

**Complete filter units for radio interference suppression Part 2-1: Blank detail specification – Passive filter units for electromagnetic interference suppression – Filters for which safety tests are required (assessment level D/DZ)**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 60939-2-1:2005 sisaldab Euroopa standardi EN 60939-2-1:2004 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 23.02.2005 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 07.12.2004.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 60939-2-1:2005 consists of the English text of the European standard EN 60939-2-1:2004.

This standard is ratified with the order of Estonian Centre for Standardisation dated 23.02.2005 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 07.12.2004.

The standard is available from Estonian standardisation organisation.

ICS 31.190, 33.160

Võtmesõnad:

### Standardite reprodutseerimis- ja levitamisoigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:  
Aru 10 Tallinn 10317 Eesti; [www.evs.ee](http://www.evs.ee); Telefon: 605 5050; E-post: [info@evs.ee](mailto:info@evs.ee)

English version

**Complete filter units for radio interference suppression**  
**Part 2-1: Blank detail specification –**  
**Passive filter units for electromagnetic interference suppression –**  
**Filters for which safety tests are required**  
**(assessment level D/DZ)**  
**(IEC 60939-2-1:2004)**

Filtres complets d'antiparasitage  
Partie 2-1: Spécification particulière cadre -  
Filtres passifs d'antiparasitage –  
Filtres pour lesquels des essais de sécurité  
sont exigés (niveau d'assurance D/DZ)  
(CEI 60939-2-1:2004)

Vollständige Filter zur Unterdrückung von  
Funkstörungen  
Teil 2-1: Vordruck für Bauartspezifikation -  
Passive Filter zur Unterdrückung  
elektromagnetischer Störungen –  
Filter, für die Sicherheitsprüfungen  
vorgeschrieben sind  
(Bewertungsstufe D/DZ)  
(IEC 60939-2-1:2004)

This European Standard was approved by CENELEC on 2004-11-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, 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 document 40/1466/FDIS, future edition 1 of IEC 60939-2-1, prepared by IEC TC 40, Capacitors and resistors for electronic equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60939-2-1 on 2004-11-01.

This European Standard supersedes EN 133201:1998.

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) | 2005-08-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn   | (dow) | 2007-11-01 |

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 60939-2-1:2004 was approved by CENELEC as a European Standard without any modification.

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## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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.

NOTE Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60384-1 (mod)	- <sup>1)</sup>	Fixed capacitors for use in electronic equipment Part 1: Generic specification	EN 60384-1 + corr. October	2001 <sup>2)</sup> 2001
IEC 60410	- <sup>1)</sup>	Sampling plans and procedures for inspection by attributes	-	-
IEC 60939-1	- <sup>3)</sup>	Passive filter units for electromagnetic interference suppression Part 1: Generic specification	-	-
IEC 60939-2	- <sup>3)</sup>	Part 2: Sectional specification: Passive filter units for which safety tests are appropriate - Test methods and general requirements	-	-

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1) Undated reference.

2) Valid edition at date of issue.

3) At draft stage.

# INTERNATIONAL STANDARD

**IEC**  
**60939-2-1**

First edition  
2004-11

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**Complete filter units for radio  
interference suppression –**

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Reference number  
IEC 60939-2-1:2004(E)

## Publication numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series. For example, IEC 34-1 is now referred to as IEC 60034-1.

## Consolidated editions

The IEC is now publishing consolidated versions of its publications. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

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- **IEC Web Site** ([www.iec.ch](http://www.iec.ch))

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International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland  
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: [inmail@iec.ch](mailto:inmail@iec.ch) Web: [www.iec.ch](http://www.iec.ch)



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International Electrotechnical Commission  
Международная Электротехническая Комиссия

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# INTERNATIONAL ELECTROTECHNICAL COMMISSION

## COMPLETE FILTER UNITS FOR RADIO INTERFERENCE SUPPRESSION –

### Part 2-1: Blank detail specification – Passive filter units for electromagnetic interference suppression – Filters for which safety tests are required (assessment level D/DZ)

#### FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60939-2-1 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment.

The text of this standard is based on the following documents:

FDIS	Report on voting
40/1466/FDIS	40/1487/RVD

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

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

IEC 60939 consists of the following parts under the general title *Complete filter units for radio interference suppression*:

Part 1: Generic specification

Part 2: Sectional specification

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

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

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

This document is a preview generated by EVS

## INTRODUCTION

### Blank detail specification

A blank detail specification is a supplementary document to the sectional specification and contains requirements for style and layout and minimum content of detail specifications. In the preparation of detail specifications, the content of 1.4 of the sectional specification shall be taken into account.

The use of IEC 60939-2-2 may be more appropriate for components where approval and requalification tests contribute considerably to the cost of the product, whereas the employment of this specification may be necessary for components manufactured in mass production. This specification offers the assessment levels D and DZ (Zero defect).

#### *Identification of the detail specification and of the component*

The first page of the detail specification should have the layout recommended on the next page of this blank detail specification. The numbers between square brackets correspond to the following information which shall be inserted at the position indicated:

- [1] The name of the National Standards Organization under whose authority the detail specification is published and, if applicable, the organization from which the detail specification is available.
- [2] The IECQ symbol and the number allotted to the detail specification by the IECQ General Secretariat.
- [3] The number and issue number of the IECQ generic or sectional specification as relevant; also national reference if different.
- [4] If different from the IECQ number, the national number of the detail specification, date of issue and any further information required by the national system, together with any amendment numbers.
- [5] A brief description of the component or range of components.
- [6] Information on typical construction (when applicable).

For [5] and [6] the text to be given in the detail specification should be suitable for an entry in the IECQ Register of Approvals.

- [7] Outline drawing with main dimensions which are of importance for interchangeability and/or reference to the appropriate national or international documents for outlines. Alternatively the drawing may be given in an annex to the detail specification, but [7] should always contain an illustration of the general outer appearance of the component.
- [8] The level(s) of quality assessment covered by the detail specification, as appropriate.
- [9] Reference data giving information on the most important properties of the component which allow comparison between the various component types intended for the same or similar applications.

[1]	IEC 60939-2-1-XXX [2] QC XXXXXXXXX
ELECTRONIC COMPONENTS OF ASSESSED QUALITY IN ACCORDANCE WITH:  IEC 60939-1  IEC 60939-2 [3]	[4]
Outline and dimensions ( ... angle projection)  [7]  (Other shapes are permitted within the dimensions given, see Table 1)	PASSIVE FILTER UNITS FOR ELECTROMAGNETIC INTERFERENCE SUPPRESSION AND FOR CONNECTION TO THE SUPPLY MAINS – FILTERS FOR WHICH SAFETY TESTS ARE REQUIRED [5]
	TYPICAL CONSTRUCTION:  cylindrical/rectangular non-metallic/metallic case insulated/non-insulated axial/radial/screwed terminations contains capacitors of subclasses X and Y [6]
	Assessment level D / DZ [8]
NOTE For [1] to [9], see preceding page.	
REFERENCE DATA: Rated voltages, current range, climatic category, frequency range, insertion loss range, functional circuit diagram. [9]	

Information on the availability of components qualified to this detail specification is given in the IEC QC 001005

## COMPLETE FILTER UNITS FOR RADIO INTERFERENCE SUPPRESSION –

### Part 2-1: Blank detail specification – Passive filter units for electromagnetic interference suppression – Filters for which safety tests are required (assessment level D/DZ)

#### 1 General data

##### 1.1 Method of mounting for vibration, bump and shock tests

See 1.3.2 of IEC 60939-2.

##### 1.2 Dimensions

Table 1 – Dimensions related to case size

Case size reference	Dimensions								
	mm								
	<i>L</i>	<i>W</i>	<i>H</i>	...	...	...	...	...	...

When there is no case size reference, Table 1 may be omitted and the dimensions shall be given in Table 2, which then becomes Table 1.

The dimensions shall be given as maximum dimensions or as nominal dimensions with a tolerance.

##### 1.3 Ratings and characteristics

Rated voltages (see Table 2a)

Category voltage (if applicable) (see Table 2a)

Rated current (see Table 2b)

DC line resistance or d.c. voltage drop at rated current

Maximum current at upper category temperature and derating curve (if applicable)

Maximum internal and external temperatures for temperature rise test (if applicable)

Climatic category

Rated temperature

Insertion loss, no load/room temperature (see Table 2a)

Insertion loss, load/temperature (see Table 2b)

Insulation resistance

Discharge resistance (if applicable)

Category of passive flammability (if applicable)