

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**

This Australian Standard was prepared by Committee ET/5, Environmental Testing Procedures. It was approved on behalf of the Council of Standards Australia on 6 December 1989 and published on 4 June 1990.

The following interests are represented on Committee:

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.

| <i>Reference to International Standards</i> | | <i>Appropriate Australian Standard</i> | |
|---------------------------------------------|----------------------------------------|----------------------------------------|------------------------------------------------------------------|
| IEC | | AS | |
| 68 | Basic environmental testing procedures | 1099 | Basic environmental testing procedures for electronic technology |
| 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 |

CONTENTS

| | <i>Page</i> |
|------------------------------------------------------------------|-------------|
| 1 SCOPE | 3 |
| 2 GENERAL | 3 |
| 3 TESTING PROCEDURE | 3 |
| 4 INFORMATION TO BE INCLUDED IN THE RELEVANT SPECIFICATION | 4 |
| APPENDIX A. GUIDANCE | 6 |

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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 packaging 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 $\pm 10\%$ 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.