

Australian Standard™

**Environmental testing**

**Part 2.40: Tests—Test Z/AM: Combined  
cold/low air pressure tests**

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 21 October 2003 and published on 1 December 2003.

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The following are represented on Committee EL-026:

Australian Chamber of Commerce and Industry  
Australian Electrical and Electronic Manufacturer's Association  
Electrical Compliance Testing Association  
Electrical Regulatory Authorities Council  
Electricity Supply Association of Australia  
Testing Interests (Australia)

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**Part 2.40: Tests—Test Z/AM: Combined cold/low air pressure tests**

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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 2.40 of that series.

This Standard is identical with, and has been reproduced from, IEC 60068-2-40:1976, *Environmental testing – Part 2-40: Tests—Test Z/AM: Combined cold/low air pressure tests* incorporating Amendment 1:1983.

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](http://www.standards.com.au)).

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## STANDARDS AUSTRALIA

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**Australian Standard****Environmental testing****Part 2.40: Tests—Test Z/AM: Combined cold/low air pressure tests**

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**1 Introduction****1.1 General**

This publication deals with combined cold (with gradual or rapid change of temperature) and low air pressure tests for both heat-dissipating and non-heat-dissipating specimens (see sub-clauses 8.2.2 and 8.2.8).

The object of the test is to determine the ability of components or equipment or other articles to be stored and used under a simultaneous combination of low temperature and low air pressure.

This combined test should normally be used only if the effects of combined environments will not be revealed by subjecting the specimen to single environments. The procedures given in this publication are limited to the case of specimens which achieve temperature stability during the test procedure.

In the case of testing heat-dissipating specimens, this procedure applies only to the testing of one specimen at a time.

**1.2 Low air pressure**

The test procedure applies to air pressure down to about 10 mbar. At air pressures below 10 mbar, phenomena not taken into account in the design of this test procedure become important.

The relationship between altitude, pressure and temperature has not been indicated in this publication. Such data should be obtained from special publications.

**1.3 Temperature**

1.3.1 The guidance given in the introduction to IEC 60068-2-1 for the application of tests for non-heat-dissipating specimens versus tests for heat-dissipating specimens shall apply.

NOTE – Non-heat-dissipating specimens are defined as in clause 4 of IEC 60068-1. The measurement of hottest spot temperature must not be made at low pressure.

1.3.2 Heat-dissipating specimens should preferably be tested with no forced air circulation as for Tests A: Cold.

**1.4 Related documents**

IEC 60068: Basic environmental testing procedure.

IEC 60068-1: Part 1: General.

IEC 60068-2-1: Part 2: Tests – Tests A: Cold.

IEC 60068-2-13: Part 2: Tests – Test M: Low air pressure

IEC 60068-3-1: Part 3: Background information – Section One: Cold and dry heat tests.