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

GB/T 44808.2-2024

**Ergonomics - Accessible design - Part 2: Method for creating
colour combinations taking account of age-related changes in
human colour vision**

人类工效学 无障碍设计 第2部分：考虑颜色视觉随年龄变化的颜色组合方法
(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 2 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 24505:2016 "Human ergonomics for barrier-free design. color combinations taking into account changes in color vision with age" "Combined 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 "Human ergonomics barrier-free design Part 2: Considering color vision Age-changing color combination method.

Introduction

The proportion of elderly people in countries around the world is increasing. Improving the visibility of various signs and displays can promote the active participation of the elderly in social activities.

This document provides a method for evaluating and Methods for designing signs and displays to meet the visual clarity needs of older adults. This document provides methods for creating eye-catching visual signs and displays.

Methods and data for color combinations to make visual signs and displays more readable for any age by taking into account age-related changes in color vision it can be seen by people of all ages.

There are a large number of people with various color vision deficiencies, especially men. A small number of people also suffer from eye diseases such as low vision.

The color combinations given in this document are not intended for use by people with color vision deficiencies or visual disorders.

The project provides methods and basic guidelines for creating color combinations for a wider range of visually impaired people, suitable for color matching for any age group.

People with normal vision, people with color vision deficiency and people with low vision.

This document uses the Munsell color system recommended by the International Commission on Illumination (CIE) to describe colors.

This document adopts the accessible design principles given in reference [4] and expands on those given in reference [3].

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 for accessible design Part 2: Considerations How color vision changes with age

1 Scope

This document provides methods for creating eye-catching color combinations for visual identity and displays that take into account the age of the viewer and Based on the similarity of colors perceived by the human eye under photopic and mesopic lighting conditions.

This document applies to the design of visual identities and displays that use multiple colors so that these color combinations are readable by people of all ages without color vision deficiency.

The methods and data in this document are not intended for use in designing visual aids for people with color vision deficiencies or medical conditions.

Visual identification and display.

This file is intended for use with either reflectance mode or object mode colors, but can also be used with object mode colors if the color coordinates are converted appropriately.

Color used for self-illumination mode.

2 Normative references

The contents of the following documents constitute the 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 3864-1 Graphical symbols - Safety colours and safety signs - Part 1: Design principles for safety signs and safety markings safety markings Note. GB/T 2893.1-2013 Graphical symbols, safety colors and safety signs Part 1: Design principles for safety signs and safety markings (ISO 3864-1.

2011,MOD)

3 Terms and definitions

The following terms and definitions apply to this document.

Color similarity

For a given color, the percentage of people who judge that color to be similar to the basic reference color.

Example. A color similarity of 50% means that half of the people judge that a given color is similar to the reference color.

fundamental color

A set of basic colors that can be perceived by people with normal color vision, including red, orange (yellow-red), yellow, yellow-green, blue-green, blue, blue-purple, purple, purple-red, Black, gray, and white are consistent with the Munsell color system.

mesopic vision

Normal human vision is between photopic and scotopic vision.

Note: Intermediate vision is the result of the simultaneous action of both the cones and rods of the retina.

[Source. CIES017/E.2011]