

INTERNATIONAL STANDARD

IEC 60068-2-1

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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ENVIRONMENTAL TESTING –

Part 2-1: Tests – Test A: Cold

FOREWORD

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International Standard IEC 60068-2-1 has been prepared by IEC technical committee 104: Environmental conditions, classification and methods of test.

This sixth edition cancels and replaces the fifth edition issued in 1990. It includes the revised text of the fifth edition, amendment 1 issued in 1993 and amendment 2 issued in 1994.

This sixth edition 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 primary for testing equipment that requires being operational throughout the test including the conditioning periods.

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

FDIS	Report on voting
104/407/FDIS	104/410/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 the 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- withdrawn,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

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a	Withdrawn			Withdrawn		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c	Withdrawn			Withdrawn		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*