

# INTERNATIONAL STANDARD

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**Magnetic field levels generated by electronic and electrical apparatus in the railway environment with respect to human exposure – Measurement procedures**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MAGNETIC FIELD LEVELS GENERATED BY ELECTRONIC  
AND ELECTRICAL APPARATUS IN THE RAILWAY ENVIRONMENT  
WITH RESPECT TO HUMAN EXPOSURE –  
MEASUREMENT PROCEDURES**

## FOREWORD

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International Standard IEC 62597 has been prepared by IEC technical committee 9: Electrical equipment and systems for railways.

This first edition cancels and replaces IEC TS 62597 published in 2011. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the Technical Specification:

- Annex A test plan has been converted to normative text
- New Annex B (informative) for measurement technique for lower frequency has been added
- New Annex C (informative) about consistency to IEC 62110 in some countries has been added

The text of this International Standard is based on the following documents:

FDIS	Report on voting
9/2505/FDIS	9/2517/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

## INTRODUCTION

The intention of this document is to establish a suitable measuring/calculation method for determining the magnetic fields in the space around the equipment mentioned in the scope, to standardize operating conditions and to fix measuring/calculation distances.

# **MAGNETIC FIELD LEVELS GENERATED BY ELECTRONIC AND ELECTRICAL APPARATUS IN THE RAILWAY ENVIRONMENT WITH RESPECT TO HUMAN EXPOSURE – MEASUREMENT PROCEDURES**

## **1 Scope**

The scope of this document is limited to apparatus, systems and fixed installations which are intended for use in the railway environment. The frequency range covered is 0 Hz to 300 GHz.

Technical considerations and measurements are specified for frequencies up to 20 kHz because no relevant field strengths are expected above due to the physical nature of EMF-sources in the railway environment.

The object of this document is to provide measurement and calculation procedures of electric and magnetic field levels generated by electronic and electrical apparatus in the railway environment with respect to human exposure.

The regulations regarding the protection of human beings during exposure to non-ionizing electromagnetic fields in the railway environment are different within the countries worldwide. This document offers a procedure regarding measurement, simulation/calculation and evaluation.

The measurement procedures and points of measurement cover also the aspect of persons bearing active implantable medical devices.

This document does not apply to the risk assessment for persons bearing active implants in magnetic field generated by electronic and electrical apparatus in the railway environment.

This document does not apply to personal electronic devices (e.g. mobile phones, laptop computers, wireless communication systems, etc.) of passengers and workers.

This document does not apply to intentional transmitters with frequencies higher than 20 kHz.

## **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.

IEC 62311, *Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz – 300 GHz)*