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Railway applications - Fixed installations - Electrical
safety, earthing and the return circuit - Part 2:
Provisions against the effects of stray currents caused
by DC traction systems

EESTI STANDARDI EESSÕNA

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English Version

**Railway applications - Fixed installations - Electrical safety,
earthing and the return circuit - Part 2: Provisions against the
effects of stray currents caused by DC traction systems**

Applications ferroviaires - Installations fixes - Sécurité
électrique, mise à la terre et circuit de retour - Partie 2:
Mesures de protection contre les effets des courants
vagabonds issus de la traction électrique à courant continu

Bahnanwendungen - Ortsfeste Anlagen - Elektrische
Sicherheit, Erdung und Rückleitung - Teil 2:
Schutzmaßnahmen gegen Streustromwirkungen durch
Gleichstrombahnen

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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 50122-2:2022) has been prepared by CLC/SC 9XC “Electric supply and earthing systems for public transport equipment and ancillary apparatus (Fixed installations)”.

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) 2023-07-25
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2025-07-25

This document supersedes EN 50122-2:2010 and all of its amendments and corrigenda (if any).

EN 50122-2:2022 includes the following significant technical changes with respect to EN 50122-2:2010:

- harmonization with EN 50122-1:2022;
- improvement of measurement specification in Annex A;
- new Annex D “Laboratory testing of materials for the insulation of rails”.

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1 Scope

This document specifies requirements for protective provisions against the effects of stray currents, which result from the operation of DC electric traction power supply systems.

As several decades' experience has not shown evident corrosion effects from AC electric traction power supply systems, this document only deals with stray currents flowing from a DC electric traction power supply system.

This document applies to all metallic fixed installations which form part of the traction system, and also to any other metallic components located in any position in the earth, which can carry stray currents resulting from the operation of the railway system.

This document applies to all new DC lines and to all major revisions to existing DC lines. The principles can also be applied to existing electrified transportation systems where it is necessary to consider the effects of stray currents.

This document does not specify working rules for maintenance but provides design requirements to allow maintenance.

The range of application includes:

- a) railways,
- b) guided mass transport systems such as:
 - 1) tramways,
 - 2) elevated and underground railways,
 - 3) mountain railways,
 - 4) magnetically levitated systems, which use a contact line system, and
 - 5) trolleybus systems,
- c) material transportation systems.

This document does not apply to

- a) electric traction power supply systems in underground mines,
- b) cranes, transportable platforms and similar transportation equipment on rails, temporary structures (e.g. exhibition structures) in so far as these are not supplied directly from the contact line system and are not endangered by the electric traction power supply system,
- c) suspended cable cars,
- d) funicular railways.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 50122-1:2022, *Railway applications - Fixed installations - Electrical safety, earthing and the return circuit - Part 1: Protective provisions against electric shock*

EN 50122-3:2022, *Railway applications - Fixed installations - Electrical safety, earthing and the return circuit - Part 3: Mutual Interaction of AC and DC traction systems*

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