



SLOVENSKI STANDARD SIST EN 60068-2-31:2008

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Environmental testing -- Part 2-31: Tests - Test Ec: Rough handling shocks, primarily for equipment-type specimens

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Umgebungseinflüsse - Teil 2-31: Prüfverfahren - Prüfung Ec: Schocks durch raue Handhabung, vornehmlich für Geräte

[SIST EN 60068-2-31:2008](https://standards.iteh.ai/catalog/standard/standard-sist/9170abc8-7635-4f80-9312-92a70b49226/sist-en-60068-2-31-2008)

Essais d'environnement -- Partie 2-31: Essais - Essai Ec: Choc lié à des manutentions brutales, essai destiné en premier lieu aux matériels

Ta slovenski standard je istoveten z: EN 60068-2-31:2008

ICS:

19.040 Preskušanje v zvezi z Environmental testing
 okoljem

SIST EN 60068-2-31:2008

en,fr,de

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60068-2-31

September 2008

ICS 19.040

Supersedes EN 60068-2-31:1993 and EN 60068-2-32:1993

English version

**Environmental testing -
Part 2-31: Tests -
Test Ec: Rough handling shocks,
primarily for equipment-type specimens
(IEC 60068-2-31:2008)**

Essais d'environnement -
Partie 2-31: Essais -
Essai Ec: Choc lié à des
manutentions brutales,
essai destiné en premier lieu
aux matériels
(CEI 60068-2-31:2008)

Umgebungseinflüsse -
Teil 2-31: Prüfverfahren -
Prüfung Ec: Schocks durch
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STANDARD PREVIEW
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[SIST EN 60068-2-31:2008](https://standards.iteh.ai/catalog/standards/sist/9179abc8-7635-4f80-93a2-374122012018)

<https://standards.iteh.ai/catalog/standards/sist/9179abc8-7635-4f80-93a2-374122012018>

This European Standard was approved by CENELEC on 2008-07-01. 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 104/458/FDIS, future edition 2 of IEC 60068-2-31, 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 60068-2-31 on 2008-07-01.

This European Standard supersedes EN 60068-2-31:1993 and EN 60068-2-32:1993.

The major changes with regard to EN 60068-2-31:1993 concern the introduction of soft packaging tests, where appropriate. EN 60068-2-31:2008 now incorporates EN 60068-2-32:1993.

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) 2009-04-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2011-07-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60068-2-31:2008 was approved by CENELEC as a European Standard without any modification. (standards.iteh.ai)

[SIST EN 60068-2-31:2008](https://standards.iteh.ai/catalog/standards/sist/9179abc8-7635-4f80-93a2-92a79fa49226/sist-en-60068-2-31-2008)

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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 60068-2-27	- ¹⁾	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock	-	-
IEC 60068-2-55	1987	Environmental testing - Part 2: Tests - Test Ee and guidance: Bounce	EN 60068-2-55	1993
IEC Guide 104	- ¹⁾	The preparation of safety publications and the - use of basic safety publications and group safety publications	-	-
ISO 48	2007	Rubber, vulcanized or thermoplastic - Determination of hardness (hardness between 10 IRHD and 100 IRHD)	-	-
ISO 4180-2	1980	Complete, filled transport packages - General rules for the compilation of performance test schedules - Part 2: Quantitative data	EN 24180-2	1992

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¹⁾ Undated reference.

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IEC 60068-2-31

Edition 2.0 2008-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

BASIC SAFETY PUBLICATION

PUBLICATION FONDAMENTALE DE SÉCURITÉ

Environmental testing –
Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens

Essais d'environnement –
Partie 2-31: Essais – Essai Ec: Choc lié à des manutentions brutales, essai destiné en premier lieu aux matériels

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

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CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references	5
3 General description of test.....	6
4 Initial measurements	8
5 Testing	8
5.1 Drop and topple.....	8
5.1.1 Description	8
5.1.2 Test Facility.....	8
5.1.3 Testing procedures.....	8
5.2 Free fall – Procedure 1.....	9
5.2.1 Description	9
5.2.2 Test Facility.....	9
5.2.3 Test severity.....	9
5.2.4 Testing procedures.....	9
5.3 Free fall repeated – Procedure 2.....	10
5.3.1 Description	10
5.3.2 Test facility.....	10
5.3.3 Test severity.....	10
5.3.4 Testing procedure.....	10
6 Final measurements	10
7 Information to be included in the relevant specification.....	11
7.1 Drop and topple test.....	11
7.2 Free fall and free fall repeated tests	11
8 Information to be given in the test report	11
Annex A (normative) Test apparatus for repeated free fall test – Procedure 2.....	13
Annex B (informative) Selection of test severities for free fall tests – Guidance	15
Figure 1 – Dropping on to a face.....	7
Figure 2 – Dropping on to a corner	7
Figure 3 – Topple (or push over).....	7
Figure A.1 – Rotating (or tumbling) barrel	14
Table 1 – Fall heights versus mass	9
Table B.1 – Examples of typical test severities	16

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ENVIRONMENTAL TESTING –

**Part 2-31: Tests –
Test Ec: Rough handling shocks,
primarily for equipment-type specimens**

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.
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- 9) 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 60068-2-31 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 1969 and constitutes a technical revision.

The major changes with regard to the previous edition concern the introduction of soft packaging tests, where appropriate. This new edition of IEC 60068-2-31 now incorporates the second edition of IEC 60068-2-32 (1975).

IEC 60068-2-32 will be withdrawn once this standard has been issued.

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

FDIS	Report on voting
104/458/FDIS	104/462/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.

It has the status of a basic safety publication in accordance with IEC Guide 104.

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.

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ENVIRONMENTAL TESTING –

Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens

1 Scope

This part of IEC 60068 deals with a test procedure for simulating the effects of rough handling shocks, primarily in equipment-type specimens, the effects of knocks, jolts and falls which may be received during repair work or rough handling in operational use.

This procedure does not simulate the effects of impacts received during transportation as loosely constrained cargo. Where the effects of loose cargo transportation are to be assessed, test Ee: Bounce should be used. Also this procedure does not simulate the effects of shock applied to installed equipments. Where this effect is to be assessed refer to test Ea: Shock.

Testing should only be specified for equipment likely to receive such rough handling, for example those of small to medium size and mass, and should only be applied to those faces and corners where there is a risk of such treatment being encountered.

In general, equipment which is frequently handled and serviced (for example field equipment and unit spares) can be considered at risk, whereas equipment forming an integral part of a permanent installation would not normally be considered at risk and need not be tested.

Testing may not be applicable to fragile unprotected equipment of irregular shape (for example aircraft nose radar) which, when removed from the installation would be contained in a handling frame or jig. It may however be applicable to these items of equipment when they are in their transit case or in their handling frame or jig.

For equipment which stands only on one face (for example the normal base) the test is generally only applied to that face.

Shock tests are performed on the specimen when fixed to the test machine. Drop and topple, free fall, repeated free fall and bounce tests are performed with the specimen free.

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 60068-2-27, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60068-2-55:1987, *Environmental testing – Part 2-55: Tests – Test Ee and guidance: Bounce*

IEC Guide 104, *The preparation of safety publications and the use of basic safety publications and group safety publications*

ISO 48:2007, *Rubber, vulcanized or thermoplastic – Determination of hardness (hardness between 10 IRHD and 100 IRHD)*