This is a free page sample. Access the full version online.



Irish Standard I.S. EN 60068-3-1:2011

Environmental testing -- Part 3-1: Supporting documentation and guidance - Cold and dry heat tests (IEC 60068-3-1:2011 (EQV))

 \tilde{O} NSAI 2011 No copying without NSAI permission except as permitted by copyright law.

Incorporating amendments/corrigenda issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

<i>This document replaces:</i> EN 60068-3-1:1999	EN 60068-3-1:2	<i>This document is based on:</i> EN 60068-3-1:2011 EN 60068-3-1:1999		<i>Published:</i> 18 November, 2011 16 April, 1999	
This document was published under the authority of the NSAI and comes into effect on:ICS number: 19.04023 November, 2011					
,	1 Swift Square,F +353 1 807 3838T +353 1 857 6730Northwood, SantryE standards@nsai.ieF +353 1 857 6729				
Údarás um Chaighdeáin Náisiúnta na hÉireann					

EUROPEAN STANDARD

EN 60068-3-1

NORME EUROPÉENNE EUROPÄISCHE NORM

November 2011

ICS 19.040

Supersedes EN 60068-3-1:1999

English version

Environmental testing -Part 3-1: Supporting documentation and guidance -Cold and dry heat tests

(IEC 60068-3-1:2011)

Essais d'environnement -Partie 3-1: Documentation d'accompagnement et guide -Essais de froid et de chaleur sèche (CEI 60068-3-1:2011) Umgebungseinflüsse -Teil 3-1: Unterstützende Dokumentation und Leitfaden -Prüfverfahren Kälte und trockene Wärme (IEC 60068-3-1:2011)

This European Standard was approved by CENELEC on 2011-09-23. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, 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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

© 2011 CENELEC - All rights of exploitation in any form and by any means reserved worldwide for CENELEC members.

EN 60068-3-1:2011

- 2 -

Foreword

The text of document 104/555/FDIS, future edition 2 of IEC 60068-3-1, prepared by IEC TC 104, "Environmental conditions, classification and methods of test", was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60068-3-1:2011.

The following dates are fixed:

•	latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2012-06-23
•	latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2014-09-23

This document supersedes EN 60068-3-1:1999.

The main changes with regard to EN 60068-3-1:1999 are as follows:

- removal of guidance regarding thermal characteristics of chamber walls;

- revision of sections that address environmental chambers that do not use movement of air for temperature control.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 60068-3-1:2011 was approved by CENELEC as a European Standard without any modification.

- 3 -

EN 60068-3-1:2011

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	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-1	-	Environmental testing - Part 1: General and guidance	EN 60068-1	-
IEC 60068-2-1	-	Environmental testing - Part 2-1: Tests - Test A: Cold	EN 60068-2-1	-
IEC 60068-2-2	-	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	-

This page is intentionally left BLANK.

CONTENTS

– 2 –

FOI	REWC	RD		.3
1	Scop	e		.5
2	Normative references			.5
3	Terms and definitions			
4	Selection of test procedures			.5
	4.1	Genera	Il background	.5
		4.1.1	General	.5
		4.1.2	Ambient temperature	.6
		4.1.3	Specimen temperatures	.6
		4.1.4	Specimens without heat dissipation	.6
		4.1.5	Specimens with heat dissipation	
	4.2 Mechanisms of heat transfer6			.6
		4.2.1	Convection	.6
		4.2.2	Radiation	.9
		4.2.3	Thermal conduction	10
		4.2.4	Forced air circulation	10
	4.3	Test ch	ambers	10
		4.3.1	General	10
		4.3.2	Methods of achieving the required conditions in the test chamber	11
	4.4	Measur	rements	11
		4.4.1	Temperature	11
		4.4.2	Air velocity	11
			itive) Effect of airflow on chamber conditions and on surface est specimens	12
			mental data on the effect of airflow on surface temperature of a wire- Radial airflow	.7
Figi wou	ure 2 - und re	– Experi sistor –	mental data on the effect of airflow on surface temperature of a wire- Axial airflow	.8
Fig airf	ure 3 - low of	– Tempe velocitie	erature distribution on a cylinder with homogeneous heat generation in es 0,5, 1 and 2 m \cdot s ⁻¹	.9

60068-3-1 © IEC:2011

- 3 -

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ENVIRONMENTAL TESTING -

Part 3-1: Supporting documentation and guidance – Cold and dry heat tests

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.
- 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.
- 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.

International Standard IEC 60068-3-1 has been prepared by IEC technical committee 104: Environmental conditions, classification and methods of test.

This second edition cancels and replaces the first edition, published in 1974, and constitutes a technical revision.

The main changes with regard to the previous edition are as follows:

- removal of guidance regarding thermal characteristics of chamber walls;
- revision of sections that address environmental chambers that do not use movement of air for temperature control.

- 4 -

60068-3-1 © IEC:2011

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

FDIS	Report on voting
104/555/FDIS	104/558/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 stability 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.



This is a free preview. Purchase the entire publication at the link below:

Product Page

S Looking for additional Standards? Visit Intertek Inform Infostore

> Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation