

SVENSK STANDARD

SS-EN 14813-1:2006+A1:2010



Fastställt/Approved: 2010-11-08
Publicerad/Published: 2010-11-30
Utgåva/Edition: 1
Språk/Language: engelska/English
ICS: 45.060.10

Järnvägar – Luftkonditionering för förarhytter – Del 1: Parametrar för komfort

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

This preview is downloaded from www.sis.se. Buy the entire standard via <https://www.sis.se/std-75813>

Standarder får världen att fungera

SIS (Swedish Standards Institute) är en fristående ideell förening med medlemmar från både privat och offentlig sektor. Vi är en del av det europeiska och globala nätverk som utarbetar internationella standarder. Standarder är dokumenterad kunskap utvecklad av framstående aktörer inom industri, näringsliv och samhälle och befrämjar handel över gränser, bidrar till att processer och produkter blir säkrare samt effektiviserar din verksamhet.

Delta och påverka

Som medlem i SIS har du möjlighet att påverka framtida standarder inom ditt område på nationell, europeisk och global nivå. Du får samtidigt tillgång till tidig information om utvecklingen inom din bransch.

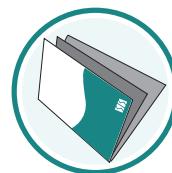
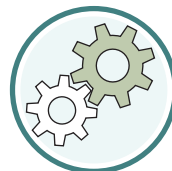
Ta del av det färdiga arbetet

Vi erbjuder våra kunder allt som rör standarder och deras tillämpning. Hos oss kan du köpa alla publikationer du behöver – allt från enskilda standarder, tekniska rapporter och standardpaket till handböcker och onlinetjänster. Genom vår webbtjänst e-nav får du tillgång till ett lättnavigerat bibliotek där alla standarder som är aktuella för ditt företag finns tillgängliga. Standarder och handböcker är källor till kunskap. Vi säljer dem.

Utveckla din kompetens och lyckas bättre i ditt arbete

Hos SIS kan du gå öppna eller företagsinterna utbildningar kring innehåll och tillämpning av standarder. Genom vår närhet till den internationella utvecklingen och ISO får du rätt kunskap i rätt tid, direkt från källan. Med vår kunskap om standarders möjligheter hjälper vi våra kunder att skapa verklig nytta och lönsamhet i sina verksamheter.

Vill du veta mer om SIS eller hur standarder kan effektivisera din verksamhet är du välkommen in på www.sis.se eller ta kontakt med oss på tel 08-555 523 00.



Standards make the world go round

SIS (Swedish Standards Institute) is an independent non-profit organisation with members from both the private and public sectors. We are part of the European and global network that draws up international standards. Standards consist of documented knowledge developed by prominent actors within the industry, business world and society. They promote cross-border trade, they help to make processes and products safer and they streamline your organisation.

Take part and have influence

As a member of SIS you will have the possibility to participate in standardization activities on national, European and global level. The membership in SIS will give you the opportunity to influence future standards and gain access to early stage information about developments within your field.

Get to know the finished work

We offer our customers everything in connection with standards and their application. You can purchase all the publications you need from us - everything from individual standards, technical reports and standard packages through to manuals and online services. Our web service e-nav gives you access to an easy-to-navigate library where all standards that are relevant to your company are available. Standards and manuals are sources of knowledge. We sell them.

Increase understanding and improve perception

With SIS you can undergo either shared or in-house training in the content and application of standards. Thanks to our proximity to international development and ISO you receive the right knowledge at the right time, direct from the source. With our knowledge about the potential of standards, we assist our customers in creating tangible benefit and profitability in their organisations.

If you want to know more about SIS, or how standards can streamline your organisation, please visit www.sis.se or contact us on phone +46 (0)8-555 523 00



Europastandarden EN 14813-1:2006+A1:2010 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 14813-1:2006+A1:2010.

Denna standard ersätter SS-EN 14813-1:2006, utgåva 1.

The European Standard EN 14813-1:2006+A1:2010 has the status of a Swedish Standard. This document contains the official version of EN 14813-1:2006+A1:2010.

This standard supersedes the Swedish Standard SS-EN 14813-1:2006, edition 1.

© Copyright/Upphovsrätten till denna produkt tillhör SIS, Swedish Standards Institute, Stockholm, Sverige. Användningen av denna produkt regleras av slutanvändarlicensen som återfinns i denna produkt, se standardens sista sidor.

© Copyright SIS, Swedish Standards Institute, Stockholm, Sweden. All rights reserved. The use of this product is governed by the end-user licence for this product. You will find the licence in the end of this document.

Uppllysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna uppllysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Järnvägar, SIS/TK 254.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

EUROPEAN STANDARD

EN 14813-1:2006+A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2010

ICS 45.060.10

Supersedes EN 14813-1:2006

English Version

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 and includes Amendment 1 approved by CEN on 28 September 2010.

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 CEN Management Centre 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 CEN 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

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) A1 Relationship between this European Standard and the Essential Requirements of EU Directive 2008/57/EC of the European Parliament and of the Council of 17 June 2008 on the interoperability of the rail system within the Community (Recast) A1	23

Foreword

This document (EN 14813-1:2006+A1:2010) 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 May 2011, and conflicting national standards shall be withdrawn at the latest by May 2011.

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

This document includes Amendment 1, approved by CEN on 2010-09-28.

This document supersedes EN 14813-1:2006.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

A1 This document has been prepared under a mandate given to CEN/CENELEC/ETSI 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. A1

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, Bulgaria, Croatia, 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.

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.

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