Australian Standard®

BASIC ENVIRONMENTAL TESTING PROCEDURES FOR ELECTROTECHNOLOGY
Part 2.27—TEST Ea: SHOCK

This Australian Standard was prepared by Committee ET/5, Environmental Testing Procedures. It was approved on behalf of the Council of the Standards Association of Australia on 21 April 1988 and published on 15 July 1988.

The following interests are represented on Committee ET/5:

Aerospace Industries of Australia

Confederation of Australian Industry

Department of Defence

Department of Housing and Construction

Electricity Supply Association of Australia

National Association of Testing Authorities

Society of Automotive Engineers, Australasia

Telecom Australia

The University of New South Wales

Australian Standard®

BASIC ENVIRONMENTAL TESTING PROCEDURES FOR ELECTROTECHNOLOGY
Part 2.27—TEST Ea: SHOCK

First published as AS 1099.2Ea—1971.
Revised and redesignated AS 1099.2.27—1988.

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140
ISBN 0 7262 5115 1

PREFACE

This Standard was prepared by the Association's Committee on Environmental Testing Procedures to supersede AS 1099.2Ea—1971, *Test Ea, Impact—Shock*. This edition is identical with IEC 68-2-27 (Third edition). The IEC page numbers are reproduced at the bottom left hand corner for reference.

The object of the Standard is to determine the suitability of components and equipment for applications where they are subjected to non-repetitive mechanical shocks to assess their structural integrity as a means of quality control.

The shocks are not intended to necessarily be those encountered in practice. Wherever possible, the test severity and the shape of the pulse applied should be such as to reproduce the effects of transport or operational environments to which the specimen will be subjected or to satisfy design requirements.

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

Terminology: The words 'Australian Standard' should replace the words ISO Standard or IEC Publication wherever they appear.

References: The references to International Standards shall be replaced by references to Australian Standards as follows:

Reference to International Standards		*Appropriate Australian Standard*	
IEC 68	Basic environmental testing procedures	AS 1099	Basic environmental testing procedures for electrotechnology
68-1	Part 1: General and guidance (1982)	AS 1099.1	Part 1: General
68-2	Part 2: Tests (1986)	AS 1099.2	Part 2: Tests
68-2-29	Test Eb and guidance: Bump (1986)	AS 1099.2.29	Test Eb: Bump
68-2-31	Test Ec: Drop and topple (1969)	AS 1099.2.31	Test Ec: Drop and topple
68-2-32	Test Ed: Free fall (1975)	AS 1099.2.32	Test Ed: Free fall
68-2-47	Mounting of components, equipment and other articles for dynamic tests	AS 1099.2.47	Mounting of components, equipment and other articles for dynamic tests
68-2-55	Test Ee and guidance: Bounce	AS 1099.2.55	Test Ee: Bounce
IEC 721.3.	Classification of environmental conditions, Part 3: Classification of groups of environmental parameters and their severities (1984)		No Australian equivalent
721.3.1	Storage (1987)		
721.3.5	Ground vehicle installation (1985)		
ISO 2041	Vibration and shock—Vocabulary (1975)	AS 2606	Vibration and shock—Vocabulary (1975)

CONTENTS

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
BASIC ENVIRONMENTAL TESTING PROCEDURES FOR ELECTROTECHNOLOGY

PART 2.27—TEST Ea: SHOCK

This test shall be read in conjunction with AS 1099.1, General.

1. **Object**

To provide a standard procedure for determining the ability of a specimen to withstand specified severities of shock.

2. **General description**

This standard is written in terms of prescribed pulse shapes. Guidance for the selection and application of these pulses is given in Appendix A and the characteristics of the different pulse shapes are discussed in Appendix B. Three types of pulse, namely the half-sine pulse, the final-peak saw-tooth pulse and the trapezoidal pulse are included in this standard. The choice of pulse shape depends on a number of factors, and the difficulties inherent in making such a choice preclude a preferred order being given in this standard (see Clause A3).

The purpose of the test is to reveal mechanical weakness and/or degradation in specified performance and to use this information, in conjunction with the relevant specification to decide whether a specimen is acceptable or not. It may also be used, in some cases, to determine the structural integrity of specimens or as a means of quality control (see Clause A2).

This test is primarily intended for unpackaged specimens and for items in their transport case when the latter may be considered as part of the specimen itself.

The shocks are not intended to reproduce those encountered in practice. Wherever possible, the test severity and the shape of the shock pulse applied to the specimen should be such as to reproduce the effects of the actual transport or operational environment to which the specimen will be subjected, or to satisfy the design requirements if the object of the test is to assess structural integrity (see Clauses A2 and A4).

For the purpose of this test the specimen is always fastened to the fixture or the table of the shock-testing machine during conditioning.