AS 1099.2.31—1990
IEC 68-2-31(1969)

Australian Standard®

Basic environmental testing procedures for electrotechnology

Part 2: Tests
1099.2.31: Test Ec—Drop and topple, primarily for equipment

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Aerospace Technologies of Australia

Confederation of Australian Industry

Department of Administrative Services—Australian Construction Services

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PREFACE

This Standard was prepared by the Standards Australia Committee on Environmental Testing Procedures to supersede AS 1099.2Ec—1971 *Test Ec, Drop and topple*. This edition is identical with and reproduced from IEC 68-2-31 as amended by AMDT No 1(1982).

The object of the Standard is to determine the effects upon the equipment of simple standard tests intended to be representative of knocks and jolts likely to occur during handling on a table or bench. Tests of this type may be used to demonstrate the minimum degree of robustness required to assess safety requirements. The test is primarily intended for specimens in their transport case when the case may be considered part of the specimen itself.

For the purpose of this Australian Standard the IEC Publication used herein should be modified as follows.

Reference to International Standards		*Appropriate Australian Standard*	
IEC		AS	
68	Basic environmental testing procedures	1099	Basic environmental testing procedures for electrotechnology
68-1	Part 1: General and guidance	1099.1	Part 1: General
68-2	Part 2: Tests	1099.2	Part 2: Tests
68-2-27	Test Ea: Shock	1099.2.27	Test Ea: Shock
68-2-29	Test Eb: Bump	1099.2.28	Test Eb: Bump
68-2-32	Test Ed: Free fall	1099.2.32	Test Ed: Free fall
68-2-55	Test Ee: Bounce	1099.2.55	Test Ee: Bounce

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STANDARDS AUSTRALIA

Australian Standard

Basic Environmental Test Procedures For Electrotechnology

Part 2: Tests
1099.2.31: Test Ec—Drop and topple, primarily for equipment

This Standard shall be read in conjunction with AS 1099.1, General

1. **Object**

To assess the effects upon a specimen of simple standard tests intended to be representative of the knocks and jolts likely to occur during repair work or rough handling in use on a table or bench.

Tests of this type may also be used to demonstrate a minimum degree of robustness for the purpose of assessing safety requirements.

This test is primarily intended for specimens not in their packing and for items in their transport cases, when the latter may be considered as part of the specimens themselves.

2. **General**

The test includes three distinct procedures:

a) Dropping on to a face (Sub-clause 3.2.1).

b) Dropping on to a corner (Sub-clause 3.2.2).

c) Toppling (or pushover) (Sub-clause 3.2.3).

The purpose of each of these procedures is basically the same, but they represent different kinds of handling.

The test is not intended to be a precise test and a tolerance of ± 10% is allowed on the heights and angles prescribed in Clause 3.

Note. — For a more precise shock test, Test Ea: Shock (IEC Publication 68-2-27) should be used.

3. **Testing procedures**

3.1 *Initial measurements*

The specimen shall be visually examined and electrically and mechanically checked, as required by the relevant specification.

3.2 *Conditioning*

Having taken into account the manner in which the specimen will be handled in use and during repair, the relevant specification shall state the test procedure to be used and whether covers, cables, etc., are to be in position or not. The relevant specification shall also state whether the specimen is, or is not, operational during the test.

In the test procedures for dropping on to a face or corner, it is possible for the specimen to topple on to the next face instead of falling back on to the test face as intended. This shall be avoided by a suitable method.

In any of the test procedures, the specimen shall not be allowed to continue rolling about the next edge.

Where the number of bottom edges exceeds four, the number of drops or topples shall be limited to four and the relevant specification shall prescribe the edges to be used for the test.