SLOVENSKI STANDARD
SIST EN 60068-3-11:2007

01-oktober-2007

Okoljski preskusi - 3-11.del: Spremljajoļ a dokumentacija in vodila - Izraļ unavanje nezanesljivosti pogojev v komorah za klimatsko preskuġanje (IEC 60068-3-11:2007)

Environmental testing -- Part 3-11: Supporting documentation and guidance - Calculation of uncertainty of conditions in climatic test chambers

Umgebungseinflüsse - Teil 3-11: Unterstützende Dokumentation und Leitfaden - Berechnung der Messunsicherheit von Umgebungsbedingungen in Klimaprüfkammern

Essais d'environnement - Partie 3-11: Documentation d'accompagnement et guide - Calcul de l'incertitude des conditions en chambres d'essais climatiques

Ta slovenski standard je istoveten z: **EN 60068-3-11:2007**

ICS:

19.040	Preskušanje v zvezi z okoljem	Environmental testing

SIST EN 60068-3-11:2007 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60068-3-11

June 2007

ICS 19.040

English version

Environmental testing - Part 3-11: Supporting documentation and guidance - Calculation of uncertainty of conditions in climatic test chambers

(IEC 60068-3-11:2007)

Essais d'environnement - Partie 3-11: Documentation d'accompagnement et guide - Calcul de l'incertitude des conditions en chambres d'essais climatiques (CEI 60068-3-11:2007)

Umgebungseinflüsse - Teil 3-11: Unterstützende Dokumentation und Leitfaden - Berechnung der Messunsicherheit von Umgebungsbedingungen in Klimaprüfkammern (IEC 60068-3-11:2007)

This European Standard was approved by CENELEC on 2007-06-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the 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

Ref. No. EN 60068-3-11:2007 E

Foreword

The text of document 104/409/FDIS, future edition 1 of IEC 60068-3-11, prepared by IEC TC 104, Environmental conditions, classification and methods of test, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60068-3-11 on 2007-06-01.

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)	2008-03-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2010-06-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 60068-3-11:2007 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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60068-3-5	- [1)]	Environmental testing - Part 3-5: Supporting documentation and guidance - Confirmation of the performance of temperature chambers	EN 60068-3-5	2002 [2)]
IEC 60068-3-6	- [1)]	Environmental testing - Part 3-6: Supporting documentation and guidance - Confirmation of the performance of temperature/humidity chambers	EN 60068-3-6	2002 [2)]
ISO 3534-1	2006	Statistics - Vocabulary and symbols - Part 1: General statistical terms and terms used in probability	-	-
ISO 3534-2	2006	Statistics - Vocabulary and symbols - Part 2: Applied statistics	-	-
ISO Guide 99	1996	International vocabulary of basic and general terms in metrology	-	-
ISO/IEC Guide 98	1995	Guide to the expression of uncertainty in measurement	-	-

[1)] Undated reference.

[2)] Valid edition at date of issue.

INTERNATIONAL STANDARD

NORME INTERNATIONALE

IEC
CEI
60068-3-11

First edition
Première édition
2007-05

Environmental testing –

Part 3-11:
Supporting documentation and guidance –
Calculation of uncertainty of conditions in climatic test chambers

Essais d'environnement –

Partie 3-11:
Documentation d'accompagnement et guide –
Calcul de l'incertitude des conditions en chambres d'essais climatiques

Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE
CODE PRIX V

For price, see current catalogue
Pour prix, voir catalogue en vigueur

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ENVIRONMENTAL TESTING –

Part 3-11: Supporting documentation and guidance – Calculation of uncertainty of conditions in climatic test chambers

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 60068-3-11 has been prepared by IEC technical committee 104: Environmental conditions, classification and methods of test.

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

FDIS	Report on voting
104/409/FDIS	104/415/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.

A list of all parts in the IEC 60068 series, under the general title *Environmental testing* can be found on the IEC website.

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.

INTRODUCTION

This part of IEC 60068 provides guidance for analysing uncertainties of temperature and humidity in climatic test chambers. It has been written for technicians, engineers and managers in environmental testing, and for anyone who needs to understand the results of environmental tests.

The performance of climatic test chambers is a key concern in environmental test engineering. To comply with any test specification, the performance of the chamber needs to be characterized to decide whether the generated conditions fall within the specified limits. This characterization can be a difficult task, and the analysis of uncertainties in chamber performance is often surrounded by confusion. This publication is intended to ease that process.

In what follows, the concept of uncertainty of measurement is introduced first and then the significance of tolerance discussed. Aspects of humidity and temperature measurement are considered, followed by methods for determining and combining uncertainties. The cases of both calibrating an empty chamber and of measuring conditions in a loaded chamber are considered. Finally, detailed guidance and worked examples are given for analysing results to give estimates of uncertainty in the measured performance.

ENVIRONMENTAL TESTING –

Part 3-11: Supporting documentation and guidance – Calculation of uncertainty of conditions in climatic test chambers

1 Scope

This part of IEC 60068 demonstrates how to estimate the uncertainty of steady-state temperature and humidity conditions in temperature and humidity chambers. Since this is inextricably linked to the methods of measurement, these are also described.

This standard is equally applicable to all environmental enclosures, including rooms or laboratories. The methods used apply both to temperature chambers and combined temperature and humidity chambers.

This standard is meant to help everyone using climatic test chambers. Those already familiar with uncertainty of measurement will find it useful for guidance on typical sources of uncertainty and how they should be quantified and combined. It is also intended to assist the first-time or occasional user who has little or no knowledge of the subject.

To discuss uncertainty, it is important first to understand what is being measured or characterized. The calibration or characterization of the performance of a chamber is concerned with the humidity and temperature of the air in the chamber, as experienced by the item under test, at a given set point. This should not be confused with characterizing or calibrating the chamber sensor, which is a separate matter.

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.

IEC 60068-3-5: *Environmental testing – Part 3-5: Supporting documentation and guidance – Confirmation of the performance of temperature chambers*

IEC 60068-3-6: *Environmental testing – Part 3-6: Supporting documentation and guidance – Confirmation of the performance of temperature/humidity chambers*

ISO 3534-1:2006, *Statistics – Vocabulary and symbols – Part 1: General statistical terms and terms used in probability*

ISO 3534-2:2006, *Statistics – Vocabulary and symbols – Part 2:Applied statistics*

*International Vocabulary of basic and general standard terms in metrology. I*SO, Geneva, Switzerland 1993 (ISBN 92-67-10175-1) – VIM