



NSAI
Standards

Irish Standard
I.S. EN ISO 9241-304:2008 (APR '09)

Ergonomics of human-system interaction - Part 304: User performance test methods for electronic visual displays (ISO 9241-304:2008)

I.S. EN ISO 9241-304:2008 (Apr '09)

Incorporating amendments/corrigenda issued since publication:

<i>This document replaces:</i> I.S. EN 29241-3 : 1993	<i>This document is based on:</i> EN ISO 9241-304:2008 EN 29241-3:1993	<i>Published:</i> 28 January, 1994
This document was published under the authority of the NSAI and comes into effect on: 21 August, 2009		ICS number: 13.180 35.180
NSAI 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie W NSAI.ie	Sales: T +353 1 857 6730 F +353 1 857 6729 W standards.ie
Price Code: D		
Údarás um Chaighdeáin Náisiúnta na hÉireann		

I.S. EN ISO 9241-304:2009

EUROPEAN STANDARD

EN ISO 9241-304

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2008

ICS 13.180; 35.180

Supersedes EN 29241-3:1993

English Version

**Ergonomics of human-system interaction - Part 304: User
performance test methods for electronic visual displays (ISO
9241-304:2008)**

Ergonomie de l'interaction homme-système - Partie 304:
Méthodes d'essai de la performance de l'utilisateur pour
écrans de visualisation électroniques (ISO 9241-304:2008)

Ergonomie der Mensch-System-Interaktion - Teil 304:
Prüfverfahren zur Benutzerleistung für elektronische
optische Anzeigen (ISO 9241-304:2008)

This European Standard was approved by CEN on 11 July 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

Contents

Page

Foreword.....	3
----------------------	----------

Foreword

This document (EN ISO 9241-304:2008) 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.

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 9241-304:2008 has been approved by CEN as a EN ISO 9241-304:2008 without any modification.

This page is intentionally left BLANK.

I.S. EN ISO 9241-304:2009

INTERNATIONAL STANDARD

ISO
9241-304

First edition
2008-11-15

Ergonomics of human-system interaction —

Part 304:

User performance test methods for electronic visual displays

Ergonomie de l'interaction homme-système

*Partie 304: Méthodes d'essai de la performance de l'utilisateur pour
écrans de visualisation électroniques*



Reference number
ISO 9241-304:2008(E)

© ISO 2008

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.



COPYRIGHT PROTECTED DOCUMENT

© ISO 2008

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction.....	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Guiding principles	2
5 Conformance	2
6 Specifying the visual ergonomics test objectives	3
6.1 General	3
6.2 Criterion description	3
6.3 Measuring method.....	3
6.4 Performance criteria.....	3
7 Defining the test procedure.....	4
7.1 General	4
7.2 Alphanumeric and non-alphanumeric text	4
8 Visual performance and comfort test — Carrying out the test and analysing the data.....	5
8.1 General	5
8.2 Purpose	5
8.3 Overview.....	5
8.4 Test participants.....	6
8.5 The displays	6
8.6 Test setup.....	6
8.7 Dependent measures	11
8.8 Statistical treatment of results	12
8.9 Critical values for Barnard's <i>U</i> test.....	14
Annex A (informative) Overview of the ISO 9241 series	16
Bibliography.....	20

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 9241-304 was prepared by Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 4, *Ergonomics of human-system interaction*.

This first edition of ISO 9241-304, together with ISO 9241-302:2008, ISO 9241-303:2008, ISO 9241-305:2008 and ISO 9241-307:2008, cancels and replaces ISO 9241-3:1992, of which it constitutes a technical revision. It also incorporates the Amendment ISO 9241-3:1992/Amd.1:2000, replacing that Amendment's test method with the one specified in Clause 8.

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 4: Keyboard requirements*
- *Part 5: Workstation layout and postural requirements*
- *Part 6: Guidance on the work environment*
- *Part 9: Requirements for non-keyboard input devices*
- *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*

ISO 9241 also consists of the following parts, under the general title *Ergonomics of human-system interaction*:

- *Part 20: Accessibility guidelines for information/communication technology (ICT) equipment and services*
- *Part 110: Dialogue principles*
- *Part 151: Guidance on World Wide Web user interfaces*
- *Part 171: Guidance on software accessibility*
- *Part 300: Introduction to electronic visual display requirements*
- *Part 302: Terminology for electronic visual displays*
- *Part 303: Requirements for electronic visual displays*
- *Part 304: User performance test methods for electronic visual displays*
- *Part 305: Optical laboratory test methods for electronic visual displays*
- *Part 306: Field assessment methods for electronic visual displays*
- *Part 307: Analysis and compliance test methods for electronic visual displays*
- *Part 308: Surface-conduction electron-emitter displays (SED) [Technical Report]*
- *Part 309: Organic light-emitting diode (OLED) displays [Technical Report]*
- *Part 400: Principles and requirements for physical input devices*
- *Part 410: Design criteria for physical input devices*
- *Part 920: Guidance on tactile and haptic interactions*

For the other parts under preparation, see Annex A.

Introduction

ISO 9241 was originally developed as a seventeen-part International Standard on the ergonomics requirements for office work with visual display terminals. As part of the standards review process, a major restructuring of ISO 9241 was agreed to broaden its scope, to incorporate other relevant standards and to make it more usable. The general title of the revised ISO 9241, “Ergonomics of human-system interaction”, reflects these changes and aligns the standard with the overall title and scope of Technical Committee ISO/TC 159, Subcommittee SC 4. The revised multipart standard is structured as series of standards numbered in the “hundreds”: the 100 series deals with software interfaces, the 200 series with human centred design, the 300 series with visual displays, the 400 series with physical input devices, and so on.

See Annex A for an overview of the entire ISO 9241 series.

ISO 9241-3:1992, Annex C, offered users a provisional alternative method for testing the visual quality of a display, intended for novel display technologies for which no optical test method was available. The Amendment ISO 9241-3:1992/Amd.1:2000 replaced this test method and made the previously informative Annex C normative. ISO 9241-7:1998, ISO 9241-8:1997 and ISO 13406-2:2001 (all three of which have since been cancelled and replaced by other parts of the ISO 9241 “300” subseries) referred to that Amendment as providing an alternative user performance test method.

This part of ISO 9241 not only incorporates the Amendment, but extends its basis to provide guidance on the general process of assessing the visual ergonomics of displays in a specific context of use by means of a user performance test method. The test method specified in this part of ISO 9241 is applicable only to user tasks involving the handling and processing of text. However, it is expected that test procedures will also be developed for using maps and for handling and interpreting photographs and moving images, with these then being incorporated into a future edition.

The structure of this part of ISO 9241 is an exception in the ISO 9241 “300” subseries in that it establishes the conformance of a visual display used for text rendition according to its own user performance test method, instead of by means of a compliance route given in ISO 9241-307 (in which no compliance route relevant to this part of ISO 9241 is provided).

Ergonomics of human-system interaction —

Part 304:

User performance test methods for electronic visual displays

1 Scope

This part of ISO 9241 provides guidance for assessing the visual ergonomics of display technologies with user performance test methods (as opposed to the optical test methods given in ISO 9241-305). Its use will help to ensure that, for a given context of use, a display meets minimum visual ergonomics requirements. It covers only visual attributes and does not address the ergonomics or usability of the whole product that houses a visual display.

The general principles laid down by this part of ISO 9241 apply to any colour or monochrome visual display attached to a system with which human beings interact. This includes, but is not limited to, visual displays used with desktop and portable computers, those used on mobile devices such as mobile telephones, digital cameras and personal digital assistants, and status displays used on consumer electronics equipment such as printers, in-car navigation systems and microwave ovens. It extends the basic idea of the visual performance and comfort test specified in ISO 9241-3:1992/Amd.1:2000 to the use of the performance and judgment of the display end users themselves for evaluating the quality of a display, and includes a more diverse range of technologies, users, tasks and environments.

Because of this diversity, it is not feasible for this part of ISO 9241 to stipulate a single, generic test method that can be used with all display technologies. Instead, the basic principles for generating a test method are given. This method will be valid for evaluating specific displays in specific contexts of use: the method generated according to Clause 8 is applicable only to tasks involving the handling and processing of text. No other examples are given. An essential property of the process is that it permits the verification of the usability of a visual display for a representative task, performed by representative users, taking their performance and judgment as measured quality values. It does not, however, permit the measurement of specific perceptual attributes such as luminance contrast or display flicker in isolation.

The main users of this part of ISO 9241 will be those who procure displays or who need to measure display performance during product development. Its application assumes a background in behavioural science.

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

ISO 9241-6, *Ergonomic requirements for office work with visual display terminals (VDTs) — Part 6: Guidance on the work environment*

ISO 9241-302, *Ergonomics of human-system interaction — Part 302: Terminology for electronic visual displays*

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-