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

GB/T 44382-2024

**Ergonomics - Accessible design - Specification of age-related
luminance contrast for coloured light**

人类工效学 无障碍设计 与年龄相关的色光亮度对比度规范
(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 equivalent to ISO 24502:2010 "Human ergonomics, accessibility and age-related color, brightness and contrast specifications" "Fan".

The following minimal editorial changes were made to this document.

---Replace the informative references in the text with ISO 9241-302:2008, ISO/CIE23539.2023, CIE15, CIES017.2020 Adjust to references;

--- Add note to Figure A.1.

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 calculating the age-related brightness.

The method is suitable for evaluating and designing signs and displays in the visual environment to meet the visual clarity needs of the elderly.

Based on the age-related photopic spectral luminous efficiency of the eye, it is used to calculate the age-related brightness of people in each age group from 10 to 79 years old

Contrast.

This document adopts the accessible design principles given in ISO/IEC Guide 71:2014, which are also included in ISO/T R22411:2021.

There are further expansions in.

Ergonomics and Accessibility Design and Age-Related Color brightness contrast specification

1 Scope

This document specifies the age-related brightness contrast ratio that any two different colored lights should have when viewed by people of any age, where this document provides basic calculations applicable to the design of lighting, visual signs and displays.

Calculation method.

This document applies to sight marks and displays that emit light or reflect light under medium brightness conditions of photopic vision, and whose spectral radiance is known or can be this document does not apply to light seen under darker conditions such as mesopic or scotopic vision.

This document provides the calculation method of color light brightness contrast for people in different age groups between 10 and 79 years old.

He had not received any treatment or surgery that might have affected his spectral luminous efficiency.

This document does not apply to sight marks and displays viewed by groups with color vision deficiencies whose spectral luminous efficiency differs from that of the normal population, as well as to low vision Visual symbols and displays viewed by the power population.

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.

GB/T 2893.4-2013 Graphical symbols, safety colors and safety signs Part 4: Chromaticity properties and optical properties of safety sign materials Degree properties (ISO 3864-4:2011, MOD) Note. There is no technical difference between the referenced content of GB/T 2893.4-2013 and the referenced content of ISO 3864-4:2011.

ISO 9241-303:2011 Ergonomics of human-system interaction Part 303: Requirements for electronic visual displays

3 Terms and definitions

The following terms and definitions apply to this document.

Luminous efficiency

(V for photopic vision and V' for scotopic vision) Under specific luminosity conditions, the radiant flux weighted by the spectral luminous efficiency and the corresponding radiation the flux ratio.

[Source. CIES017.2020,17-21-094] 3.2 , the sum of the radiant flux of wavelength λ_{dam} and the radiant flux of wavelength λ the ratio of the two radiations is such that the two radiations produce the same intensity of light at a specified luminosity. When the wavelength is λ_{dam} , the maximum value of the ratio is equal to at 1.

Note 1: Adapted from CIES017.2020.