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Railway applications - Driver's cab - Part 2: Integration of displays, controls and indicators

EESTI STANDARDIKESKUS
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NATIONAL FOREWORD

See Eesti standard EVS-EN 16186-2:2017 sisaldab Euroopa standardi EN 16186-2:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 16186-2:2017 consists of the English text of the European standard EN 16186-2:2017.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 09.08.2017.	Date of Availability of the European standard is 09.08.2017.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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EUROPEAN STANDARD

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English Version

Railway applications - Driver's cab - Part 2: Integration of displays, controls and indicators

Applications ferroviaires - Cabines de conduite - Partie 2 : Intégration des afficheurs, commandes et indicateurs

Bahnanwendungen - Führerraum - Teil 2: Integration von Displays, Bedien- und Anzeigeelementen

This European Standard was approved by CEN on 14 May 2017.

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

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Contents

Page

European foreword

This document (EN 16186-2:2017) has been prepared by Technical Committee CEN/TC 256 “Railway Applications”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2018, and conflicting national standards shall be withdrawn at the latest by February 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2008/57/EC.

For relationship with EU Directive 2008/57/EC, see informative Annex ZA, which is an integral part of this document.

EN 16186, Railway applications — Driver's cab is written as an EN series on all the aspects to be considered when designing a driver's cab, from anthropometric data and visibility, over the integration of displays, controls and indicators as well as the design of displays to cab layout and access facilities. The background information on the anthropometric data used is provided in CEN/TR 16823 [2].

EN 16186, Railway applications — Driver’s cab currently consists of the following parts:

— *Part 1: Anthropometric data and visibility;*

— *Part 2: Integration of displays, controls and indicators;*

— *Part 3: Design of displays.*

— *Part 4: Layout and access*

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This European Standard addresses operational requirements for train driving, shunting and related preparatory work as far as driver's cab interfaces are concerned. It provides current cab design principles and considers latest available research findings provided by the European Research project EUDD+ [3].

The informative Annex E is provided for Requirement Management purposes in accordance with EN 15380-4 [4].

Where no standard requirement has been specified in this standard, it addresses the need for specifications or choices of standard options to be done on project level.

1 Scope

This European Standard is applicable to Electric Multiple Units (EMU), Diesel Multiple Units (DMU), Railcars, Locomotives, Driving Trailers (Driving Coaches).

NOTE 1 This European Standard applies to rolling stock in the scope of the Directive 2008/57/EC [1].

This European Standard is not intended to be applicable to metros, tramways and light rail vehicles.

This part of EN 16186 applies to driver's desks installed on the left, on the right, or in a central position in the driver's cab.

NOTE 2 For OTMs, see EN 14033–1 [5] and EN 15746–1 [6].

This European Standard gives design rules and guidance in order to ensure visibility and operability of screens, controls and indicators in the cab in all operating conditions (day, night, natural or artificial lighting).

It covers four aspects:

— the characteristics of the displays, controls and indicators in order to ensure proper visibility: i.e range of luminance and contrast as well as the possibility of adjustment of perceived brightness;

— rules for positioning of the displays, keyboards, controls and indicators in the cab and on the driver's desk: i.e position, angle of visibility, etc. with consideration of the normal driving position and the working environment (windscreen, natural or artificial lighting in the cab, unwanted glare and reflections, etc.);

— the characteristics and rules for positioning microphones and loudspeakers;

— design of symbols.

NOTE 3 All element numbers within the text refer to Table B.1.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 894-2, *Safety of machinery – Ergonomics requirements for the design of displays and control actuators – Part 2: Displays*

prEN 13272-1 *Railway applications – Electrical lighting for rolling stock in public transport systems - Part 1 - Mainline rail systems*

EN 15892, *Railway applications - Noise Emission - Measurement of noise inside driver's cabs*

EN 16186-1:2014, *Railway applications - Driver's cab - Part 1: Anthropometric data and visibility*

EN 16186-3:2016, *Railway applications - Driver's cab - Part 3: Design of displays*

EN 16683, *Railway applications - Call for aid and communication device - Requirements*

ISO 3381, *Railway applications — Acoustics — Measurement of noise inside railbound vehicles*