EESTI STANDARD EVS-EN 50159-2:2002

Raudteealased rakendused. Side-, signalisatsiooni- ja andmetöötluse süsteemid. Osa 2: Ohutusega seotud teabeedastus avatud ülekandesüsteemides

Railway applications - Communication, signalling and processing systems - Part 2: Safety-related communication in open transmission systems

EESTI STANDARDIKESKUS

EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 50159-2:2002 sisaldab Euroopa standardi EN 50159-2:2001 ingliskeelset teksti. Käesolev dokument on jõustatud 10.09.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 50159-2:2002 consists of the English text of the European standard EN 50159-2:2001. This document is endorsed on 10.09.2002 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This European Standard is applicable to safety-related electronic systems using an open transmission system for communication purposes. It gives the basic requirements needed in order to achieve safety-related communication between safety-related equipment connected to the transmission system. This standard is applicable to the safety requirement specification of the safety-related equipment, connected to the open transmission system, in order to obtain the allocated safety integrity level.	**Scope:** This European Standard is applicable to safety-related electronic systems using an open transmission system for communication purposes. It gives the basic requirements needed in order to achieve safety-related communication between safety-related equipment connected to the transmission system. This standard is applicable to the safety requirement specification of the safety-related equipment, connected to the open transmission system, in order to obtain the allocated safety integrity level.

ICS 35.240.60, 45.020

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English version

Railway applications - Communication, signalling and processing systems Part 2: Safety related communication in open transmission systems

Applications ferroviaires - Systèmes de signalisation, de télécommunication et de traitement Partie 2: Communication de sécurité sur des systèmes de transmission ouverts

Bahnanwendungen - Telekommunikationstechnik, Signaltechnik und Datenverarbeitungssysteme Teil 2: Sicherheitsrelevante Kommunikation in offenen Übertragungssystemen

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CENELEC

European Committee for Electrotechnical Standardization
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Foreword

This European Standard was prepared by SC 9XA, Communication, signalling and processing systems, of Technical Committee CENELEC TC 9X, Electrical and electronic applications for railways.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50159-2 on 2000-01-01.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2001-10-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2003-01-01

Annexes designated “informative” are given for information only.
In this standard, annexes A, B, C and D are informative.

Contents

Introduction

If a safety-related electronic system involves the transfer of information between different locations, the communication system then forms an integral part of the safety-related system and it must be shown that the end to end transmission is safe in accordance with ENV 50129.

The safety requirements for a data communication system depend on its characteristics which can be known or not. In order to reduce the complexity of the approach to demonstrate the safety of the system two classes of transmission systems have been considered. The first class consists of the ones over which the safety system designer has some degree of control. It is the case of the closed transmission systems whose safety requirements are defined in EN 50159-1. The second class, named open transmission system, consists of all the systems whose characteristics are unknown or partly unknown. This standard defines the safety requirements addressed to the transmission through open transmission systems.

The transmission system, which is considered in this standard, has in general no particular preconditions to satisfy. It is from the safety point of view not or not fully trusted and is considered as a ”black box”.

This standard is closely related to EN 50159-1 ”Safety-related communication in closed transmission systems” and ENV 50129 ”Safety related electronic systems for signalling”.

The standard is dedicated to the requirements to be taken into account for the transmission of safety-related information over open transmission systems.

Cross-acceptance, aimed at generic approval and not at specific applications, is required in the same way as for ENV 50129 ”Safety related electronic systems for signalling”.

1 Scope

This European Standard is applicable to safety-related electronic systems using an open transmission system for communication purposes. It gives the basic requirements needed, in order to achieve safety-related transmission between safety-related equipment connected to the open transmission system.

This standard is applicable to the safety requirement specification of the safety-related equipment, connected to the open transmission system, in order to obtain the allocated safety integrity level.

The properties and behaviour of the open transmission system are only used for the definition of the performance, but not for safety. Therefore from the safety point of view the open transmission system can potentially have any property, as various transmission ways, storage of messages, unauthorised access, etc.. The safety process shall only rely on properties, which are demonstrated in the safety case.

The safety requirement specification is a precondition of the safety case of a safety-related electronic system for which the required evidences are defined in ENV 50129. Evidence of safety management and quality management has to be taken from ENV 50129. The communication related requirements for evidence of functional and technical safety are the subject of this standard.

This standard is not applicable to existing systems, which had already been accepted prior to the release of this standard.

This standard does not specify:

- the open transmission system,
- equipment connected to the open transmission system,
- solutions (e.g. for interoperability),
- which kinds of data are safety-related and which are not.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 50126	Railway applications - The specification and demonstration of Reliability, Availability, Maintainability and Safety (RAMS)
EN 50128	Railway applications - Communications, signalling and processing systems - Software for railway control and protection systems
ENV 50129	Railway applications - Safety related electronic systems for signalling

3 Definitions

For the purpose of this standard, the following definitions apply:

3.1
access protection
processes designed to prevent *unauthorised* access to read or to alter *information*, either within user *safety-related* systems or within the *transmission system*

3.1.1
hacker
a person trying deliberately to bypass *access protection*