

**Railway applications - Electric equipment for rolling stock - Part 1: General service conditions and general rules**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 60077-1:2003 sisaldab Euroopa standardi EN 60077-1:2002 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 05.02.2003 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 03.05.2002.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 60077-1:2003 consists of the English text of the European standard EN 60077-1:2002.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 05.02.2003 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 03.05.2002.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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English version

**Railway applications -  
Electric equipment for rolling stock  
Part 1: General service conditions and general rules  
(IEC 60077-1:1999, modified)**

Applications ferroviaires -  
Equipements électriques  
du matériel roulant  
Partie 1: Conditions générales  
de service et règles générales  
(CEI 60077-1:1999, modifiée)

Bahnanwendungen -  
Elektrische Betriebsmittel auf  
Bahnfahrzeuge  
Teil 1: Allgemeine Betriebsbedingungen  
und allgemeine Regeln  
(IEC 60077-1:1999, modifiziert)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

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CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

# CENELEC

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

The text of the International Standard IEC 60077-1:1999, prepared by IEC TC 9, Electric railway equipment, together with the common modifications prepared by SC 9XB, Electromechanical material on board of rolling stock, of Technical Committee CENELEC TC 9X, Electrical and electronic applications for railways, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 60077-1 on 2002-03-01.

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) 2003-03-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2005-03-01

In this European Standard the common modifications to the International Standard are indicated by a vertical line in the left margin of the text.

Subclauses, tables and figures which are additional to those in IEC 60077-1 are prefixed "Z".

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annex ZA is normative and annex A is informative.

Annex ZA has been added by CENELEC.

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## Introduction

Although this European Standard specifies the general service conditions and general rules for electric equipment for rolling stock, further special details of certain types of traction equipment may be given in other European standards. In particular, product standards give further details. The product standards which are part of the EN 60077 series are:

IEC 60077: Railway applications – Electric equipment for rolling stock:

- Part 2: Electrotechnical components - General rules,
- Part 3: Electrotechnical components - Rules for d.c. circuit-breakers,
- Part 4: Electrotechnical components - Rules for a.c. circuit-breakers,
- Part 5: Electrotechnical components - Rules for HV fuses.

Although all circuits of power or control electronic equipments connected to battery or line voltages and all circuits comprising switchgear or controlgear are covered by this standard, internal circuits of these may be subject to special requirements covered by relevant product standards.

For electric equipment for rolling stock which conforms to an appropriate European Standard, including items of industrial equipment, this standard, plus the relevant railway equipment product standard where appropriate, specifies only those additional requirements to ensure satisfactory operation on rolling stock.

This document has used IEC 60077-1 as its base, and its form and structure has been modified to take account of already existing European Standards covering related subjects.



## 1 Scope

This European Standard specifies the general service conditions and requirements for all electric equipment installed in power circuits, auxiliary circuits and control circuits etc. on rolling stock.

NOTE 1 Certain of these rules may, after agreement between user and manufacturer, be used for electrical equipment installed on other vehicles such as mine locomotives, trolley-buses etc.

The purpose of this standard is to harmonize as far as practicable all rules and requirements of a general nature applicable to electric equipment for rolling stock. This is in order to obtain uniformity of requirements and tests throughout the corresponding range of equipment to avoid the need for testing to different standards.

This general standard is to be read in conjunction with the relevant equipment standard hereafter referred to as "the relevant product standard" or "product standard".

NOTE 2 In the event of there being a difference in requirements between the basic standard and a product standard produced by the Technical Committee TC 9X, the product standard requirements are to take precedence.

For a general rule to apply to a specific product standard, it is to be explicitly referred to in the latter, by quoting the relevant clauses of this standard e.g. see 7.7 of EN 60077-1.

A specific product standard may not require, and hence may omit, a general rule (as being not applicable), or it may add to it (if deemed inadequate in the particular case), but it may not deviate from it, unless there is a substantial technical justification.

All requirements relating to

- the construction,
- the performance and the associated tests which can be considered as general,

have therefore been gathered in this standard together with specific subjects of wide interest and application, for example temperature rise, dielectric properties, etc.

## 2 Normative references

NOTE Normative references to international publications are listed in Annex ZA (normative).

## 3 Definitions (see also Annex A)

For the purpose of this European Standard, the following definitions apply.

### 3.1 General

#### 3.1.1

##### **rolling stock**

a general term covering all vehicles with or without motors [IEV 811-02-01]

#### 3.1.2

##### **vehicle**

a general term denoting any single item of rolling stock, eg a locomotive, a coach or a wagon [IEV 811-02-02]