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Miljötålighetsprovning – Del 2-1: Provningsmetoder – A: Kyla, stationärt tillstånd

*Environmental testing –
Part 2-1: Tests - Test A: Cold*

Som svensk standard gäller europastandarden EN 60068-2-1:2007. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60068-2-1:2007.

Nationellt förord

Europastandarden EN 60068-2-1:2007^{*)}

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60068-2-1, Sixth edition, 2007 - Environmental testing - Part 2-1: Tests - Test A: Cold**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60068-2-1, utgåva 1, 2001, SS-EN 60068-1/A1, utgåva 1, 2001 och SS-EN 60068-1/A2, utgåva 1, 2001, gäller ej fr o m 2010-04-01.

^{*)} EN 60068-2-1:2007 ikraftsattes 2007-06-25 som SS-EN 60068-2-1 genom offentliggörande, d v s utan utgivning av något svenskt dokument.

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

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Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

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Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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English version

**Environmental testing -
Part 2-1: Tests -
Test A: Cold
(IEC 60068-2-1:2007)**

Essais d'environnement -
Partie 2-1: Essais -
Essai A: Froid
(CEI 60068-2-1:2007)

Umgebungseinflüsse -
Teil 2-1: Prüfverfahren -
Prüfung A: Kälte
(IEC 60068-2-1:2007)

This European Standard was approved by CENELEC on 2007-04-01. 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

Foreword

The text of document 104/407/FDIS, future edition 6 of IEC 60068-2-1, 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 60068-2-1 on 2007-04-01.

This European Standard supersedes EN 60068-2-1:1993 + A1:1993 + A2:1994.

EN 60068-2-1:2007 deals with cold tests applicable both to non heat-dissipating and heat-dissipating specimens. For non heat-dissipating specimens, Tests Ab and Ad do not deviate essentially from earlier issues. Test Ae has been added primarily for testing equipment that requires being operational throughout the test including the conditioning periods.

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) | 2008-01-01 |
| – latest date by which the national standards conflicting
with the EN have to be withdrawn | (dow) | 2010-04-01 |

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60068-2-1:2007 was approved by CENELEC as a European Standard without any modification.

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-1	1988	Environmental testing - Part 1: General and guidance	EN 60068-1 ¹⁾	1994
IEC 60068-2-14	- ²⁾	Environmental testing - Part 2: Tests - Test N: Change of temperature	EN 60068-2-14	1999 ³⁾
IEC 60068-3-1	- ²⁾	Environmental testing - Part 3: Background information - Section 1: Cold and dry heat tests	EN 60068-3-1	1999 ³⁾
IEC 60068-3-5	- ²⁾	Environmental testing - Part 3-5: Supporting documentation and guidance - Confirmation of the performance of temperature chambers	EN 60068-3-5	2002 ³⁾
IEC 60068-3-7	- ²⁾	Environmental testing - Part 3-7: Supporting documentation and guidance - Measurements in temperature chambers for tests A and B (with load)	EN 60068-3-7	2002 ³⁾
IEC 60068-5-2	- ²⁾	Environmental testing - Part 5: Guide to drafting of test methods - Terms and definitions	EN 60068-5-2	1999 ³⁾
IEC 60721	Series	Classification of environmental conditions	EN 60721	Series

¹⁾ EN 60068-1 is based on IEC 60068-1:1988 + corr. October 1988 and A1:1992.

²⁾ Undated reference.

³⁾ Valid edition at date of issue.

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INTRODUCTION

Relationship of suffixes between tests a: cold and tests b: dry heat

The relationship of suffixes between Tests A: Cold, and Tests B: Dry heat, is shown in the following table:

Suffix letter	Tests A: Cold			Tests B: Dry heat		
	Specimen type	Temperature change	Air velocity	Specimen type	Temperature change	Air velocity
a	Withdrawn			Withdrawn		
b	Non heat	Gradual	High preferred	Non heat	Gradual	High preferred
c	Withdrawn			Withdrawn		
d	Heat dissipating	Gradual	Low preferred	Heat	Gradual	Low preferred
e	Heat dissipating, powered throughout	Gradual	Low preferred	Heat, powered throughout	Gradual	Low preferred

ENVIRONMENTAL TESTING –

Part 2-1: Tests – Test A: Cold

1 Scope and object

This part of IEC 60068 deals with cold tests applicable to both non heat-dissipating and heat-dissipating specimens. For non heat-dissipating specimens, Tests Ab and Ad do not deviate essentially from earlier issues. Test Ae has been added primarily for testing equipment that requires being operational throughout the test, including the conditioning periods.

The object of the cold test is limited to the determination of the ability of components, equipment or other articles to be used, transported or stored at low temperature.

Cold tests cover by this standard do not enable the ability of specimens to withstand or operate during the temperature variations to be assessed. In this case, it would be necessary to use IEC 60068-2-14.

The cold tests are subdivided as follows:

- *Cold tests for non heat-dissipating specimens*
 - with gradual change of temperature, Ab;
- *Cold test for heat-dissipating specimens*
 - with gradual change of temperature, Ad,
 - with gradual change of temperature, specimen powered throughout, Ae.

The procedures given in this standard are normally intended for specimens that achieve temperature stability during the performance of the test procedure.

Temperature chamber(s) are constructed and verified in accordance with specifications IEC 60068-3-5 and IEC 60068-3-7.

Further guidance for dry heat and cold tests can be found in IEC 60068-3-1 and general guidance in IEC 60068-1.

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 60068-1:1988, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-14, *Basic environmental test procedures – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-3-1, *Environmental testing – Part 3: Background information – Section one: Cold and dry heat tests*

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

IEC 60068-3-7, *Environmental testing – Part 3-7: Supporting documentation and guidance – Measurements in temperature chambers for tests A and B (with load)*

IEC 60068-5-2, *Environmental testing – Part 5-2: Guide to drafting of test methods – Terms and definitions*

IEC 60721 (all parts), *Classification of environmental conditions*

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