



SLOVENSKI STANDARD
SIST EN 14813-1:2007
01-januar-2007

Železniške naprave – Klimatske naprave v voznških kabinah – 1. del: Parametri za določevanje udobja

Railway applications - Air conditioning for driving cabs - Part 1: Comfort parameters

Bahnanwendungen - Luftbehandlung in Führerräumen - Teil 1: Behaglichkeitsparameter

Applications ferroviaires - Conditionnement de l'air pour cabines de conduite - Partie 1: Parametres de bien-etre

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EUROPEAN STANDARD
NORME EUROPÉENNE
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EN 14813-1

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Railway applications - Air conditioning for driving cabs - Part 1: Comfort parameters

Applications ferroviaires - Conditionnement de l'air pour
cabines de conduite - Partie 1: Paramètres de bien-être

Bahnanwendungen - Luftbehandlung in Führerräumen -
Teil 1: Behaglichkeitsparameter

This European Standard was approved by CEN on 26 June 2006.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists 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 Central Secretariat has the same status as the official versions.

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

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

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Contents	Page
Foreword.....	4
Introduction	5
1 Scope	6
2 Normative references	6
3 Terms and definitions.....	6
4 Driving cab classification.....	10
5 Comfort parameters.....	11
6 Exterior conditions	11
6.1 Determination of climatic zones.....	11
6.2 Normal exterior operating conditions.....	11
6.3 Extreme exterior operating conditions	11
7 Performance of the heating and cooling installations	11
7.1 Heating	11
7.2 Preheating.....	12
7.3 Cooling.....	12
7.4 Precooling.....	12
7.5 Stand by operation	12
8 Control	12
8.1 General.....	12
8.2 Interior temperature setting (Tic)	12
8.2.1 General.....	12
8.2.2 Temperature control not related to exterior temperature	13
8.2.3 Temperature control related to exterior temperature.....	13
8.3 Fan speed control.....	13
9 Comfort condition requirements.....	13
9.1 Temperatures in the comfort envelope	13
9.1.1 Range of the interior temperature (Tim) with respect to the interior temperature setting (Tic).....	13
9.1.2 Range of the interior air temperature in a vertical section of a seated driver.....	13
9.2 Relative humidity of air conditioned vehicles.....	13
9.3 Surface temperatures inside and surrounding the comfort envelope	14
9.4 Temperature at the supply air outlets.....	14
9.5 Air speed.....	14
9.6 Air quantities	14
9.6.1 Outside air or fresh air	14
9.6.2 Recirculated air	14
10 Complementary requirements	15
10.1 Heat transfer coefficient (<i>k</i>)	15
10.2 Overall transmission factor of the windows	15
10.3 Particle air filtration	15
10.4 Noise emission.....	15
10.5 Vibration generation	15
10.6 Safety devices	16
10.6.1 Heating	16
10.6.2 Cooling.....	16
10.6.3 Emergency ventilation.....	16
10.7 Protection against pressure waves.....	16
10.8 Sealing against water, snow and dust.....	16
10.9 Reliability, maintainability.....	16
10.9.1 Reliability	16
10.9.2 Maintainability	16

Annex A (normative) Acceptable air speed	17
Annex B (normative) Relative humidity in the comfort envelope.....	18
Annex C (normative) Heat emitted by a seated person normally dressed.....	20
Annex D (normative) Definition of climatic zones	21
Annex E (informative) Grouping of countries in climatic zones	22
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 96/48/EC as amended by Directive 2004/50/EC	23

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EN 14813-1:2006 (E)**Foreword**

This document (EN 14813-1:2006) 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 2007, and conflicting national standards shall be withdrawn at the latest by February 2007.

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 96/48/EC.¹⁾

For relationship with the EU Directive, see informative Annex ZA, which is an integral part of this document.

This series of European Standard includes the following parts:

- EN 14813-1, *Railway applications — Air conditioning for driving cabs — Part 1: Comfort parameters*
- EN 14813-2, *Railway applications — Air conditioning for driving cabs — Part 2: Type tests*

In the context of this series, there are two further series on air conditioning in rolling stock:

- EN 13129-1, *Railway applications — Air conditioning for main line rolling stock — Part 1: Comfort parameters*
- EN 13129-2, *Railway applications — Air conditioning for main line rolling stock — Part 2: Type tests*
- EN 14750-1, *Railway applications — Air conditioning for urban and suburban rolling stock — Part 1: Comfort parameters*
- EN 14750-2, *Railway applications — Air conditioning for urban and suburban rolling stock — Part 2: Type tests*

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

1) Official Journal No L 235 of 17.9.1996. Amended by Directive 2004/50/EC of the European Parliament and of the Council of 29 April 2004, Official Journal No L 164 of 30.4.2004.

Introduction

The object of this European Standard is to establish common comfort parameters for the European railways. It also specifies the performance of the air-conditioning installations.

If necessary, the revised requirements due to the operating constraints of the vehicle will be detailed in the contractual specification. This European Standard applies if there is no particular clause in the contractual specification.

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EN 14813-1:2006 (E)**1 Scope**

This European Standard is applicable to railway vehicle driving cabs which are air-conditioned or heated/ventilated. These include:

- locomotives;
- mainline, suburban and regional vehicles;
- urban vehicles such as metros and trams.

This European Standard does not consider the special operational requirements of shunt locomotives.

This European Standard specifies the comfort parameters for the driving cab to ensure driver comfort which helps safe operation.

The conditions under which the physical parameters mentioned in this European Standard shall be measured are defined in EN 14813-2.

2 Normative references

The following referenced documents are indispensable for the application 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 779:2002, *Particulate air filters for general ventilation — Determination of the filtration performance*

EN 14813-2:2006, *Railway applications — Air conditioning for driving cabs — Part 2: Type tests*

EN 50126, *Railway applications — The specification and demonstration of reliability, availability, maintainability and safety (RAMS)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1**comfort**

agreeable sensation perceived by a person concerning his climatic environment

3.2**air conditioning installations**

equipment intended for ventilation and/or heating and/or cooling and/or filtration

3.3**forced air ventilation**

air circulation generated by a mechanical action

3.4**natural ventilation**

air circulation generated without mechanical action

3.5**preheating**

process which enables the interior temperature to be raised without the presence of occupants

3.6**precooling**

process which enables the interior temperature to be lowered without the presence of occupants

3.7**heating**

process which enables the interior temperature to be raised or maintained

3.8**cooling**

process which enables the interior temperature to be lowered or maintained

3.9**dehumidification**

process which reduces the content of water in the interior air

3.10**air conditioning**

system which includes ventilation, heating, cooling and/or dehumidification

3.11**heating and ventilation**

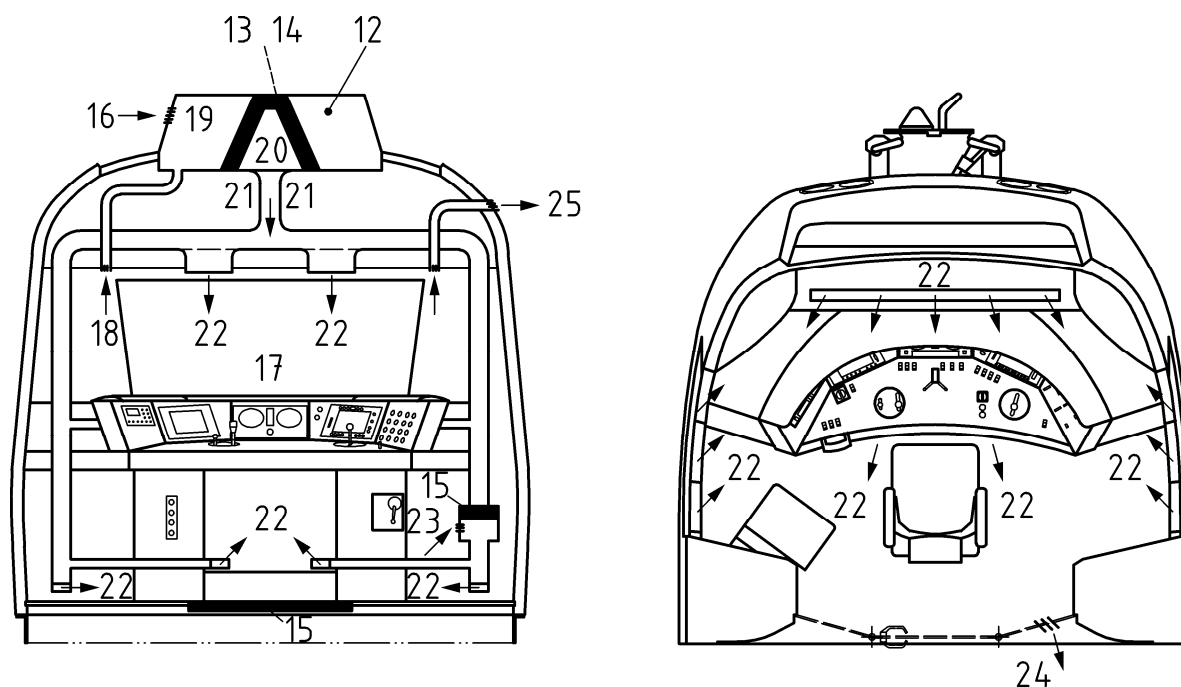
system which includes ventilation and heating

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EN 14813-1:2006 (E)



NOTE 1 The representation is only given as an example and does not prejudice the design of the installation.

NOTE 2 Items 13 and 14 can be "and/or".

Figure 1 — Diagram explaining certain railway terms

3.12

air handling unit

group of components designed to move, filter and/or mix, heat and/or cool the air (see Figure 1, No 12)

3.13

cooling unit

system that carries out the cooling function in a centralised and/or de-centralised manner (see Figure 1, No 13)

3.14

principal heating unit

system that carries out the heating function in a centralised and/or de-centralised manner with the use of heating elements associated or not with the forced air ventilation (see Figure 1, No 14)

3.15

auxiliary heating unit

de-centralised heating element(s) for adding heat locally (see Figure 1, No 15)

3.16

outside air or fresh air

air taken from outside (see Figure 1, No 16)

3.17

room air

air contained in a specified space (see Figure 1, No 17)

3.18

re-circulated air

air taken from the interior of a specified space and re-used (see Figure 1, No 18)

3.19**mixed air**

combination of fresh air and re-circulated air (see Figure 1, No 19)

3.20**treated (or conditioned) air**

air that may have been and/or had energy exchanged as it passed through the air handling unit (see Figure 1, No 20)

3.21**primary air**

quantity of treated air entering the ducts (see Figure 1, No 21)

3.22**supply air**

treated air, that may be combined with some induced air, supplied to a specified space (see Figure 1, No 22)

3.23**induced air**

room air that is taken and re-used locally (see Figure 1, No 23)

3.24**transfer air**

air leaving a specified area (see Figure 1, No 24), for example air transferring to the saloon area

3.25**exhaust air**

air rejected outside the vehicle (see Figure 1, No 25)

3.26**interior temperature setting (Tic)**

theoretical control temperature to be achieved by the room air

3.27**interior temperature setting offset (ΔT_{ic})**

temperature offset selected by the driver

3.28**interior temperature (T_{im})**

interior temperature measured 0,74 m and/or 0,855 m above the seat reference point as specified in the procedure described in EN 14813-2:2006, Annex D

NOTE In the case where two seats within the cab are normally occupied, the mean of the temperatures at the two seats may be considered.

3.29**mean exterior temperature (T_{em})**

arithmetic mean of the exterior temperatures measured according to the procedure described in EN 14813-2

3.30**comfort envelope**

areas normally occupied by driver and co-driver

3.31**heat transfer coefficient (k)**

ratio between the density to the heat flow rate per unit of surface area and the prevailing difference in temperature (T_{im}) and (T_{em}) across the relevant walls of the driving cab

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