EESTI STANDARD EVS-EN 50124-1:2002

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Railway applications - Insulation coordination - Part 1: Basic requirements - Clearances and creepage distances for all electrical and electronic equipment

EESTI STANDARDIKESKUS

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 50124-1:2002 sisaldab Euroopa standardi EN 50124-1:2001 ingliskeelset teksti. Käesolev dokument on jõustatud 10.09.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 50124-1:2002 consists of the English text of the European standard EN 50124-1:2001. This document is endorsed on 10.09.2002 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: The whole document deals with insulation coordination in railways. It applies to equipment for use in signalling, rolling stock and fixed installations up to 2000 m above sea level	**Scope:** The whole document deals with insulation coordination in railways. It applies to equipment for use in signalling, rolling stock and fixed installations up to 2000 m above sea level

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Võtmesõnad: defin, definitions, electrical engineering, electrical equipment, electrical insulation, insulation coordination, land vehicles, leakage paths, measurement, rail transport, railway applications, railways, signals, specification (approval), specifications, vehicles

EUROPEAN STANDARD **EN 50124-1**

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English version

Railway applications - Insulation coordination Part 1: Basic requirements - Clearances and creepage distances for all electrical and electronic equipment

Applications ferroviaires - Coordination de l'isolement Partie 1: Prescriptions fondamentales - Distances d'isolement dans l'air et lignes de fuite pour tout matériel électrique et électronique

Bahnanwendungen - Isolationskoordination Teil 1: Grundlegende Anforderungen - Luft- und Kriechstrecken für alle elektrischen und elektronischen Betriebmittel

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 9X, Electrical and electronic applications in railways.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50124-1 on 1999-10-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2001-10-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2002-10-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annexes A, B, C and D are normative and annexes E and F are informative.

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Introduction

Special conditions occurring in railway applications and the fact that the equipment here concerned falls into the scope of both IEC 60071 (prepared by IEC/TC 28) and IEC 60664-1 (prepared by IEC/SC 28A), led to the decision to draw from these documents and from the draft IEC 60077-1 (prepared by IEC/TC 9), a single document of reference for all standards applicable to the whole railway field.

EN 50124 consists of two parts:

– EN 50124-1 Part 1: Basic requirements - Clearances and creepage distances for all electrical and electronic equipment;

– EN 50124-2 Part 2: Overvoltages and related protection.

This Part 1 allows, in conjunction with EN 50124-2, to take into account advantages resulting from the presence of overvoltage protection when dimensioning clearances.

1 General

1.1 Scope

The whole document deals with insulation coordination in railways. It applies to equipment for use in signalling, rolling stock and fixed installations up to 2000 m above sea level.

Insulation coordination is concerned with the selection, dimensioning and correlation of insulation both within and between items of equipment. In dimensioning insulation, electrical stresses and environmental conditions are taken into account. For the same conditions and stresses these dimensions are the same.

An objective of insulation coordination is to avoid unnecessary overdimensioning of insulation.

This standard specifies:

- requirements for clearances and creepage distances for equipment;
- general requirements for tests pertaining to insulation coordination.

The term equipment relates to a section as defined in 1.3.1.3: it may apply to a system, a sub-system, an apparatus, a part of an apparatus, or a physical realisation of an equipotential line.

This standard does not deal with :

- distances through solid or liquid insulation;
- distances through gases other than air;
- distances through air not at atmospheric pressure;
- equipment used under extreme conditions.

Product standards have to align with this generic standard.

However, they may require, with justification, different requirements due to safety and/or reliability reasons, e.g. for signalling, and/or particular operating conditions of the equipment itself, e. g. overhead lines which have to comply to EN 50119.

This standard also gives provisions for dielectric tests (type tests or routine tests) on equipment (see annex B).

NOTE For safety critical systems, specific requirements are needed. These requirements will be resolved in the product specific signalling standard EN 50129 (in preparation).

1.2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate place in the text and the publications are listed thereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 50119 *)	Railway applications – Fixed installations - Electric traction overhead contact lines
EN 50121 (Series)	Railway applications - Electromagnetic compatibility (EMC)
EN 50163	Railway applications - Supply voltages of traction systems
EN 60071-1	Insulation coordination - Part 1: Definitions, principles and rules (IEC 60071-1)
EN 60507	Artificial pollution tests on high voltage insulators to be used on a.c. systems (IEC 60507)
EN 60529	Degrees of protection provided by enclosures (IP code) (IEC 60529)
EN 60947-1	Low-voltage switchgear and controlgear -- Part 1: General rules (IEC 60947-1, modified)
IEC 60060-1	High voltage test techniques -- Part 1: General definitions and test requirements (endorsed as HD 588.1)
IEC 60112	Method for determining the comparative and the proof indices of solid insulating materials under moist conditions (endorsed as HD 214)
IEC 60587	Test methods for evaluating resistance to tracking and erosion of electrical insulating materials used under severe ambient conditions (endorsed as HD 380)
IEC 60664-1	Insulation coordination for equipment within low voltage systems Part 1: Principles, requirements and tests (endorsed as HD 625.1, modified)
IEC 61245	Artificial pollution tests on high voltage insulators on d.c. systems

1.3 Definitions

For the purpose of this standard the following definitions apply according to the following priority order:

- the definition given here-under;
- the definition given in IEC 60664-1;
- the definition given in the documents mentioned in 1.2 other than IEC 60664-1.

*) In preparation