AS 60068.2.81—2004
IEC 60068-2-81:2003

AS 60068.2.81

Australian Standard™

Environmental testing

Part 2.81: Tests—Test Ei: Shock—Shock response spectrum synthesis

STANDARDS AUSTRALIA

This Australian Standard was prepared by Committee EL-026, Protective Enclosures and Environmental Testing for Electrical/Electronic Equipment. It was approved on behalf of the Council of Standards Australia on 3 May 2004 and published on 1 June 2004.

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Australian Chamber of Commerce and Industry

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Electrical Compliance Testing Association

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PREFACE

This Standard was prepared by the Standards Australia Committee EL-026, Protective Enclosures and Environmental Testing for Electrical/Electronic Equipment

The objective of this Standard is to provide the electrotechnology industry with a complete set of environmental test procedures published as a series under AS 60068 *Environmental testing*. This Standard is Part 2.81 of that series.

This Standard is identical with, and has been reproduced from, IEC 60068-2-81:2003, *Environmental testing – Part 2-81: Tests—Test Ei: Shock—Shock response spectrum synthesis*.

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

(a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.

(b) In the source text 'this international standard' should read 'this Australian Standard'.

(c) A full point should be substituted for a comma when referring to a decimal marker.

(d) Any French text on figures should be ignored.

In this Standard, the following print types are used:

– requirements proper: in arial type;

– *test specifications: in italic type;*

– explanatory matter: in smaller arial type.

Any international Standard referenced should be replaced by an equivalent Australian Standard when one is available. The availability of equivalent Australian Standards can be determined either from the Standards Australia catalogue or from the Standards Australia website (www.standards.com.au).

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INTRODUCTION

This part of IEC 60068, designed for testing with a synthesized shock response spectrum (SRS) is intended for general application for components, equipment and other products, hereinafter referred to as “specimens”, when simulation of transient responses of a complex nature is required. The test method centres on the use of SRS and techniques associated with SRS.

The purpose of the test is to demonstrate the adequacy of the test specimen to resist the specified transient excitation, without unacceptable degradation of its functional and/or structural performance. It is particularly useful for tailoring shock responses where measured data are available from the operational environment. However, the test is applicable to any transient excitation within the limits of the testing apparatus.

The test method is based primarily on the use of an electrodynamic or a servo-hydraulic vibration generator with an associated computer-based control system used as a shock testing system.

Other shock testing machines may be used, provided they fulfil the requirements of this standard.

It is emphasized that SRS synthesis testing always demands a certain degree of engineering judgement. Both supplier and purchaser should be fully aware of this fact. The writer of the relevant specification is expected to select the testing procedure and the values of severity appropriate to the specimen and its use.

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1 Scope

This part of IEC 60068 specifies tests using a synthesized shock response spectrum (SRS). It is intended for general application to specimens when simulation of transient excitation of a complex nature is required.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-1:1988, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-6:1995, *Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-27:1987, *Basic environmental testing procedures – Part 2: Tests – Test Ea and guidance: Shock*

IEC 60068-2-47:1999, *Environmental testing – Part 2-47: Test methods – Mounting of components, equipment and other articles for vibration, impact and similar dynamic tests*

IEC 60068-2-57:1999, *Environmental testing – Part 2-57: Tests – Test Ff: Vibration – Time-history method*

IEC 60068-2-64:1993, *Environmental testing – Part 2: Test methods – Test Fh: Vibration, broad-band random (digital control) and guidance*

ISO 266:1997, *Acoustics – Preferred frequencies*

ISO 2041:1990, *Vibration and shock – Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 2041, IEC 60068-1, IEC 60068-2-6, IEC 60068-2-27, IEC 60068-2-57 and IEC 60068-2-64, together with the following definitions, apply.

3.1
–3 dB bandwidth
frequency bandwidth between two points in a frequency response function which is 0,707 of the maximum response when associated with a single resonance peak