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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)

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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)

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## **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of an identical text or by endorsement, at the latest by May 2009, and conflicting national standards shall be withdrawn at the latest by May 2009.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.

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### **Endorsement notice**

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**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*



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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.

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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*

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