

SVENSK STANDARD

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Järnvägar – Luftkonditionering för förarhytter – Del 2: Typprovningar

Railway applications – Air conditioning for driving cabs – Part 2: Type tests

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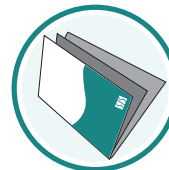
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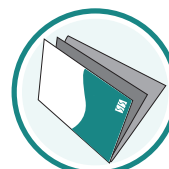
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Denna standard ersätter SS-EN 14813-2:2006, utgåva 1.

The European Standard EN 14813-2:2006+A1:2010 has the status of a Swedish Standard. This document contains the official version of EN 14813-2:2006+A1:2010.

This standard supersedes the Swedish Standard SS-EN 14813-2:2006, edition 1.

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

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EUROPEAN STANDARD

EN 14813-2:2006+A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2010

ICS 45.060.10

Supersedes EN 14813-2:2006

English Version

Railway applications - Air conditioning for driving cabs - Part 2: Type tests

Applications ferroviaires - Conditionnement de l'air pour
cabines de conduite - Partie 2: Essais de type

Bahnanwendungen - Luftbehandlung in Führerräumen -
Teil 2: Typprüfungen

This European Standard was approved by CEN on 26 June 2006 and includes Amendment 1 approved by CEN on 28 September 2010.

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Foreword

This document (EN 14813-2:2006+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of an identical text or by endorsement, at the latest by May 2011, and conflicting national standards shall be withdrawn at the latest by May 2011.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 14813-2:2006.

The start and finish of text introduced or altered by amendment is indicated in the text by tags $\boxed{A_1}$ $\triangleleft A_1$.

$\boxed{A_1}$ 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. $\triangleleft A_1$

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 programmes and test methods to verify the air conditioning installations as described in EN 14813-1.

If necessary, the revised requirements due to 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 or 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 parameter measurement methods for driving cabs.

The comfort parameters and their tolerances cited in this European Standard are defined in EN 14813-1.

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 14813-1:2006, *Railway applications — Air conditioning for driving cabs — Part 1: Comfort parameters*

EN ISO 3381, *Railway applications — Acoustics — Measurement of noise inside railbound vehicles (ISO 3381:2005)*

EN ISO 7726:2001, *Ergonomics of the thermal environment — Instruments for measuring physical quantities (ISO 7726:1998)*

CIE 85, *Solar spectral irradiance*¹⁾

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14813-1:2006 apply.

4 Test classification

Two levels of testing are detailed in this European Standard.

TL1 is a simplified level that gives principle information about the functionality of the system. It does not aim to verify the comfort parameters and performance of the system. It can be done in a workshop or at a yard. TL2 is a full level test to verify the comfort parameters and the performance of the system. This test shall be performed in a climatic chamber or in an appropriate environment.

The operator shall detail in his contractual specification the test classification.

¹⁾ To be purchased from: International Commission of Illumination, CIE Central Bureau, Kegelgasse 27, A-1030 Wien.

In the absence of any detail, the full level of testing (TL2) shall apply. If not stated otherwise, the following test requirements apply to both TL1 and TL2.

5 Preliminary verifications

It is advised that preliminary tests are carried out to verify the electrical and electronic assemblies, the functional logic of the control system, the air tightness of the air distribution system, the water tightness of the car, the thermal capacity of the air conditioning equipment and so on. These verifications should be conducted before proceeding to the comfort test.

6 Comfort tests

6.1 Air movement tests²⁾

6.1.1 General remarks

The tests shall be carried out under the following conditions:

- vehicle stationary and protected from rain;
- altitude < 1 000 m above sea level;
- exterior air speed between 0 km/h and 5 km/h;
- exterior temperature between + 15 °C and + 30 °C.

In the case of different altitude and exterior temperature, correction shall be made.

6.1.2 Air flow rates

The flow rates of outside air (fresh air) shall be measured in accordance with 10.5.

6.1.3 Pressure differentials (visualisation)

If appropriate, this can be shown up by the movement of smoke between the two relative areas.

The visualisation shall be made for driving cabs to verify that the air conditioning installation is well designed by preventing the transfer of smoke to a non-smoking area.

6.2 Measurement of air speeds

These tests shall be carried out during the climatic tests without the simulation of the thermal and volumetric effects of occupation (the necessary heating elements, humidification and ventilation equipment can affect the measurement inside the comfort envelope). Measuring points shall be according to Annex D.

6.3 Thermal comfort

It is recommended for a detail analysis of thermal comfort to use thermal mannequins.

²⁾ This is applicable for TL1 and TL2.