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Assistive products for blind and vision-impaired persons — Tactile walking surface indicators

Produits d'assistance pour personnes aveugles ou visuellement affaiblies — Indicateurs tactiles de surfaces de marche

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Foreword

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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 of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 173 *Assistive products*.

This second edition cancels and replaces the first edition (ISO 23599:2012), of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

— Correction of Weber's formula in Table A.1;

— Correction of Reference [18] in the Bibliography.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The purpose of this document is to create requirements for Tactile Walking Surface Indicators (TWSIs) for blind or vision-impaired persons.

When blind or vision-impaired persons travel alone, they might encounter problems and hazards in various situations. In order to obtain information for wayfinding, these pedestrians use information available from the natural and built environment, including tactual, acoustic and visual information. However, environmental information is not always reliable and it is for this reason that TWSIs perceived through use of a long white cane, through the soles of shoes and through the use of residual vision have been developed.

TWSIs were invented in Japan in 1965. They are now used around the world to help blind or vision-impaired persons travel independently. At present, TWSI patterns and installation methods vary from country to country. This document aims to provide a basis for a common approach for TWSIs at the international level, while acknowledging that some differences might be necessary at the local level to accommodate climatic, geographical, cultural or other issues that might exist.

TWSIs should be designed and installed based on a simple, logical and consistent layout. This will enable tactile indicators to facilitate not only the independent travel of blind or vision-impaired persons in places they frequently travel, but also to support their independent travel in places they visit for the first time.

Currently, there are several forms of TWSIs, but the ability to detect differences in tactile patterns through the soles of the shoes or the long white cane varies depending on individual differences. Therefore, the consolidated findings of science, technology and experience were employed to define the characteristics of TWSIs that can be detected and recognized by potential users. Additionally, in order to ensure that TWSIs achieve maximum effect in conveying information, it is important that they be installed in or on a smooth surface where blind or vision-impaired persons can identify them without interference from an irregular walking surface.

It is also necessary to ensure that TWSIs can be effectively used by vision-impaired persons as well as people who are blind. For this purpose, TWSIs should be easily detectable through use of residual vision. This is achieved through visual contrast between TWSIs and the surrounding or adjacent surface. Visual contrast is influenced primarily by luminance contrast, and secondarily by difference in colour or tone. In order to have good visibility, it is necessary to have sufficient illumination without glare and it is important to maintain the visual contrast between TWSIs and the surrounding or adjacent surface.

While TWSIs should be effective for blind or vision-impaired persons, attention should also be paid to their surface structure and materials in order to ensure that all pedestrians, including those with impaired mobility, can safely and effectively negotiate them.

TWSIs are installed in public facilities, buildings used by many people, railway stations and on sidewalks and other walking surfaces. Attention patterns may be installed in the vicinity of pedestrian crossings, at-grade kerbs, railway platforms, stairs, ramps, escalators, travelators, elevators, etc. Guiding patterns may be used alone or in combination with attention patterns in order to indicate the walking route from one place to another.

Assistive products for blind and vision-impaired persons — Tactile walking surface indicators

1 Scope

This document provides product specifications for tactile walking surface indicators (TWSIs) and recommendations for their installation in order to assist in the safe and independent mobility of blind or vision-impaired persons.

This document specifies two types of TWSIs: attention patterns and guiding patterns. Both types can be used indoors and outdoors throughout the built environment where there are insufficient cues for wayfinding, or at specific hazards.

NOTE Some countries have adopted other designs of TWSIs based on the consolidated findings of science, technology and experience, ensuring that they can be detected and distinguished by most users.

This document is not intended to replace requirements and recommendations contained in such national standards, regulations or guidelines.

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 https://www.iso.org/obp

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

3.1
attention pattern
TWSI (3.16) design, calling attention to a *hazard* (3.9) only, or to hazards and *decision points* (3.4)

Note 1 to entry: Attention patterns can be installed in the vicinity of pedestrian crossings, *at-grade kerbs* (3.2), railway platforms, stairs, ramps, escalators, travelators, elevators, etc.

3.2
at-grade kerb
flush kerb
kerb whereby the edge of the walkway is at the same level as adjoining vehicular ways

Note 1 to entry: See Figures B.10 and B.11.

3.3
CIE Y value
tristimulus value Y of the CIE 1931 standard colorimetric system for reflecting objects

Note 1 to entry: The CIE Y value equals the percentage value of the luminous reflectance.

Note 2 to entry: $Y = 0$ denotes the *reflectance* (3.15) of an absolutely black object (no light is reflected). $Y = 100$ denotes the reflectance of a perfectly white object (no light is absorbed or transmitted).