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NSAI Standards

Irish Standard
I.S. EN 50124-1:2017

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

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National Foreword

I.S. EN 50124-1:2017 is the adopted Irish version of the European Document EN 50124-1:2017, Railway applications - Insulation coordination - Part 1: Basic requirements - Clearances and creepage distances for all electrical and electronic equipment

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50124-1

March 2017

ICS 29.080.01; 29.280

Supersedes EN 50124-1:2001

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 Betriebsmittel

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

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European foreword

This document (EN 50124-1:2017) has been prepared by CLC/TC 9X, “Electrical and electronic applications for railways.”

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2018–02–06
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2020–02–06

This document supersedes EN 50124-1:2001, EN 50124-1:2001/A1:2003 and EN 50124-1:2001/A1:2005.

EN 50124-1:2017 includes the following significant technical changes with respect to EN 50124-1:2001:

- the scope has been enlarged to include altitudes higher than 2 000 m above sea level;
- related requirements have been included, especially new subclause 5.4, Table A.9 and Table A.10.

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

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

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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 the EN 60071 series (prepared by CLC/SR 28) and EN 60664-1 (prepared by CLC/SR 109), led to the decision to draw from these documents and from EN 60077-1 (prepared by CLC/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, *Railway applications - Insulation coordination - Part 1: Basic requirements - Clearances and creepage distances for all electrical and electronic equipment*;

— EN 50124-2, *Railway applications - Insulation coordination - 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.

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1 Scope

This European Standard deals with insulation coordination in railways. It applies to equipment for use in signalling, rolling stock and fixed installations.

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 over dimensioning 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 3.3 it may apply to a system, a sub-system, an apparatus, a part of an apparatus, or a physical realization 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 should 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 contact lines which should comply with 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 are given in the product specific signalling standard EN 50129.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50123 (all parts), *Railway applications - Fixed installations - D.C. switchgear*

EN 50163, *Railway applications - Supply voltages of traction systems*

EN 60060-1, *High-voltage test techniques - Part 1: General definitions and test requirements (IEC 60060-1)*

EN 60071-1, *Insulation co-ordination - Part 1: Definitions, principles and rules (IEC 60071-1)*

EN 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials (IEC 60112)*

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