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

GB 16930.1-2014

Tactile sticks-Part 1: A sign of safety color

盲杖 第1部分：安全色标志

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Foreword

Part 4 of this Chapter are mandatory, others are recommended. GB 16930 "cane" is divided into two parts.

--- GB 16930.1 cane - Part 1. safety colors;

--- GB/T 16930.2 cane technical conditions. This is Part 1 GB 16930's. This section drafted in accordance with GB/T 1.1-2009 given rules. This Part replaces GB 16930.1-1997 "blind cane safety colors", compared with GB 16930.1-1997 major technical change Of the following.

--- Modifications and additions some of the terms and definitions (see Chapter 3, Chapter 3, 1997);

--- Modified cane safety color marking requirements (see 41, 1997 Version 4.1.);

--- Modify the deaf-blind cane safety color marking requirements (see 42, 1997 Version 4.2.);

--- Increased performance and color photometric performance requirements (see 4.3, 4.4);

--- Increasing the detection method (see Chapter 5). This section proposed by the People's Republic of China Ministry of Civil Affairs. This part of the National Rehabilitation and special equipment Standardization Technical Committee on Persons with Disabilities (SAC/TC148) centralized. This section drafted by: National Rehabilitation Device Quality Supervision and Inspection Center, China Association of the Blind, the National Traffic Safety Facilities Quality Supervision and Inspection Inspection center, Dominion Optical Co., Ltd., Beijing school for the blind, physically handicapped rehabilitation center in Sichuan, Guangdong, Yang Kai Medical Technology Group has Ltd., Shanghai Medical Devices Co., Ltd. each state. The main drafters of this section. in Juan-juan, Gu Yaling, Li Weihong, Su Wenying, Wang, Wang Qi, Wang Lili, Li Minghui, Huangfei Qing Yi-Ming Zhao, Zhang, Wang Wei, Li Jinfeng. This part of the standard replaces the previous editions are.

--- GB 16930.1-1997. The cane Part 1. safety colors

1 Scope

Part 1 of China's mandatory national standard for tactile sticks, covering the safety colour marking. A tactile stick is a blind person's white cane, and the standard's subject is the property that protects them from traffic rather than from obstacles: the cane is white with red bands, and that combination is a legally recognised signal to drivers everywhere that the person carrying it cannot see them. It works only if it is unmistakable, which is why the colours are specified colorimetrically rather than by name and why the retro-reflective performance matters - the cane is most needed at night, when a driver sees only what the headlamps return. This part specifies the colours, their arrangement along the cane and the reflective requirements, and it is what makes a Chinese white cane read the same to a driver as one carried anywhere else.

This section provides security cane color logo terms and definitions, requirements and test methods related. This section applies to cane safe color logo design, production, use and related fields.

2 White Red 0.2 ° -4 ° 70 14 15 ° 50 11 30 ° 30

6.0 TABLE 2 (cont.) Observation angle incidence angle Coefficient of retroreflection RA/cd · lx-1 · m-

2 White Red 0.5 ° -4 ° 30 7.5 15 ° 23 5.3 30 ° 15 3.0 1.0 ° -4 ° 5.0 2.0 15 ° 3.0 1.0 30 ° 2.0 0.6

5.1.2 Performance Test retroreflective material chromaticity And cut 150mm x 150mm monochrome retroreflective material samples using CIE standard illuminant D65 light GB/T 3978 provisions Source, taking the measurement geometry 45 ° a. 0 °, the method according to GB/T 3979 provisions for testing.

5.2 photometric performance testing And cut 150mm x 150mm monochrome retroreflective material samples, according to the method of JT/T 690 provisions for testing.

3 Terms and Definitions

GB 2893, GB/T 16930.2 and JT/T 688 as defined in the following terms and definitions apply to this document.

3.1 Cane tactilesticks White stick whitecanes Guide for the visually impaired or the appliance identification surroundings.

3.2 Blind and deaf stick deaf-blindsticks Both visually impaired hearing impaired guide for an appliance or identify the surrounding environment, a special form of cane.

3.3 Safety colors safetycolor Information transfer security implications of colors, including red, blue, yellow, green, four colors.

3.4 Contrasting colors contrastcolor Make security more visible color contrasting colors, including black and white colors.

3.5 Retroreflective retroreflection Reflected light returned from the opposite direction near the reflection of incident light. When the direction of the incident light changes in a wide range, can still guarantee Hold of this nature.

3.6 Reflective film retroreflectivesheeting One kind of film has been made of retroreflective material can be directly applied.

3.7 Coefficient of luminous intensity coefficientofluminousintensity RI Illumination E of retroreflective observation direction of the luminous intensity and I fall toward the retroreflective body and the direction perpendicular to the plane of incidence Ratio, namely. $RI = I/E$ (1) Where. RI

--- coefficient of luminous intensity, in units of candela per lux ($cd \cdot lx^{-1}$); I

--- luminous intensity unit candela (cd); E

--- vertical illuminance, the unit is lux (lx).

3.8 Coefficient of retroreflection coefficientofretroreflection RA Than retroreflective surface coefficient of luminous intensity RI and retroreflective body surface area A, namely. $RA = RI/A = I/(E \times A)$ (2) Where.

--- Coefficient of retroreflection the RA, in units of candela per lux square meter ($cd \cdot lx^{-1} \cdot m^{-2}$); RI

--- coefficient of luminous intensity, in units of candela per lux ($cd \cdot lx^{-1}$); A

4 Requirements

4.1 cane safety colors Cane look safe colors should be red, contrasting color should be white. White cane as a whole background color, plus a vertical axis Straight circular red stripes. Red stripe width $L_0 \geq 150mm$, and is located at the upper portion of a third of the rod body (length $L < 600mm$ of Cane red stripes width is not required), as shown in FIG. Folding cane red stripes should be in a folded segment. Red part Use retroreflective materials, such as reflective film. Explanation. L

--- cane length; L body

--- cane stick body length; L_0

--- red stripe width; D

--- cane stick diameter. Figure 1 cane

4.2 deaf-blind cane safety colors Blind and deaf stick exterior color with red and white security ring and white stripes, and perpendicular to the axis, red and white stripe width is equidistant spacing, not It should be less than 4 segments, each of length L body $n \geq 150\text{mm}$ (Length $L < 750\text{mm}$ width of deaf-blind cane with red stripes is not required), as shown in Figure 2 FIG. Use the red part of the retroreflective material, such as a reflective film. Explanation. L

--- cane length; L body

--- cane stick body length; The total number of segments n

--- spaced stripes. Figure 2 deaf-blind stick

4.3 Performance requirements chroma Cane, blind and deaf staves with red and white colors, the chromaticity coordinates should fall within the Table 3 and Figure 1 of the given range. Red, white luminance factor of the retroreflective material shall conform to the requirements of Table 1.

4.4 photometric performance requirements Cane, blind and deaf stick the retroreflective material used should be flexible materials. Photometric properties of materials to retroreflective coefficient of retroreflection expressed, used Coefficient of retroreflection RA value retroreflective material shall not be less than the requirements of Table 2. Table 1 chromaticity coordinates and luminance factor Colour Color range corner chromaticity coordinates (standard illuminant D65, 2 ° field) brightness factor beta 1234 No metal coating with a metal coating x 0.735 0.681 0.579

0.655 y 0.265 0.239 0.341 0.345 0.03 ~ 0.15 0.02 ~

0.11 x 0.350 0.305 0.295

0.340 y 0.360 0.315 0.325 0.370 ≥ 0.27 ≥ 0.15

5.1 Color performance test

5.1.1 common materials color performance test The method according to GB/T 3979 provisions for testing. legend. White, red chromaticity coordinates of the fill area. 3 red, white color chromaticity region Table

2 Minimum coefficient of retroreflection Observation angle incidence angle Coefficient of retroreflection $RA/cd \cdot lx^{-1} \cdot m^{-}$