

Australian Standard®

**Complete, filled transport packages—
Methods of test****Method 17: Vertical random vibration test**

PREFACE

This Standard was prepared by Standards Australia Committee PK-012, Physical Testing of Packages and Containers, as an additional part to the AS 2582 series of test methods. It is identical with and has been reproduced from ISO 13355:2001, *Packaging—Complete, filled transport packages and unit loads—Vertical random vibration test*.

As this Standard is reproduced from an International Standard, the following modifications apply:

- (a) Its number does not appear on each page of text and its identity is shown on the cover and title page.
- (b) In the source text, ‘this International Standard’ should read ‘this Australian Standard.’
- (c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to equivalent Australian Standards as follows:

<i>Reference to International Standard</i>		<i>Australian Standard</i>	
ISO		AS	
2206	Packaging—Complete, filled transport packages—Identification of parts when testing	2582	Complete, filled transport packages—Methods of test
		2582.1	Method 1: Identification of parts when testing
2233	Packaging—Complete, filled transport packages and unit loads—Conditioning for testing	2582.2	Method 2: Conditioning for testing
2234	Packaging—Complete, filled transport packages and unit loads—Stacking tests using a static load	2582.3	Method 3: Stacking tests using a static load

INTRODUCTION

A random vibration test is the most realistic way to reproduce environmental vibration during transportation. For this reason, if suitable laboratory facilities are available, this kind of test should be preferred to any fixed or swept frequency sinusoidal vibration tests similar to those given in ISO 2247 [1] and ISO 8318 [2].

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 a random excitation¹⁾.

This test may be used to assess 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. It may 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 item to withstand a distribution system that includes a vibration hazard.

NOTE In the following text a package or unit load is called a test item.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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 item is placed on a vibration table and made to vibrate using a random excitation with frequency between 3 Hz and 200 Hz. The atmospheric conditions, the duration of the test, the acceleration power spectral density, the attitude of the test item and its method of restraint are predetermined.

NOTE When required, a load may be superimposed on the test item to simulate conditions at the bottom of a stack.

4 Apparatus

4.1 Vibration 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.

The table may be equipped with the following components.

4.1.1 Low fences, restricting sideways and endways movements during testing.

1) The treatment of random vibration theory can be found in IEC 60068-2-64 (see reference [3] in the Bibliography).