur, etc.)

[CIE 17.4:1987, définition 845-02-47]

**3.1.5 loi du cosinus de Lambert
loi de Lambert**

propriété d'un élément de surface dont la luminance énergétique ou lumineuse est la même dans toutes les directions de l'hémisphère au-dessus de la surface

$$I(\theta) = I_n \cos(\theta) \quad (1)$$

où $I(\theta)$ et I_n sont les intensités énergétiques ou lumineuses de l'élément de surface dans une direction faisant un angle, θ , avec la normale à la surface et dans la direction de cette normale respectivement

[CIE 17.4:1987, définition 845-04-56]

3.1.6 surface lambertienne

surface idéale pour laquelle le rayonnement provenant de cette surface a une répartition angulaire conforme à la loi du cosinus de Lambert

NOTE 1 Pour une référence de facteur de réflexion diffuse idéale:

$$\rho_{STD} = \pi \cdot q_{STD} \quad (2)$$

où

ρ_{STD} est le facteur de réflexion diffuse

q_{STD} est le coefficient de luminance.

NOTE 2 Voir la définition 845-04-57 de CIE 17.4:1987.