This is a free page sample. Access the full version online.

National Standards Authority of Ireland

STANDARD

I.S. EN 13129-2:2004

ICS 45.060.20

National Standards
Authority of Ireland
Dublin 9
Ireland

Tel: (01) 807 3800
Fax: (01) 807 3838

RAILWAY APPLICATIONS - AIR CONDITIONING FOR MAIN LINE ROLLING STOCK - PART 2 : TYPE TESTS

This Irish Standard was published under the authority of the National Standards Authority of Ireland and comes into effect on:

October 26, 2004

NO COPYING WITHOUT NSAI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

© NSAI 2004

Price Code L

Údarás um Chaighdeáin Náisiúnta na hÉireann

This is a free page sample. Access the full version online.

This is a free page sample. Access the full version online.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13129-2

July 2004

ICS 45.060.20

English version

Railway applications - Air conditioning for main line rolling stock - Part 2 : Type tests

Applications ferroviaires - Conditionnement de l'air pour matériel roulant grandes lignes - Partie 2 : Essais de type

Bahnanwendungen - Luftbehandlung in Schienenfahrzeugen des Fernverkehrs - Teil 2 : Typprüfungen

This European Standard was approved by CEN on 16 January 2004.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

© 2004 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. EN 13129-2:2004: E

This is a free page sample. Access the full version online.

Contents

Foreword 4

Introduction 5

1 Scope 6

2 Normative references 6

3 Terms and definitions 6

4 Preliminary verifications 6

5 Air movement tests 6
5.1 Static air movement tests 6
5.1.1 Test conditions 6
5.1.2 Air flow rates 7
5.1.3 Pressure differentials (Visualisation) 7
5.2 Dynamic air movement tests 7
5.3 Comfort tests 7
5.3.1 Critical air speed 7
5.3.2 Measurement of air speeds 7

6 Climatic tests 8
6.1 General remarks 8
6.2 Preheating test 8
6.3 Precooling test 8
6.4 Regulation tests 8
6.4.1 Procedure 8
6.4.2 Tests in heating mode 8
6.4.3 Tests in cooling mode 9
6.4.4 Tests with variable mean exterior temperature (Tem) 9

7 Tests at extreme exterior operating conditions 10

8 Complementary tests 10
8.1 Verification of the anti-freeze protection 10
8.1.1 General remarks 10
8.1.2 Aim of the tests 10
8.1.3 Test procedure 10
8.2 Determination of the coefficient *k* 10
8.2.1 Purpose of the test 10
8.2.2 Definition 10
8.2.3 Procedure 11
8.3 Thermography 11
8.4 Noise and vibration 11

9 Methods of measurement – Measuring instruments 11
9.1 General remarks 11
9.2 Temperatures 11
9.2.1 Air temperature 11
9.2.2 Surface temperatures 12
9.3 Relative humidity 12
9.4 Air speed 12
9.5 Airflow rate 12
9.6 Simulated speed of the vehicle 12
9.7 Equivalent solar energy 12
9.8 Energy consumption and power rating 12

10 Characteristics of the test equipment 12
10.1 General remarks 12

This is a free page sample. Access the full version online.

10.2 Occupation 12
10.3 Temperature of the climatic chamber (Tem) and uniformity of the temperature of the wind tunnel 13
10.4 Relative humidity 13
10.5 Simulation of speed (wind) 13
10.6 Equivalent solar energy 13

11 Distribution of measuring points 13
11.1 Distribution of sensors in the vehicle 13
11.1.1 Comfort envelope temperature measurement points 13
11.1.2 Surface temperature measurement points 13
11.1.3 Supply air outlet temperature measurement points 14
11.1.4 Comfort envelope air speed measurement points 14
11.1.5 Comfort envelope relative humidity measurement points 14
11.2 Climatic chamber sensor distribution 14

Annex A (normative) Tests for verification of comfort parameters 15

Annex B (normative) Equivalent solar energy – (Simulation of solar exposure) 27

Annex C (normative) Location of the measuring points used for the determination of the mean interior temperature in the comfort envelope (Tim) and the measurement point location in the local annexes 28

Annex D (normative) Location of the measuring points used for the determination of the range of internal temperature extremes and relative humidity across the comfort envelope 30

Annex E (normative) Location of the measuring points used for the determination of the variation of internal temperatures within the comfort envelope 32

Annex F (normative) Location of the measuring points used for the determination of surface temperatures 34

Annex G (normative) Location of the measuring points used for the determination of air speeds in the comfort envelope 35

Annex H (normative) Location of the sensors in the climatic chamber 36

This is a free page sample. Access the full version online.

Foreword

This document EN 13129-2:2004 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 January 2005, and conflicting national standards shall be withdrawn at the latest by January 2005.

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 the following EU Directives:

— Council Directive 96/48/EEC of 23 July 1996 on the interoperability of the trans-European high-speed rail system[1])

— Council Directive 93/38/EEC of 14 June 1993 coordinating the procurement procedures of entities operating in the water, energy, transport and telecommunications sectors[2])

This entire document is applicable, so that no correspondence table is necessary.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

These series of European Standard "Railway application – Air conditioning“ includes the following parts:

— 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

— prEN 14750-1 Railway applications – Air conditioning for urban and suburban rolling stock – Part 1: Comfort parameters

— prEN 14750-2 Railway applications – Air conditioning for urban and suburban rolling stock – Part 2: Type tests

— prEN 14813-1 Railway applications – Air conditioning for driving cabs – Part 1: Comfort parameters

— prEN 14813-2 Railway applications – Air conditioning for driving cabs – Part 2: Type tests

---

1) Official Journal of the European Communities No L 235 of 17.9.96

2) Official Journal of the European Communities No L 199 of 9.8.93

SAI GLOBAL

This is a free preview. Purchase the entire publication at the link below:

Product Page

Looking for additional Standards? Visit Intertek Inform Infostore

Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation