IEC 60938-2-2

Edition 1.0 1999-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Fixed inductors for electromagnetic interference suppression –
Part 2-2: Blank detail specification – Inductors for which safety tests are required (only)**

**Inductances fixes d'antiparasitage –
Partie 2-2: Spécification particulière cadre – Inductances nécessitant des essais de sécurité (uniquement)**

IEC 60938-2-2:1999

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

Useful links:

IEC publications search - www.iec.ch/searchpub

The advanced search enables you to find IEC publications by a variety of criteria (reference number, text, technical committee,…).
It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available on-line and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary (IEV) on-line.

Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

A propos de la CEI

La Commission Electrotechnique Internationale (CEI) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications CEI

Le contenu technique des publications de la CEI est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Liens utiles:

Recherche de publications CEI - www.iec.ch/searchpub

La recherche avancée vous permet de trouver des publications CEI en utilisant différents critères (numéro de référence, texte, comité d'études,…).
Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

Just Published CEI - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications de la CEI. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne au monde de termes électroniques et électriques. Il contient plus de 30 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans les langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (VEI) en ligne.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.

IEC 60938-2-2

Edition 1.0 1999-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Fixed inductors for electromagnetic interference suppression – Part 2-2: Blank detail specification – Inductors for which safety tests are required (only)

Inductances fixes d'antiparasitage – Partie 2-2: Spécification particulière cadre – Inductances nécessitant des essais de sécurité (uniquement)

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

PRICE CODE
CODE PRIX J

ICS 29.100.10; 31.020

ISBN 978-2-83220-772-7

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIXED INDUCTORS FOR ELECTROMAGNETIC INTERFERENCE SUPPRESSION –

Part 2-2: Blank detail specification – Inductors for which safety tests are required (only)

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60938-2-2 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment.

This bilingual version (2013-05) corresponds to the monolingual English version, published in 1999-10.

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

FDIS	Report on voting
40/1113/FDIS	40/1139/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.

The French version of this standard has not been voted upon.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

Annex A forms an integral part of this standard.

The committee has decided that this publication remains valid until 2005.

At this date, in accordance with the committee's decision, the publication will be

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

FIXED INDUCTORS FOR ELECTROMAGNETIC INTERFERENCE SUPPRESSION –

Part 2-2: Blank detail specification – Inductors for which safety tests are required (only)

INTRODUCTION

Blank detail specification

This blank detail specification forms the basis for a uniform procedure for a common mark. It implements the approval schedule for safety tests only in IEC 60938-2, requires a declaration of design for parameters relevant to safety tests and prescribes conformance tests to be conducted on every lot prior to its release and re-qualification tests depending on changes of the design.

In comparison with IEC 60938-2-1 which provides safety tests and performance tests, this specification is restricted to safety tests only.

The use of IEC 60938-2-1 may be more appropriate for components manufactured in mass production, whereas this specification may be necessary in those cases where approval and re-qualification tests contribute considerably to the costs of the product.

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 numbers between square brackets on the first page of the detail specification correspond to the following information which shall be inserted in the position indicated.

Identification of the detail specification and of the inductor

The first page of the detail specification should have the layout recommended on the next page of this blank detail specification.

[0] Manufacturer's name.

[0A] Manufacturer's style designation.

[1] The "International Electrotechnical Commission" or the National Standards Organisation under whose authority the detail specification is drafted.

[2] The IEC or National Standards number of the detail specification, date of issue and any further information required by the national system.

[3] The number and issue number of the IEC or national generic specification.

[4] The IEC number of the blank detail specification.

Identification of the inductor

[5] A short description of the inductor or range of inductors.

[6] Information on typical construction (when applicable).

[7] Outline drawing with main dimensions which are of importance for interchangeability and/or reference to the national or international documents for outlines. Alternatively, this drawing may be given in an annex to the detail specification, but should always contain an illustration of the general outer appearance of the inductor.

[8] Reference data on the most important properties, to allow comparison between the various inductor types intended for the same, or for similar applications.

<table>
<tr><td>[1]</td><td>IEC 60938-2-1XX
QC XXXXXXXXXXXX [2]</td></tr>
<tr><td rowspan="2">ELECTRONIC COMPONENTS OF ASSESSED QUALITY IN ACCORDANCE WITH:

[3]</td><td>IEC 60938-2-2
QC XXXXXX [4]</td></tr>
<tr><td rowspan="3">FIXED INDUCTORS FOR ELECTROMAGNETIC INTERFERENCE SUPPRESSION FOR WHICH SAFETY TESTS ARE REQUIRED [5]</td></tr>
<tr><td rowspan="2">Outline drawing: (see table 1)
(... angle projection)

[7]
(Other shapes are permitted within the dimensions given)</td></tr>
<tr><td>[6]</td></tr>
<tr><td>Safety tests only [8]</td></tr>
<tr><td colspan="2">NOTES [1] to [9] see pages 3 and 4.</td></tr>
</table>

Information on the availability of components qualified to this detail specification is given in the Register of Approvals.

1 General data

1.1 **Recommended method(s) of mounting** (to be inserted)

(See 1.4.3 of IEC 60938-2.)

1.2 Dimensions

Table 1 – Dimensions related to case size

Case size reference or type	Dimensions mm						
	L_1	W	H	L_2	L_3	L_4	

NOTE 1 – When there is no case size reference, the dimensions should be given per type designation.

NOTE 2 – The dimensions should be given as maximum dimensions or as nominal dimensions with a tolerance.

1.3 Ratings and characteristics

Rated inductance (L_R) (see table 2)

Tolerance on rated inductance

Rated current (I) range (see table 2)

DC resistance (R) (see table 2)

Rated voltage

Rated temperature

Climatic category

Category of passive flammability (if applicable)

Table 2 – Values of inductance, rated current and d.c. resistance related to type designation

Ordering code, type designation	L_R per line mH	I_R A	R_{max} per line Ω

1.4 Related documents

Generic specification: IEC 60938-1:1999, *Fixed inductors for electromagnetic interference suppression – Part 1: Generic specification*

Sectional specification: IEC 60938-2:1999, *Fixed inductors for electromagnetic interference suppression – Part 2: Sectional specification*

1.5 Marking

The marking of the inductor shall be in accordance with the requirements of 1.6 of IEC 60938-2.

The details of the marking of the component and package shall be given in full in the detail specification.

1.6 Ordering information

Orders for inductors covered by this specification shall contain, in clear or in coded form, the following minimum information:

a) type designation;

b) rated inductance;

c) tolerance on rated inductance;

d) rated voltage;

e) rated current;

f) number and issue reference of the detail specification and style reference.

1.7 Additional information (not for inspection purposes)

1.8 Additional or increased severities or requirements to those specified in the generic or sectional specification

NOTE – Additions or increased requirements should be specified only when essential.

Table 3 – Other characteristics

This table is to be used for defining characteristics which are additional to or more severe than those given in the sectional specification.

2 Inspection requirements

2.1 Procedures

For qualification approval, the procedures shall be in accordance with 3.4 of IEC 60938-2.

2.2 Test schedules

2.2.1 Initial approval

See table 1 and annex A of the sectional specification.

2.2.2 Conformance tests

See table 4 of this specification in association with annex A of this specification.

2.2.2.1 Conformance tests (lot-by-lot)

Table 4 – Conformance tests

Subclause number and test (see note 1)	D or ND (see note 3)	Conditions of test (see note 1)	Sample size	Requirements (see note 1)
	ND		100 % (see note 2)	
4.4 Inductance				Within specified tolerance
4.1 Visual examination				Legible marking and as specified in 1.5 of this specification
4.2 Voltage proof				No permanent breakdown or flashover

NOTE 1 – Clause numbers of test and performance requirements refer to the sectional specification, IEC 60938-2 and clause 1 of this specification.

NOTE 2 – May be carried out as end-of-line testing.

NOTE 3 – D = destructive
ND = non destructive

2.2.2.2 Re-qualification

Re-qualification tests according to 2.2.1 may be required by the certification body when a change of the declared design as given in annex A is intended.

The certification body shall be informed about the intended change(s) and shall decide whether re-qualification tests have to be performed.

As a maximum, a complete re-qualification according to 2.2.1 may be necessary.

(See also introduction.)

Annex A
(normative)

Declaration of design

(Confidential to the manufacturer and the certification body)

The purpose of this description is to register essential data and the basic design of the inductors for which approval is sought. The completed form shall be submitted to the relevant certification body prior to any approval testings; its circulation to the other parties is left to the decision of the manufacturer.

Changes of the declared design are permitted only after notifying the certification body in writing.

In this case the certification body will decide on necessary steps to be taken. As a maximum, a complete re-qualification may be required.

Registration number: (to be allocated by the certification body)

1 Applicant:

2 Manufacturer:

3 Manufacturing site:

4 Type designation:

5 Circuit diagram:

6 Identification of materials

6.1 Encapsulation (if applicable)

6.2 Insulation sleeve (if applicable)

6.3 Core

6.4 Wire

6.5 Others

7 Constructional details:

_____ _____

Location Date Signature

_____