

Australian Standard™

**Environmental testing**

**Part 2.77: Tests—Test 77: Body strength  
and impact shock**

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 5 July 2004. This Standard was published on 10 August 2004.

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The following are represented on Committee EL-026:

Australian Chamber of Commerce and Industry  
Australian Electrical and Electronic Manufacturers Association  
Electrical Compliance Testing Association  
Electrical Regulatory Authorities Council  
Energy Supply Association of Australia  
Testing Interests (Australia)

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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 2.77 of that series.

This Standard is identical with, and has been reproduced from, IEC 60068-2-77:1999, *Environmental testing – Part 2-77: Tests—Test 77 – Body strength and impact shock*.

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

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## STANDARDS AUSTRALIA

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**Australian Standard****Environmental testing****Part 2.77: Tests—Test 77: Body strength and impact shock**

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**1 Scope and object**

This part of IEC 60068 provides test methods applicable to surface mounting devices (SMDs) made of glass or sintered materials such as capacitors, resistors and inductors incorporating ferrites. Two test methods exist: body strength and impact shock.

The object of both tests is to evaluate the mechanical stresses applied to SMDs during and after mounting; these tests look at different mechanical stresses. The relevant component specification shall specify which test method or methods are applicable.

**2 Normative references**

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60068. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 60068 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 IEC and ISO maintain registers of currently valid International Standards.

IEC 60194:—, *Terms and definitions for printed circuits*

**3 Terms and definitions**

For the purpose of this part of IEC 60068, the terms and definitions given in IEC 60194 apply.

**4 Test methods****4.1 Body strength**

This test evaluates the strength of the body of the SMD against external static forces which are applied to them during mounting, in the direction perpendicular to the printed board on which the SMDs are mounted.

NOTE: This test evaluates the sturdiness of the body of the SMDs and not the adhesive strength at the interface between the termination and solder of the body. These latter tests are described in IEC 60068-2-21.

This test simulates the static force applied to SMDs during picking up and centering in a placement process with a rather slow speed mounting machine in which the forces are mainly of a static nature.

A static force can have a different influence on a device from that of a dynamic force, whose effects can be evaluated by a test separately described as an impact shock test. This simulates the mechanical stress applied to the SMDs, during and after mounting the SMDs on a printed board. This test shall be referred to in the relevant detail specification.