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English Version

Ergonomics data and guidelines for the application of ISO/IEC Guide 71 to products and services to address the needs of older persons and persons with disabilities (ISO/TR 22411:2008)

Données d'ergonomie et lignes directrices pour l'application du Guide ISO/CEI 71 aux produits et services afin de répondre aux besoins des personnes âgées et de celles ayant des incapacités (ISO/TR 22411:2008)

Ergonomische Daten und Leitlinien für die Anwendung des ISO/IEC Guide 71 für Produkte und Dienstleistungen zur Berücksichtigung der Belange älterer und behinderter Menschen (ISO/TR 22411:2008)

This Technical Report was approved by CEN on 3 April 2011. It has been drawn up by the Technical Committee CEN/TC 122.

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Foreword

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Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 1

3 Terms and definitions 1

4 General considerations 3
4.1 Need for technical guidance in implementing ISO/IEC Guide 71 in individual standards 3
4.2 Approaches for achieving accessibility 3
4.3 Human abilities data 4

5 Using this Technical Report 4

6 Developing standards — Issues to consider during the standards developing process 4
6.1 General 4
6.2 Definition of the standardization project 4
6.3 Composition of the drafting committee 5
6.4 Content of the standard 5
6.5 Review process 6
6.6 Publication of the standard 6

7 Resolution of contradictory requirements 6

8 Factors to consider with design guidelines 7
8.1 General 7
8.2 Alternative format 7
8.3 Location and layout of information and controls and positioning of handles 17
8.4 Lighting levels and glare 20
8.5 Colour and contrast 22
8.6 Size and style of font and symbols in information, warnings and labelling of controls 24
8.7 Clear language in written or spoken information 27
8.8 Graphical symbols and illustration 31
8.9 Loudness and pitch of non-spoken communication 33
8.10 Slow pace of information presentation 33
8.11 Distinctive form of product, control or packaging 35
8.12 Ease of handling 36
8.13 Expiration date marking 50
8.14 Contents labelling and warning of allergens 51
8.15 Surface temperature 52
8.16 Accessible routes 52
8.17 Logical process 58
8.18 Surface finish 61
8.19 Non-allergenic/toxic materials 62
8.20 Acoustics 63
8.21 Fail-safe 64
8.22 Ventilation 65
8.23 Fire safety of materials 65

9 Ergonomic data on human abilities and the consequences of impairment 65
9.1 General 65
9.2 Sensory abilities 66
9.3 Physical abilities 96
9.4 Cognitive abilities 125

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9.5 Allergies **131**

Annex A (informative) **Principles of accessible design** **134**

Annex B (informative) **Data on spectral sensitivity of the eye as a function of age and application** **136**

Annex C (informative) **Visual acuity data as a function of viewing distance for different age groups** **140**

Annex D (informative) **Span of fundamental colours** **144**

Annex E (informative) **Cases of allergy** **148**

Bibliography **154**

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Introduction

This Technical Report is intended to help standards developers understand the accessible design principles of ISO/IEC Guide 71 and implement them into individual standards by providing design considerations and ergonomic data related to human abilities. While this Technical Report was written primarily for standards developers, it is recognized that much of the information is technical in form and committees are advised to seek technical advice on the interpretation of such data where relevant expertise is not available within the committee. In addition to its application by standards developers, this Technical Report could also be useful to manufacturers, designers, service providers, educators and others.

ISO/IEC Guide 71 stresses the concept that taking care of the needs of older persons and persons with disabilities is important in developing relevant International Standards. The underlying idea is that products, services and environments encountered in all aspects of daily life and intended for the consumer market and the workplace should be designed to be accessible for all people including those with special requirements, such as older persons and persons with disabilities. This idea, called accessible design, has been spreading all over the world. Some regional and national standard bodies have adopted the ISO/IEC Guide 71 as their own standard or guidance.

ISO/IEC Guide 71 has successfully addressed the importance of being aware of the needs of older persons and persons with disabilities. For seven design fields it provides structured tables of factors and human abilities that need to be considered in designing products and services. Its tables are intended to also direct the attention of standards developers to these factors when they draft or revise standards. However, ISO/IEC Guide 71 does not exhaustively describe how to consider those factors or how to find solutions for them. What is required is to establish design methods for implementing the concept of accessible design into individual standards. The methods demand a wider range of knowledge on properties and ergonomic data of human abilities. Without such knowledge, better design for persons with special requirements will not be realized.

Social and economic effects are expected from accessible design. In the social dimension, a greater number of individuals — including older persons and persons with disabilities — will be able to be involved in social activities without any restriction in using products or enjoying services and environments. The economic effect is that products developed using accessible design can be purchased by a wider range of people, including older persons and those with disabilities, who are now a significant proportion of consumers with buying power.

ISO/TC 159, *Ergonomics*, has been involved in this challenging work, firstly with an ad hoc group and then with Working Group WG 2, *Ergonomics for persons with special requirements,* the result of which has been the development of this Technical Report, which also incorporates factors that do not appear in ISO/IEC Guide 71 where considered necessary. Nevertheless, these design considerations and human ability data are arranged in accordance with the structure of ISO/IEC Guide 71, for ease of reference.

This Technical Report widens the scope of users as far as possible and is not limited to the 5th to 95th percentiles of working populations[1)]. It constitutes a starting point from which to offer technical information for accessible design. It is not exhaustive and does not fully reflect the present state of knowledge and data for accessible design: while some of the design considerations are well established, others are still under development.

1) A percentile describes the percentage of people in a population group (e.g. 5 % or 95 %) for which the relation to a certain body size is greater or smaller than the value given in each case. For more details, see ISO 7250.

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Ergonomics data and guidelines for the application of ISO/IEC Guide 71 to products and services to address the needs of older persons and persons with disabilities

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1 Scope

This Technical Report presents ergonomics data and guidelines for applying ISO/IEC Guide 71 in addressing the needs of older persons and persons with disabilities in standards development.

It provides:

— ergonomics data and knowledge about human abilities — sensory, physical, cognitive abilities — and allergies;

— guidance on the accessible design of products, services and environments.

Each of its design considerations or recommendations is based on ergonomic principles that are necessary for making products, services and environments accessible to older persons and those with disabilities. It is applicable to products, services and environments encountered in all aspects of daily life, as well as in the consumer market and workplace (herein, the term "products and services" is used to cover all these areas). While it does not provide techniques for designing assistive devices, some of its provisions do, however, support interoperability with assistive technology. Conformity assessment of any international, regional or domestic standards is outside its scope.

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/IEC Guide 71:2001, *Guidelines for standards developers to address the needs of older persons and persons with disabilities*

3 Terms and definitions

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

3.1
accessible design
design focused on principles of extending standard design to persons with some type of performance limitation to maximize the number of potential customers who can readily use a product, building or service, which may be achieved by

— designing products, services and environments that are readily usable by most users without any modification,

— making products or services adaptable to different users (adapting user interfaces), and

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