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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 44808.4-2024

**Ergonomics - Accessible design - Part 4: A method for
estimating minimum legible font size for people at any age**

人类工效学 无障碍设计 第4部分：不同年龄人群最小可辨认字符尺寸的估计方法
(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is Part 4 of GB/T 44808 "Ergonomics and Accessibility Design". GB/T 44808 has been published as follows part.

--- Part 1: Voice prompts in consumer products;

--- Part 2: Color combination method considering changes in color vision with age;

--- Part 3: Sound pressure levels of products and public address system speech announcements;

--- Part 4: Estimation method of the minimum recognizable character size for people of different ages.

This document is equivalent to ISO 24509:2019 "Ergonomics and Accessibility Design - Minimum Recognizable Character Sizes for People of Different Ages" Estimation Methods.

The following minimal editorial changes were made to this document.

--- To coordinate with the existing standards, the name of the standard is changed to "Ergonomics barrier-free design Part 4: Best practices for people of different ages" "A method for estimating the size of small recognizable characters";

--- "Appendix F gives examples of the application of this method to non-alphabetic characters" in the scope is changed to a note;

--- In Appendix A and Appendix B, "The data in the table are derived from JIS S0032" is changed to "The data in this table are derived from reference [5]".

Introduction

Characters are widely used to present information on displays, documents and other visual media. In the information age, the legibility of paper or electronic texts is this is a critical issue, especially for the elderly. However, there is currently no established method for designing and evaluating character legibility.

Most legibility issues are related to the size of the characters in the text. The vision of the elderly decreases with age, especially at close range.

Providing legible text to older adults is particularly important for improving their social activities under any viewing condition.

Safety and comfort are becoming increasingly important.

There are two main issues in text legibility. one is the legibility of individual characters, and the other is the legibility caused by character spacing and line spacing.

The former is the basic problem of recognizability and can be extended to the recognizability of words or sentences.

There are many factors that affect the recognizability of individual characters. The key factors related to vision include the age of the observer, the viewing distance, Brightness and contrast. Based on these key factors, methods for estimating the size of recognizable characters can be developed and promoted. There may be other Once a basic method based on human visual factors is established, these factors can be evaluated.

impact.

Due to the lack of scientific evidence and the large individual differences in visual ability among patients with different types of impairments, this document does not discuss Identifiability issues for people with pathological impairments such as low vision.

This document follows the accessible design principles of ISO/IEC Guide 71 and uses data from ISO/T R22411.

GB/T 44808 aims to take into account the differences in user capabilities and the diversity of usage scenarios, and to establish barrier-free design for each human-computer interaction factor.

Requirements, make the product and system suitable for the widest range of users in the target user group, and it is planned to consist of multiple parts.

--- Part 1: Voice prompts in consumer products. The purpose is to establish the ergonomic requirements for voice prompts in consumer products.

--- Part 2: Color combination methods that take into account changes in color vision with age. The purpose is to establish the creation of eye-catching color combinations method.

--- Part 3: Sound pressure levels for speech announcements in products and public address systems. The purpose is to establish the sound pressure level range for speech announcements.

Determine the method.

--- Part 4: Estimation method for the minimum recognizable character size for people of different ages. The purpose is to establish a method for estimating the minimum recognizable character size for people of different ages.

A method for estimating the minimum recognizable character size of a group.

--- Part 5: Touch symbols and characters. The purpose is to establish barrier-free design requirements for touch symbols and characters.

--- Part 6: Indicator lights in consumer products. The purpose is to establish barrier-free design requirements for indicator lights in consumer products.

--- Part 7: Controllers in consumer products. The purpose is to establish accessible design principles for consumer product controllers.

--- Part 8: Ease of use. The purpose is to establish barrier-free design requirements for ease of use of consumer products.

Ergonomics and barrier-free design Part 4: Minimum identifiable values for people of different ages Character size estimation method

1 Scope

This document describes a method for estimating the age of different age groups under different distances, brightness and contrast conditions in self-illumination or reflection mode.

The minimum size of a single character (not a word or sentence) that can be read by a human observer in documents, product labels, signs, and displays.

method.

This document is intended for the design and evaluation of the legibility of individual characters for use by people of any age without visual impairments. It is not intended for use by people with visual impairments (such as the application of this document is particularly intended for, but not limited to, printed matter using fixed type sizes.

Note: Appendix F gives an example of the application of this method to non-alphabetic characters.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

ISO 24502 Ergonomics Accessibility Design and Age-Related Color Brightness and Contrast Specifications Note. GB/T 44382-2024 Ergonomics Accessibility Design and Age-related Color Brightness Contrast Specification (ISO 24502:2010, IDT)

3 Terms and definitions

The following terms and definitions apply to this document.

Visual acuity

vision

The ability to distinguish fine structures in an object. Usually determined by the minimum viewing angle that can distinguish two points.

Any of several measures of spatial resolution, such as the degree to which an observer can just distinguish two adjacent objects (points or lines or other He specifies the reciprocal of the visual angle (in minutes of arc) corresponding to the stimulus.

Observation distance Viewing distance the distance between the eye and the object being viewed.