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EKRAANIDE, JUHTIMISSEADMETE JA NÄIDIKUTE
PAIGALDAMINE

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

EESTI STANDARDI EESSÕNA

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.
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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

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Contents

Page

European foreword.....	5
Introduction	6
1 Scope.....	7
2 Normative references.....	7
3 Terms and definitions	8
4 Symbols and abbreviations	9
5 Driver's cab displays, controls and indicators for operational functions	10
5.1 General.....	10
5.2 Display or unit for train communication, monitoring and control.....	10
5.3 Controls.....	10
5.3.1 Controls for Intercom	10
5.3.2 Controls for external passenger access.....	10
5.3.3 Controls for driver's cab temperature	10
5.3.4 Controls for coupling and uncoupling of vehicles	11
5.3.5 Controls for auxiliary desk	11
5.4 Warnings.....	11
5.4.1 Alarm due to a safety system	11
5.4.2 Alarm due to emergency opening of one or more external doors.....	11
5.4.3 Driver interface with fire extinguishing system.....	12
5.4.4 Alarm due to speed reduction	12
6 Characteristics of displays, controls and indicators	12
6.1 General.....	12
6.1.1 Design principles.....	12
6.1.2 Reading zone.....	12
6.1.3 Resistance to damage from cleaning activity.....	12
6.1.4 Design to prevent the accumulation of dirt.....	12
6.1.5 Labelling.....	12
6.2 Characteristics of displays.....	13
6.2.1 Use of analogue and alphanumeric display	13
6.2.2 Requirements for arrays of display	13
6.2.3 Pointer and scale requirements	13
6.3 Characteristics of controls.....	13
6.3.1 General Principles	13
6.3.2 Design criteria.....	14
6.3.3 General characteristics of DAC, controls for external lights and remote control.....	15
6.4 Characteristics of indicators	15
6.4.1 Readability.....	15
6.4.2 Warning design principles.....	15
6.4.3 Audibility of driving related acoustic signals	16
6.4.4 Volume of the loudspeakers.....	16
7 Positioning of displays and controls	16
7.1 General rules for positioning.....	16
7.1.1 Driver's desk design.....	16
7.1.2 Human factors/ergonomic aspects.....	16
7.1.3 Devices positioning principle	17

7.1.4	Driving position at the side window	17
7.1.5	Space constraints	18
7.1.6	Positioning of elements deviating from this standard	18
7.2	Positioning of displays	18
7.2.1	Display location and orientation	18
7.2.2	Preferred fields of vision	18
7.2.3	Positioning ATP signalling information	18
7.2.4	Integration of heritage ATP systems	18
7.3	Positioning of controls	19
7.3.1	Reachability of controls on the driver's desk	19
7.3.2	Grouping of controls	19
7.3.3	Allocation to hands	20
7.3.4	Accessibility	20
7.3.5	Synchronous operation of elements	20
7.3.6	Risk of inadvertent activation	20
7.3.7	Position of specific controls	20
7.3.8	Controls used while driving, but not located on the driver's desk	21
7.3.9	Controls only operated during standstill	21
8	Lighting of cab, displays, controls and indicators	22
8.1	Cab lighting	22
8.2	Reading zone lighting	22
8.3	Instruments' lighting	22
8.4	Prevent disturbing the driver	22
8.5	No green lighting	22
9	Symbol and text definition	22
9.1	Symbol appearance	22
9.2	Harmonized symbols	22
9.2.1	General	22
9.2.2	Combinations of colours	23
9.2.3	Style of symbols	23
9.2.4	Location with respect to controls	23
9.2.5	Field for symbols	23
9.2.6	New symbols	23
9.3	Character type	23
Annex A (normative) Reach envelopes and fields of vision on the desk		24
Figure A.1 — Reach envelopes for arms		24
Figure A.2 — Optimum and preferred fields of vision in seated position		25
Annex B (informative) Examples of main driver's desk configurations - Functional allocation of operating elements and integration constraints at the driver's desk level		26
Figure B.1 — Top view and front view of standardized driver's desk		27
Figure B.2 — Top view and front view of optional standardized EMU/DMUs' central driver's desk		28
Table B.1 — List of elements and their locations including function codes (in accordance with EN 15380-4)		29
Annex C (normative) Operating elements and relationship with symbols		46
Table C.1 — Operating elements and relationship with symbols		46
Annex D (informative) Project specific symbols		61

Table D.1 — Operating elements and relationship with symbols	61
Annex E (informative) Links between requirements and the Functional Breakdown Structure (FBS) of EN 15380-4	65
Table E.1 — Requirement management elements	65
Annex F (informative) A-deviations	69
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2008/57/EC	70
Bibliography	71

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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*