BS EN 60068-2-55:2013

BSI Standards Publication

Environmental testing

Part 2-55: Tests — Test Ee and guidance — Loose cargo testing including bounce

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National foreword

This British Standard is the UK implementation of EN 60068-2-55:2013. It is identical to IEC 60068-2-55:2013. It supersedes BS EN 60068-2-55:1993 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee GEL/104, Environmental conditions, classification and testing.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct applica-

Published by BSI Standards Limited 2013

ISBN 978 0 580 70518 2

ICS 19.040; 29.020

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 May 2013.

Amendments issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60068-2-55

May 2013

ICS 19.040; 29.020

Supersedes EN 60068-2-55:1993

English version

Environmental testing - Part 2-55: Tests - Test Ee and guidance - Loose cargo testing including bounce

(IEC 60068-2-55:2013)

Essais d'environnement - Partie 2-55: Essais - Essai Ee et guide - Essais de chargement sans arrimage y compris l'essai de rebondissement (CEI 60068-2-55:2013)

Umgebungseinflüsse - Teil 2-55: Prüfverfahren - Prüfung Ee und Leitfaden: Prüfung loser Packstücke einschließlich Prellen (IEC 60068-2-55:2013)

This European Standard was approved by CENELEC on 2013-03-13. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 60068-2-55:2013 E

Foreword

The text of document 104/592/FDIS, future edition 2 of IEC 60068-2-55, prepared by IEC TC 104 "Environmental conditions, classification and methods of test" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60068-2-55:2013.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2013-12-13
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-03-13

This document supersedes EN 60068-2-55:1993.

EN 60068-2-55:2013 includes the following significant technical changes with respect to EN 60068-2-55:1993:

This new edition allows for loose cargo testing in a more general sense. The test is no longer aligned with a special testing machine but allows for use of any suitable equipment such as electrodynamic or servo-hydraulic shaker tables. Moreover, sinusoidal and random vibration can be used. The previous rotation table motions are included in Annex A as historical methods.

This standard should be used in conjunction with EN 60068-1.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 60068-2-55:2013 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068-2-27	NOTE	Harmonized as EN 60068-2-27.
IEC 60068-2-31	NOTE	Harmonized as EN 60068-2-31.
IEC 60068-5-2	NOTE	Harmonized as EN 60068-5-2.
ISO/IEC 17025	NOTE	Harmonized as EN ISO/IEC 17025.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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.

Publication	Year	Title	EN/HD	Year
IEC 60068-1	-	Environmental testing - Part 1: General and guidance	EN 60068-1	-
IEC 60068-2-6	-	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-64	-	Environmental testing - Part 2-64: Tests - Test Fh: Vibration, broadband random and guidance	EN 60068-2-64	-
IEC 60068-2-80	-	Environmental testing - Part 2-80: Tests - Test Fi: Vibration - Mixed mode	EN 60068-2-80	-
ISO 13355	-	Packaging - Complete, filled transport packages and unit loads - Vertical random vibration test	EN ISO 13355	-
ASTM D4169-09	-	Standard Practice for Performance Testing of Shipping Containers and Systems	-	-

CONTENTS

INTRODUCTION

This test is applicable to specimens which, during transportation on the load-carrying platform of wheeled vehicles either not fastened down or with some degree of freedom, may be subjected to dynamic stresses resulting from random shock conditions (bounce). The test may also be used as a simple means of assessing the satisfactory design of a specimen so far as its structural integrity is concerned.

NOTE In practice, this test is primarily applicable to equipment-type specimens and packages.

Although the test is performed using a vibrating platform, it is not considered as a vibration test, but as an impact test. Vibration tests should be conducted according to the appropriate standards from IEC 60068-2.

In Clause 11, specification writers will find a list of details to be considered for inclusion in specifications and, in Annex A, the necessary accompanying guidance.

ENVIRONMENTAL TESTING –

Part 2-55: Tests – Test Ee and guidance – Loose cargo testing including bounce

1 Scope

This part of IEC 60068 provides a standard procedure for determining the ability of a specimen to withstand specified severities of bounce, e. g. when transported as loose cargo on wheeled vehicles.

This test is primarily intended for specimens prepared for transportation, including specimens in their transport case when the latter may be considered as part of the specimen itself or packages. This test should not be used as a low-frequency vibration test.

Although primarily intended for electrotechnical products, this standard is not restricted to them and may be used in other fields where desired.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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*[1]

IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-64, *Environmental testing – Part 2-64: Tests – Test Fh: Vibration, broadband random and guidance*

IEC 60068-2-80, *Environmental testing – Part 2-80: Tests – Test Fi: Vibration – Mixed mode*

ISO 13355, *Packaging – Complete, filled transport packages and unit loads – Vertical random vibration test*

ASTM D4169-09, *Standard Practice for Performance Testing of Shipping Containers and Systems*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
bounce testing machine
testing machine with a vibrating platform driven by rotating shafts and eccentrics

Note 1 to entry: Bounce testing machines typically have a fixed displacement amplitude and a variable frequency.

[1] A new edition of IEC 60068-1 is currently under consideration.