SLOVENSKI STANDARD
SIST EN ISO 9241-333:2017

01-december-2017

Ergonomija medsebojnega vpliva človek-sistem - 333. del: Stereoskopski zasloni z uporabo očal (ISO 9241-333:2017)

Ergonomics of human-system interaction - Part 333: Stereoscopic displays using glasses (ISO 9241-333:2017)

Ergonomie der Mensch-System-Interaktion - Teil 333: Stereoskopische Displays unter Verwendung von Brillen (ISO 9241-333:2017)

Ergonomie de l'interaction homme-système - Partie 333: (ISO 9241-333:2017)

Ta slovenski standard je istoveten z: EN ISO 9241-333:2017

ICS:

13.180	Ergonomija	Ergonomics
35.180	Terminalska in druga periferna oprema IT	IT Terminal and other peripheral equipment

SIST EN ISO 9241-333:2017 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 9241-333

May 2017

ICS 13.180; 35.180

English Version

Ergonomics of human-system interaction - Part 333: Stereoscopic displays using glasses (ISO 9241-333:2017)

Ergonomie de l'interaction homme-système - Partie 333: Écrans stéréoscopiques utilisant des lunettes (ISO 9241-333:2017)

Ergonomie der Mensch-System-Interaktion - Teil 333: Stereoskopische Displays unter Verwendung von Brillen (ISO 9241-333:2017)

This European Standard was approved by CEN on 6 April 2017.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword

This document (EN ISO 9241-333:2017) 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of an identical text or by endorsement, at the latest by November 2017, and conflicting national standards shall be withdrawn at the latest by November 2017.

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.

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Endorsement notice

The text of ISO 9241-333:2017 has been approved by CEN as EN ISO 9241-333:2017 without any modification.

INTERNATIONAL STANDARD

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Ergonomics of human-system interaction —

Part 333: Stereoscopic displays using glasses

Ergonomie de l'interaction homme-système —

Partie 333: Écrans stéréoscopiques utilisant des lunettes

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Contents

Page

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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

A list of all parts in the ISO 9241 series can be found on the ISO website.

Introduction

Recently, due to the improvement of display technologies, users can easily experience stereoscopic displays using glasses, such as TVs with large screen, personal computers, etc. The displays are used not only in the field of leisure, but also in business, education and medical applications.

This document presents the requirements for visual display units (VDUs) with stereoscopic displays using glasses.

ISO 9241-303 covers the display hardware aspect and gives basic requirements for head-mounted displays (HMDs). ISO/TR 9241-331 presents the optical characteristics of autostereoscopic displays. These other documents are closely related to stereoscopic displays using glasses, but are not directly applicable to them, because the need for special glasses or its absence is an important factor in ergonomics. The visual factors of HMDs are also ergonomically different from those of other displays.

This document is not included in the current ISO 9241-300 subseries for 2D displays because stereoscopic displays have unique features. The development of a separate document to cover stereoscopic displays offers better understanding of its unique features. For an overview of the entire ISO 9241 series, see Annex A.

Moreover, IWA 3:2005[19] was published (since withdrawn) to discuss the image contents aspect. This ISO International Workshop Agreement described image safety issues and means of reducing the incidence of undesirable biomedical effects caused by visual image sequences. Visual fatigue caused by stereoscopic images (VFSI) is one of these undesirable effects.

With this document and the related International Standards, the purpose is to develop guidelines for image content where activities are closely related to the use of stereoscopic displays with glasses.

To ensure effective and comfortable viewing, and to reduce VFSI, the standards will need to address both display hardware and the displayed contents. However, as the first step, this document focuses on the display hardware aspect in order to simplify the discussions.

Ergonomics of human-system interaction —

Part 333: Stereoscopic displays using glasses

1 Scope

This document specifies ergonomic requirements for stereoscopic displays using glasses designed to produce or facilitate binocular parallax. These requirements are stated as performance specifications, aimed at ensuring effective and comfortable viewing conditions for users, and at reducing visual fatigue caused by stereoscopic images on stereoscopic display using glasses. Test methods and metrology, yielding conformance measurements and criteria, are provided for design evaluation. See Annex B for measurement procedures.

This document is applicable to temporally or spatially interlaced types of display. These are implemented by flat-panel displays, projection displays, etc.

Stereoscopic displays using glasses can be applied to many contexts of use. However, this document focuses on business and home leisure applications (i.e. observing moving images, games, etc.). Only dark environments are specified in this document.

For technical explanation of display technologies, see Annex C.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1 General terms

3.1.1
stereoscopic display
3D display where depth perception is induced by *binocular parallax* (3.2.1)

[SOURCE: ISO/TR 9241-331:2012, 2.1]

3.1.2
temporally interlaced type
temporally multiplexed type
temporally multiplexed display
temporally multiplexed stereoscopic display
stereoscopic display (3.1.1) that shows each of stereoscopic images sequentially