IEC GUIDE 109

Edition 3.0 2012-06

GUIDE

GUIDE

Environmental aspects – Inclusion in electrotechnical product standards

Aspects liés à l'environnement – Prise en compte dans les normes électrotechniques de produits

IEC GUIDE 109:2012

THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2012 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.
If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de la CEI ou du Comité national de la CEI du pays du demandeur.
Si vous avez des questions sur le copyright de la CEI ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de la CEI de votre pays de résidence.

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It also gives information on projects, replaced and withdrawn publications.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 GUIDE 109

Edition 3.0 2012-06

GUIDE

GUIDE

Environmental aspects – Inclusion in electrotechnical product standards

Aspects liés à l'environnement – Prise en compte dans les normes électrotechniques de produits

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

Q

ICS 13.020

ISBN 978-2-83220-141-1

Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

® Registered trademark of the International Electrotechnical Commission
Marque déposée de la Commission Electrotechnique Internationale

CONTENTS

ENVIRONMENTAL ASPECTS – INCLUSION IN ELECTROTECHNICAL PRODUCT STANDARDS

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.
2) The formal decisions or agreements of 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 IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

This third edition of IEC Guide 109 has been prepared, in accordance with ISO/IEC Directives, Part 1, Annex A, by the IEC Advisory Committee on Environmental Aspects (ACEA). This guide is a non-mandatory guide in accordance with SMB Decision 136/8.

This third edition cancels and replaces the second edition edition published in 2003.

The main changes with respect to the previous edition are as follows. This new edition:

– is aligned to the revised ISO Guide 64 as far as it is relevant for standard writers;
– emphasizes life cycle thinking as described in the horizontal standard IEC 62430;
– provides a more elaborated check list in the annex.

The text of this IEC Guide is based on the following documents:

Four month's vote	Report on voting
C/1715/DV	C/1730/RV

Full information on the voting for the approval of this Guide 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.

INTRODUCTION

This Guide aims to give advice to standards writers on the way environment aspects should be considered and taken into account as applicable during the development of standards.

Finding an appropriate solution for the product is the task of product designers; this solution will be a trade-off along various dimensions (safety, environment, cost, technology, function and so on). This Guide is intended for standards writers and not for product designers; it aims at encouraging standards that preserve the natural environment while allowing designers to reach the best practical compromise among the constraints.

The need to reduce the adverse impacts on the natural environment based on a product's[1)] aspects during all stages of its life – from acquiring materials to manufacturing, distribution, use, and end-of-life treatment (i.e. re-use, recycling) – is recognized in most countries around the world. One achieves reduction of adverse environmental impacts by improving a product's environmental aspects. The choices made at the design stage largely determine what those impacts will be during each stage of the life of that product. There are, however, considerable obstacles that make the task of selecting the best environmental options very complex. For example, selecting design options to improve environmental aspects can involve difficult trade-offs, such as that a more energy efficient design causes the product to become less recyclable.

Requirements for products may influence significantly the extent of environmental impacts. Standards should promote flexibility in the selection of design options in order to improve environmental aspects. Furthermore, standards must not prohibit innovation in any sense. Standards writers should encourage the protection of the environment, for instance, by specifying requirements that do not rule out the appropriate use of recycled material and the re-use of components, subsystems and systems.

The continual introduction of new products and materials can make evaluation increasingly complex, since additional data must be gathered to assess the life cycle impacts and aspects of such new products and materials. Moreover, there is currently very little data available on the environmental impacts of some materials. However, the data which exists can be used as a basis for improvement of the products with respect to environmental aspects.

IEC 62430 specifies principles of life cycle thinking (LCT) with its essential steps as well as various general environmentally conscious design (ECD)[2)] tools such as life cycle assessment (LCA).

IEC 62430 gives all those involved information on how to integrate ECD principles into product design and development. Standards writers are not expected to perform life cycle assessment (LCA) but to facilitate ECD as far as possible.

Until more data are available, manufacturers can document more extensively the specific design choices and the reasons behind them. Besides generating requirements for environment-specific standardization, doing this expands the knowledge based on such options and choices, and it may also assist recycling and disposal at the end of life of the product (EOL).

In this context, it should be noted that a standards writer should also give careful consideration to their environmental aspects when specifying test methods.

---

1) Although the term "product" has been used throughout this Guide, the concept also embraces processes and services as appropriate.

2) For the process of integrating environmental aspects into product design and development, various terms are used such as Design For Environment (DFE), eco-design, Environmentally Conscious Design (ECD), etc. ECD will be used in this document to represent the various terms.

Standards writers need comparative environmental data on materials and substances. However, they should handle information derived from LCA studies with great care when making choices needed for a standard. This may require consultation with advisory committees on environmental aspects within national, regional and international standards bodies.

IEC Environmental Policy

“IEC recognizes the growing importance of preserving the environment and the role electrotechnical standardization has to play to foster sustainable development. Therefore it is the responsibility of IEC staff and technical committees, members and experts, to contribute actively to the evolving standards framework for the benefit of the environment. For this purpose, the IEC cooperates with ISO and regional standards development organizations such as CENELEC. With respect to product-related standards, IEC technical committees must assess and continuously improve new and existing standards in view of reducing adverse environmental impacts over the whole life cycle of products. The IEC will monitor and annually report progress according to this policy.”

The IEC Environmental Policy has been approved by the IEC Council Board. IEC Guide 109 helps to fulfil this policy by illustrating how environmental aspects can be included in electrotechnical product standards.

ENVIRONMENTAL ASPECTS – INCLUSION IN ELECTROTECHNICAL PRODUCT STANDARDS

1 Scope

IEC Guide 109, which is intended for standards writers, gives guidance on how to consider aspects relating to the impact on the environment of electrotechnical products when preparing standards for such products.

Its purpose is:

a) to raise awareness that provisions in product standards can affect the environment in both negative and positive ways;

b) to outline the relationship between product standards and the environment;

c) to help to find provisions in product standards that may lead to improved environmental performance and to avoid such provisions that may lead to adverse environmental impacts;

d) to emphasize that addressing environmental aspects during the development of product standards is a complex process and requires balancing competing priorities; and

e) to recommend the use of life cycle thinking when addressing environmental aspects in the context of product standardization.

This Guide exclusively addresses writers of technical product standards and specifications. It is consistent as much as possible with ISO Guide 64.

Electrotechnical product- or sector-specific standardization documents that explicitly deal with environmentally conscious product design should be based on IEC 62430.

2 Normative references

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.

None.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
end of life
EOL
life cycle stage of a product starting when it is finally removed from its intended use-phase

[IEC 62075:2008, definition 3.4, modified]

3.2
energy recovery
production of useful energy through direct and controlled combustion of waste

NOTE Waste incinerators producing hot water, steam and/or electricity are a common form of energy recovery.