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Environmental testing - Part 2-1: Tests - Test a: Cold

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>See Eesti standard EVS-EN IEC 60068-2-1:2025 sisaldab Euroopa standardi EN IEC 60068-2-1:2025 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 07.11.2025.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p>	<p>This Estonian standard EVS-EN IEC 60068-2-1:2025 consists of the English text of the European standard EN IEC 60068-2-1:2025.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 07.11.2025.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
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English Version

Environmental testing - Part 2-1: Tests - Test A: Cold (IEC 60068-2-1:2025)

Essais d'environnement - Partie 2-1: Essais - Essai A: Froid
(IEC 60068-2-1:2025)

Umgebungseinflüsse - Teil 2-1: Prüfverfahren - Prüfung A:
Kälte
(IEC 60068-2-1:2025)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

The text of document 104/1107/FDIS, future edition 7 of IEC 60068-2-1, prepared by TC 104 "Environmental conditions, classification and methods of test" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60068-2-1:2025.

The following dates are fixed:

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IEC 60068-2-2	NOTE	Approved as EN 60068-2-2
IEC 60068-2-14	NOTE	Approved as EN IEC 60068-2-14
IEC 60068-3-1	NOTE	Approved as EN IEC 60068-3-1
IEC 60068-3-6	NOTE	Approved as EN IEC 60068-3-6
IEC 60068-3-7	NOTE	Approved as EN IEC 60068-3-7

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

**Essais d'environnement -
Partie 2-1: Essais - Essai A: Froid**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

FOREWORD

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

This seventh edition cancels and replaces the sixth edition published in 2007. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) revision of the introduction and scope;
- b) inclusion of new figures and symbols for clarification purposes;
- c) clarification of the test procedure for ascertaining high or low air velocity in the test chamber;
- d) clarification of the requirements for measuring points around, on or in specimens;
- e) reintroduction of the nomogram procedure for the correction of the conditioning temperature when testing with high air velocity (Test Ad and Test Ae);

- f) revision of the temperature tolerances of the test;
- g) revision of standardized requirements for the relevant specification and test report;
- h) inclusion of the advantages and disadvantages of the testing procedures.

The text of this International Standard is based on the following documents:

Draft	Report on voting
104/1107/FDIS	104/1127/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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 document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

The working ranges and performance of equipment and machinery (a device) can be significantly affected or limited by ambient temperatures. The degree of this influence can depend on temperature distributions of the environment as well as temperatures on components of the device itself. In order to determine the existing degree of influence and to ensure that the device is suitably designed for its ambient conditions, tests are carried out with cold or dry heat (IEC 60068-2-2), or both. During the test detailed in this document, it will be taken into account whether the tested device itself emits heat or not.

Reducing the air flow within the test chamber can be required to reduce the air velocity at heat-dissipating specimens. This can be achieved by using air baffles or adjusting the air flow of the test chamber. If the reduction of air velocity is not practical or possible due to the required test conditions, this document provides an alternative test procedure without the need for adjustable air flow as well as guidance on selecting the applicable test procedure.

1 Scope

This part of IEC 60068 specifies temperature tests at low temperatures, generally referred to as "cold tests", that are applicable to non-heat-dissipating and heat-dissipating specimens, to determine the ability of components, equipment, or other articles to be used, transported or stored at low temperature.

This document is applicable to energized as well as non-energized specimens that normally achieve temperature stability during the test. The specimens can be subject to test in packed condition (to simulate transportation and storage) or in unpacked condition (to simulate use).

This document does not specify tests to determine the impact of temperature changes on specimens.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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, *Environmental testing - Part 1: General and guidance*

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

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60068-1, IEC 60068-5-2 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

low air velocity

velocity of conditioning airflow within a working space which is sufficient to maintain conditions but low enough so that the temperature at the relevant point or relevant points on the test specimen is not reduced by more than 5 K by the influence of the circulation of the air

Note 1 to entry: The relevant points to be considered are determined by the relevant test specification.

3.2

high air velocity

velocity of conditioning airflow within a working space, which in order to maintain conditions, also reduces the temperature at the relevant point or relevant points on the test specimen by more than 5 K by the influence of the circulation of the air