

TECHNICAL REPORT

**Railway applications – Specification and demonstration of reliability, availability, maintainability and safety (RAMS) –
Part 4: RAM risk and RAM life cycle aspects**



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Part 4: RAM risk and RAM life cycle aspects**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 45.060.01

ISBN 978-2-8322-3672-7

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

RAILWAY APPLICATIONS – SPECIFICATION AND DEMONSTRATION OF RELIABILITY, AVAILABILITY, MAINTAINABILITY AND SAFETY (RAMS) –**Part 4: RAM risk and RAM life cycle aspects****FOREWORD**

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IEC TR 62278-4, which is a technical report, has been prepared by IEC technical committee 9: Electrical equipment and systems for railways.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
9/2184/DTR	9/2204A/RVC

Full information on the voting for the approval of this technical report 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.

A list of all parts in the IEC 62278 series, published under the general title *Railway applications – Specification and demonstration of reliability, availability, maintainability and safety (RAMS)*, can be found on the IEC website.

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- withdrawn,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

IEC 62278 series *Railway applications – Specification and demonstration of reliability, availability, maintainability and safety (RAMS)* is issued for demonstration of the RAMS aspects. It is based on the European Norm EN 50126:1999 that was prepared by Technical Committee CENELEC TC 9X: Electrical and electronic applications for railways. It was submitted to the National Committees for voting under the Fast Track Procedure. This standard is widely used for safety requirements for the safety within the railway field, with relevant safety standards for railway applications such as IEC 62425 and IEC 62279.

For rolling stock, the guidance on applying the RAM requirements in IEC 62278 is issued as IEC TR 62278-3, which is aimed at the customers/operators and main suppliers of rolling stock. The RAM aspects are important for the whole railway systems, not limited to rolling stock. This means that the RAM aspects need to be elaborated upon in the current version of IEC 62278.

IEC technical committee 9 set up Ad-hoc group 9 (AHG 9) with remit to study the possibilities to develop a Technical Report giving input in order to allow the introduction of RAM risk and RAM life cycle aspects in a future revision of EN 50126 by CENELEC TC 9X or of IEC 62278 by IEC TC 9. This technical report is the result of the study in AHG 9 in order to achieve suitable RAM aspects in the future version of IEC 62278.

RAILWAY APPLICATIONS – SPECIFICATION AND DEMONSTRATION OF RELIABILITY, AVAILABILITY, MAINTAINABILITY AND SAFETY (RAMS) –

Part 4: RAM risk and RAM life cycle aspects

1 Scope

This part of IEC 62278 provides an idea for the expansion of the requirements relating only to RAM aspects in IEC 62278.

This document is intended to be used as an input to the revision for the next edition of IEC 62278. This technical report is entirely informative in nature and does not contain normative aspects.

This document details the idea by means of referring to and revising the related clauses of the current edition of IEC 62278.

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 62278:2002, *Railway applications – Specification and demonstration of reliability, availability, maintainability and safety (RAMS)*

3 Terms, definitions and abbreviated terms

For the purposes of this document, the terms and definitions given in IEC 62278 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1 Terms and definitions

3.1.1

impact on operation, comfort or maintenance

IOCM

combination of impact on operational capability, impact on passenger's comfort or impact on maintenance

Note 1 to entry: examples of IOCM can be:

- for operational capability: delay, cancelation, stop on the line,
- for passenger comfort: degradation or loss of passenger information, air conditioning, lighting,
- for maintenance: failure without direct impact on operation or comfort, loss of diagnostic system.