SLOVENSKI STANDARD
oSIST prEN 16584-3:2022

01-julij-2022

Železniške naprave - Načrtovanje za osebe z omejenimi gibalnimi sposobnostmi - Splošne zahteve - 3. del: Značilnosti optike in trenja

Railway applications - Design for PRM use - General requirements - Part 3: Optical and friction characteristics

Bahnanwendungen - Gestaltung für die Nutzung durch PRM - Allgemeine Anforderungen - Teil 3: Optische Eigenschaften und Rutschfestigkeit

Applications ferroviaires - Conception destinée à l'usage par les PMR - Exigences générales - Partie 3 : Caractéristiques optiques et de friction

Ta slovenski standard je istoveten z: prEN 16584-3

ICS:

11.180.01	Pripomočki za onesposobljene in hendikepirane osebe na splošno	Aids for disabled and handicapped persons in general
45.020	Železniška tehnika na splošno	Railway engineering in general

oSIST prEN 16584-3:2022 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 16584-3

May 2022

ICS 11.180.01; 45.020

Will supersede EN 16584-3:2017

English Version

Railway applications - Design for PRM use - General requirements - Part 3: Optical and friction characteristics

Applications ferroviaires - Conception destinée à l'usage par les PMR - Exigences générales - Partie 3 : Caractéristiques optiques et de friction

Bahnanwendungen - Gestaltung für die Nutzung durch PRM - Allgemeine Anforderungen - Teil 3: Optische Eigenschaften und Rutschfestigkeit

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 256.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. prEN 16584-3:2022 E

Contents

Page

European foreword

This document (prEN 16584-3:2022) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 16584-3:2017.

In comparison with the previous edition, the following technical modifications have been made:

— the document template has been updated;

— the document has been revised generally for document references and editorial issues with grammar;

— scope modified;

— normative references updated;

— terms and definitions revised;

— 5.1 References to Annex A (EC Verification) and B (Summary of Testing Requirements) removed;

— Annex A “EC verification - Interoperability constituents” removed;

— Annex B “Summary of testing requirements” removed;

— Annex ZA updated;

— Bibliography updated.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, which is an integral part of this document.

Introduction

This document is part of a suite of four 'Design for PRM use' standards that have in total nine parts:

— EN 16584 is a standard that covers both infrastructure and rolling stock — Railway applications — Design for PRM use — General requirements:

  — Part 1: Contrast (EN 16584-1)

  — Part 2: Information (EN 16584-2)

  — Part 3: Optical and friction characteristics (EN 16584-3)

— EN 16585 is a standard that covers rolling stock — Railway applications — Design for PRM use — Equipment and components onboard rolling stock:

  — Part 1: Toilets (EN 16585-1)

  — Part 2: Elements for sitting, standing and moving (EN 16585-2)

  — Part 3: Clearways and internal doors (EN 16585-3)

— EN 16586 is a standard that covers rolling stock — Railway applications — Design for PRM use — Accessibility of persons with reduced mobility to rolling stock:

  — Part 1: Steps for access and egress (EN 16586-1)

  — Part 2: Boarding aids (EN 16586-2)

— EN 16587 is a standard that covers infrastructure — Railway applications — Design for PRM use — Requirements for obstacle-free routes for infrastructure.

These standards aim to clarify the requirements (with clear and consistent terms and definitions) and to define the associated criteria and, where appropriate, methodologies to allow a clear pass/fail assessment.

1 Scope

This document describes the specific 'Design for PRM use' requirements applying to both infrastructure and rolling stock and the assessment of those requirements. The following applies to this document:

— The definitions and requirements describe specific aspects of 'Design for PRM use' required by persons with disabilities and persons with reduced mobility as defined in the PRM TSI.

— This document defines elements that are universally valid for obstacle-free travelling including lighting, contrast, tactile feedback, transmission of visual and acoustic information. The definitions and requirements of this document cover the infrastructure and rolling stock applications.

— This document only refers to aspects of accessibility for PRM passengers; it does not define non-PRM related requirements and definitions.

— This document assumes that the infrastructure or rolling stock is in its defined operating condition.

— Where minimum or maximum dimensions are quoted these are absolute NOT nominal requirements.

— This document is not specifically intended for Urban Rail, however these standards or clauses from these standards can be adopted by Urban Rail projects should they choose to do so.

The 'General requirements' standard is written in three parts:

— Part 1 contains
  — Contrast
— Part 2 contains
  — Spoken information
  — Written information
  — Tactile information
  — Pictograms
  — Audible signals
— This document is Part 3 and contains
  — Lighting
  — Low reflective properties
  — Transparent obstacles
  — Slip resistance

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1838, *Lighting applications - Emergency lighting*

EN 12464 (series), *Light and lighting — Lighting of workplaces*

EN 13272-1:2019, *Railway applications - Electrical lighting for rolling stock in public transport systems - Part 1: Heavy rail*

prEN 16584-1:2022, *Railway applications — Design for PRM use — General Requirements — Part 1: Contrast*

prEN 16584-2:2022, *Railway applications — Design for PRM use — General Requirements —Part 2: Information*

prEN 16587:2022, *Railway applications — Design for PRM use — Requirements for Obstacle-free Routes for Infrastructure*

EN ISO 2813, *Paints and varnishes - Determination of gloss value at 20°, 60° and 85° (ISO 2813)*

ISO 4649, *Rubber, vulcanized or thermoplastic — Determination of abrasion resistance using a rotating cylindrical drum device*

ISO 21542, *Building construction — Accessibility and usability of the built environment*

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
contrast
perception of a difference visually between one surface or element of a building/rail vehicle and another by reference to their light reflectance values (LRV) or luminance values

Note 1 to entry: See BS 8300-1 and BS 8300-2 for further information.

3.2
Light Reflectance Value (LRV)
total quantity of visible light that is reflected by a surface at all wavelengths and directions when illuminated by a light source

Note 1 to entry: The measured range of LRV is between 0 points and 100 points.

3.3
low reflective properties
perception of a difference visually

3.4
pictogram
graphical symbol, diagram or figure with a particular meaning which directly represents or conveys its meaning independently of language through a pictorial representation of a physical object, action or character

Note 1 to entry: Refer to ISO 7001, ISO/TR 7239 and ISO 9186 (all parts) for rules regarding graphical symbols and frames.

3.5
slip resistant
surface finish that is sufficiently rough or otherwise specially formulated so that friction between the surface and a person's footwear or mobility aid is maintained at an acceptable level in both wet and dry conditions

Note 1 to entry: Snow and ice are outside this definition and this standard, therefore other special measures (e.g. operational) should be taken for steps and platforms etc that are exposed to these weather conditions.

3.6
spoken information
information audibly communicated in words

Note 1 to entry: This can be direct, pre-recorded or synthesized information.

3.7
station
any form of infrastructure where a train operates, and passengers can board or alight in normal operation

3.8
station building
any building or structure within the confines of the station in areas for use by passengers which can be open at different times to the overall station

Note 1 to entry: This does not include other commercial structures that are not essential for travel.

3.9
transparent obstacle
obstacle that allows objects or images to be seen as if there were no intervening material, seen through with a level of clarity

Note 1 to entry: Transparency in this standard is when an obstacle allows at least 50 % direct light transmission.

3.10
visual acuity
the threshold of the capacity of the eye to perceive fine details of a visual object (a sign), the recognizability of which depends on the visual angle

3.11
visual information
written information, pictograms and markings

4 Symbols and abbreviations

Table 1 —Abbreviations

Abbreviation	Designation
CIE	International Commission on Illumination
EN	European Standard (Euronorm)
ISO	International Organization for Standardization
TSI	Technical Specification for Interoperability

Table 2 — Symbols

Symbol	Designation	Unit
Hz	unit of frequency	Hertz
K	unit of temperature	Kelvin
LRV	Light Reflectance Value	point
lx	unit of illuminance	lux
m	unit of length	metre
mm	unit of length	millimetre
s	unit of time	second

5 Requirements and assessment

5.1 General

All dimensions in the figures are in millimetres (mm) unless otherwise stated.

5.2 Infrastructure

5.2.1 Obstacle-free route

Obstacle-free route floor surfaces and ground surfaces shall have low reflective properties.

— The assessment shall be in accordance with EN ISO 2813 for paints and varnishes, an achieved gloss level of 50 or lower shall be assumed to be compliant. For any other ground material and/or surface materials an assessment is not necessary.

5.2.2 Floor surfaces

All floor coverings, ground surfaces and stair tread surfaces shall be slip resistant.

— The assessment shall be according to international or national standards.

5.2.3 Transparent obstacles

1) Transparent obstacles on or along the main routes used by passengers, consisting of glass doors or transparent walls, shall be marked. These markings shall highlight the transparent obstacles.

— Assessment of transparency shall be carried out with a Glass transparency meter, if transparency is greater than 50 % then the obstacle shall be marked.

— Assessment of the markings shall be according to prEN 16584-1:2022.

2) These markings are not required along transparent walls if passengers are protected from impact by other means — for example, by handrails or continuous benches.

3) Glass or other transparent/translucent materials that are coated or treated to reduce the light transmission shall have low reflective properties so as not to create a mirror effect (lighting is assumed to be the normal operating condition).

5.2.4 Lighting

1) The illuminance level of the external areas of the station shall be sufficient to facilitate way finding and to highlight the changes of level, doors and entrances.

— Light levels shall be according to either ISO 21542 or the EN 12464 series and method of assessment according to the EN 12464 series.

2) The illuminance level along obstacle-free routes shall be adapted to the visual task of the passenger. Particular attention shall be paid to the changes of levels, ticket vending offices and machines, information desks and information displays.

i. From the accessible building entrance to the platform access point, the obstacle-free route shall be illuminated, measured at floor level, within the confines of the station building.

— Light levels shall be according to either ISO 21542 or the EN 12464 series and method of assessment according to the EN 12464 series.

ii. The minimum lighting level shall be across the full width of the obstacle-free route.

— The obstacle-free route shall be according to prEN 16587:2022.

— The measurement shall be taken at floor level.

iii. The minimum required light level on stairs and at the start and end of ramps, shall be measured at floor level.

— Light levels shall be according to either ISO 21542 or the EN 12464 series and method of assessment according to the EN 12464 series.

3) The platforms shall have a minimum average illumination level measured at floor level.

— Light levels shall be according to either ISO 21542 or the EN 12464 series and method of assessment according to the EN 12464 series.

Lighting should not produce glare or reflectance, see ISO 21542 and methodology defined by CIE 130, 146/147.

4) Emergency lighting shall provide sufficient visibility for evacuation and for identification of firefighting and safety equipment

— Assessment shall be according to ISO 21542 and/or EN 1838.

NOTE While the advantages of higher colour temperature, see Annex A, in aiding visual acuity and alertness are known and beneficial for partially sighted and elderly passengers, there is also general concern over the prolonged effect of exposure to blue light. Certain technologies, for example Light Emitting Diode (LED) have raised