



SLOVENSKI STANDARD
SIST EN 60068-2-1:2001
01-september-2001

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

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

Umweltprüfungen -- Teil 2: Prüfungen - Prüfgruppe A: Kälte

Essais d'environnement -- Partie 2: Essais - Essais A: Froid

Ta slovenski standard je istoveten z: EN 60068-2-1:1993

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ICS:

19.040	Preskušanje v zvezi z okoljem	Environmental testing
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EUROPEAN STANDARD

EN 60068-2-1

NORME EUROPEENNE

EUROPÄISCHE NORM

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ENGLISH VERSION

Environmental testing
Part 2: Tests
Tests A: Cold
(IEC 68-2-1:1990)

Essais d'environnement
Deuxième partie: Essais
Essais A : Froid
(CEI 68-2-1:1990)

Umweltprüfungen
Teil 2: Prüfungen
Prüfgruppe A: Kälte
(IEC 68-2-1:1990)

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This European Standard was approved by CENELEC on 1992-09-15.

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.

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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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and 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 International Standard IEC 68-2-1:1990, was submitted to the CENELEC members for formal vote and was approved by CENELEC as EN 60068-2-1 on 15 September 1992.

This European Standard supersedes HD 323.2.1 S2:1987.

The following dates were fixed:

- latest date of publication of
an identical national standard (dop) 1994-01-01
- latest date of withdrawal of
conflicting national standards (dow) 1994-01-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annex ZA is normative.

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The text of the International Standard IEC 68-2-1:1990 was approved by CENELEC as a European Standard without any modification.

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ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD
WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

IEC Publication	Date	Title	EN/HD	Date
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68-1	1988	Environmental testing Part 1: General and guidance	HD 323.1 S2	1988
68-3-1	1974	Part 3: Background information Section One - Cold and dry heat tests	HD 323.3.1 S1*	1988

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* HD 323.3.1 S1:1988 includes supplement IEC 68-3-1A:1978

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INTERNATIONAL STANDARD

IEC
60068-2-1

Fifth edition
1990-04

Environmental testing –

**Part 2:
Tests – Tests A: Cold**

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International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch



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International Electrotechnical Commission
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CONTENTS

	Page
FOREWORD	5
PREFACE	5
Historical survey of Test A: Cold	7
Relationship of suffixes between Tests A: Cold, and Tests B: Dry heat	9
INTRODUCTION	11
SECTION ONE — TEST Aa: COLD FOR NON HEAT-DISSIPATING SPECIMEN WITH SUDDEN CHANGE OF TEMPERATURE	
Clause	
1. Object	17
2. General description	17
3. Description of test apparatus	17
4. Severities	17
5. Preconditioning	19
6. Initial measurements	19
7. Conditioning	19
8. Intermediate measurements	21
9. Recovery	21
10. Final measurements	21
11. Information to be given in the relevant specification	21
SECTION TWO — TEST Ab: COLD FOR NON HEAT-DISSIPATING SPECIMEN WITH GRADUAL CHANGE OF TEMPERATURE	
12. Object	23
13. General description	23
14. Description of test apparatus	23
15. Severities	23
16. Preconditioning	25
17. Initial measurements	25
18. Conditioning	25
19. Intermediate measurements	27
20. Recovery	27
21. Final measurements	27
22. Information to be given in the relevant specification	27
SECTION THREE — TEST Ad: COLD FOR HEAT-DISSIPATING SPECIMEN WITH GRADUAL CHANGE OF TEMPERATURE	
23. Object	29
24. General description	29
25. Description of test apparatus	29
26. Severities	31
27. Preconditioning	33
28. Initial measurements	33
29. Conditioning	33
30. Intermediate measurements	37
31. Recovery	37
32. Final measurements	39
33. Information to be given in the relevant specification	39
APPENDIX A --- Nomogram for correction for ambient temperature	40
APPENDIX B — Diagrammatic representation of test with forced air circulation for Method A of Test Ad	42
APPENDIX C — Diagrammatic representation of test with forced air circulation for Method B of Test Ad	43

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ENVIRONMENTAL TESTING

Part 2: Tests — Tests A: Cold

FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

PREFACE

iTeh STANDARD PREVIEW

This standard has been prepared by Sub-Committee 50B: Climatic tests, of IEC Technical Committee No. 50: Environmental testing.

It forms the fifth edition of IEC Publication 68-2-1 and replaces the fourth edition issued in 1974. It includes the revised text of the fourth edition, Amendment No. 1 issued in 1983 and Publication 68-2-1A issued in 1976.

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

Publications	Six Months' Rule	Reports on Voting	Two Months' Procedure	Reports on Voting
68-2-1 (4th edition)	50B (CO) 158	50B (CO) 163	50B (CO) 167	50B (CO) 172
Amendment No. 1	50B (CO) 239	50B (CO) 250	—	—
68-2-1A	50B (CO) 182	50B (CO) 187	—	—

Full information on the voting for the approval of this standard can be found in the Voting Reports indicated in the above table.

The following IEC publications are quoted in this standard:

- Publications Nos. 68-1 (1988): Environmental testing, Part 1: General and guidance.
68-3-1 (1974): Part 3: Background information. Section One — Cold and dry heat tests.

HISTORICAL SURVEY OF TEST A: COLD

First edition (1954)

Contained one procedure only Test A: Cold, dealing with sudden change of temperature, standard test duration 6 h.

Second edition (1960)

Equivalent to the previous Test A; however, standard test duration changed to 2 h.

Third edition (1966)

Introduced:

- Test Aa, equivalent to the previous Test A;
- Test Ab, new method dealing with gradual change of temperature.

Fourth edition (1974)

Introduced:

- Test Aa, equivalent to the previous Test Aa;
- Test Ab, equivalent to the previous Test Ab;
- Test Ad, new method dealing with the gradual change of temperature for heat-dissipating specimens.

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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	Specimen type	Temperature change
a	non heat	sudden	non heat	sudden
b	non heat	gradual	non heat	gradual
c	—	—	heat	sudden
d	heat	gradual	heat	gradual

* The specimens will normally reach temperature stability before commencement of test duration. In exceptional cases, this will not be so, and additional information will be required in the relevant specification. See Clause 1 of the Introduction and IEC Publication 68-3-1. (Amendments to cover these cases are under consideration.)

ENVIRONMENTAL TESTING

Part 2: Tests — Tests A: Cold

INTRODUCTION

1. General

This publication deals with cold tests applicable both to non heat-dissipating and heat-dissipating specimens. For non heat-dissipating specimens, Tests Aa and Ab do not deviate essentially from earlier issues.

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

These cold tests do not enable the ability of specimens to withstand or operate during temperature variations to be assessed. In this case, it would be necessary to use Test N: Change of temperature.

The cold tests are subdivided as follows:

Cold tests for non heat-dissipating specimens

- with sudden change of temperature, Aa;
- with gradual change of temperature, Ab.

Cold test for heat-dissipating specimens

- with gradual change of temperature, Ad.

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

The duration of the test commences at the time when temperature stability of the specimen has been reached.

For the exceptional cases when the specimen does not reach temperature stability during the performance of the test procedure, the duration of the test commences at the time when the test chamber reaches the test temperature.

The relevant specification shall define:

- a) the rate of change of temperature in the test chamber;
- b) the time at which the specimens are introduced into the test chamber;
- c) the time at which the exposure commences;
- d) the time at which the specimens are energized.

For these cases, the specification writer will find guidance on choosing the above four parameters in IEC Publication 68-3-1. (Amendments to cover these cases are under consideration.)

2. Application of tests for non heat-dissipating specimens versus tests for heat-dissipating specimens

A specimen is considered heat-dissipating only if the hottest point on its surface, measured in free air conditions (i.e. with no forced air circulation), is more than 5 K above the ambient temperature of the surrounding atmosphere after temperature stability has been reached (see IEC Publication 68-1, Sub-clause 4.8).