Packaging - Complete, filled transport packages and unit loads - Vertical random vibration test (ISO 13355:2016)

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NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 13355:2016 sisaldab Euroopa standardi EN ISO 13355:2016 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 13355:2016 consists of the English text of the European standard EN ISO 13355:2016.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 24.08.2016.	Date of Availability of the European standard is 24.08.2016.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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English Version

Packaging - Complete, filled transport packages and unit loads - Vertical random vibration test (ISO 13355:2016)

Emballages - Emballages d'expédition complets et pleins et charges unitaires - Essais de vibration verticale aléatoire (ISO 13355:2016)

Verpackung - Versandfertige Packstücke und Ladeeinheiten - Schwingprüfung mit vertikaler rauschförmiger Anregung (ISO 13355:2016)

This European Standard was approved by CEN on 23 August 2016.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN ISO 13355:2016) has been prepared by Technical Committee ISO/TC 122 “Packaging” in collaboration with Technical Committee CEN/TC 261 “Packaging” the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2017, and conflicting national standards shall be withdrawn at the latest by February 2017.

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

This document supersedes EN ISO 13355:2003.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 13355:2016 has been approved by CEN as EN ISO 13355:2016 without any modification.

Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 122, *Packaging*, Subcommittee SC 3, *Performance requirements and tests for means of packaging, packages and unit loads*.

This second edition cancels and replaces the first edition (ISO 13355:2003), which has been technically revised.

Some of the major modification points are listed as follows:

a) Annex A has been changed from Informative to Normative;

b) in Table A.1, 0,048 $(m/s^2)^2$ at 3 Hz, Slope between 3 Hz to 6 Hz, 1,154 $(m/s^2)^2$ at 6 Hz to 18 Hz has been changed to 0,048 $(m/s^2)^2$ at 2 Hz, Slope between 2 Hz to 4 Hz, 1,154 $(m/s^2)^2$ at 4 Hz to 18 Hz;

c) Annex B has been added.

Introduction

A random vibration test is a more realistic method in reproducing environmental vibration during transportation than sinusoidal vibration test. For this reason, if suitable laboratory facilities are available, a vibration test is more preferable than any fixed or swept frequency sinusoidal vibration tests similar to those given in ISO 2247 and ISO 8318.

Packaging — Complete, filled transport packages and unit loads — Vertical random vibration test

1 Scope

This International Standard specifies a method to carry out a vertical random vibration test on a complete, filled transport package(s) and unit loads using random excitation[1)]. This document also provides methods for assessing the performance of a package in terms of its strength or the protection that it offers to its contents when it is subjected to vertical vibration. The test discussed in this document can be performed either as a single test to investigate the effects of vertical vibration, or as a part of a sequence of tests designed to measure the ability of a test specimen to withstand a distribution system that includes a vibration hazard.

NOTE In this International Standard, a package or unit load is referred to as test specimen.

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.

ISO 2206, *Packaging — Complete, filled transport packages — Identification of parts when testing*

ISO 2233, *Packaging — Complete, filled transport packages and unit loads — Conditioning for testing*

ISO 2234, *Packaging — Complete, filled transport packages and unit loads — Stacking tests using a static load*

3 Principle

The test specimen is placed on a vibration table and made to vibrate using random excitation with an effective frequency range for the test specimen. Atmospheric conditions, test duration, acceleration power spectral density, attitude of the test specimen and method of restraint are predetermined.

Specific requirements for mounting a test specimen on the vibrating platform are given in ISO 4180:2009, 10.7.1.

NOTE When required, a load is superimposed on the test specimen to simulate the conditions at the bottom of a stack.

4 Apparatus

4.1 Vibration table

A table of sufficient size and performance (in terms of power, displacement, frequency range) capable of being stiff (its lower resonant frequency shall be higher than the higher test frequency) and remaining horizontal during the test.

1) Random vibration theory is discussed in IEC 60068-2-64.