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Railway applications — Insulation coordination

Part 2: Overvoltages and related protection

bsi.

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A list of organizations represented on this committee can be obtained on request to its secretary.

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European foreword

This document (EN 50124-2:2017) has been prepared by CLC/TC 9X, “Electrical and electronic applications for railways.”

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

Introduction

This European Standard is part of the EN 50124 series, Railway applications – Insulation coordination.

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 2 deals with the shortest durations of overvoltages referred to as Zone A and Zone B in Figure A.1 in Annex A.

1 Scope

This European Standard applies to:

— fixed installations (downstream of the secondary of the substation transformer) and rolling stock equipment linked to the contact line of one of the systems defined in EN 50163;

— rolling stock equipment linked to a train line.

This European Standard gives simulation and/or test requirements for protection against transient overvoltages of such equipment.

Long-term overvoltages are not addressed in this document.

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 50163:2004, *Railway applications - Supply voltages of traction systems*

EN 50533, *Railway applications - Three-phase train line voltage characteristics*

EN 60099-4, *Surge arresters - Part 4: Metal-oxide surge arresters without gaps for a.c. systems (IEC 60099-4)*

3 Terms and Definitions

For the purposes of this document, the following terms and definitions apply:

NOTE The definitions are in accordance with those of EN 50163 (see also Annex A). Long-term, medium-term and short-term overvoltages are equivalent to respectively temporary, switching and lightning overvoltages defined in EN 60664–1.

3.1 Voltages

3.1.1
overvoltage
voltage having a peak value exceeding the corresponding peak value of maximum steady-state voltage at normal operating conditions

[SOURCE: EN 60664-1]

3.1.2
long-term overvoltage
overvoltage at relatively long duration due to voltage variations

Note 1 to entry: A long-term overvoltage is independent of the network load. It is characterized by a voltage/time curve.