AS 60068.2.48—2003
IEC 60068-2-48:1982

Australian Standard™

Environmental testing

Part 2.48: Tests—Guidance on the application of the tests of AS 60068 to simulate the effects of storage

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 21 October 2003 and published on 1 December 2003.

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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PREFACE

This Standard was prepared by the Standards Australia Committee EL-026, Protective Enclosures and Environmental Testing for Electrical/Electronic Equipment to supersede AS 1099.2.48 *Basic environmental testing procedures for electrotechnology* Part 2.48: *Guidance on the application of Tests A, B, and Ca to simulate the effects of storage.*

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 2.48 of that series.

This Standard is identical with, and has been reproduced from, IEC 60068-2-48:1982, *Environmental testing – Part 2-48: Tests—Guidance on the application of the tests of IEC 60068 to simulate the effects of storage*.

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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1 Definition of storage

In this guide the term "storage" describes the keeping of components, equipment or other articles for relatively long periods of time (ranging from some weeks to many years) in a non-operating mode, and:

a) in the environmental conditions typical of industrial warehouses, retail stores, etc., or

b) in reserve or emergency equipment or plant, for example, fire alarms, auxiliary motors, stand-by generators, etc.; in this case, the product may be subjected to particularly severe environmental stresses due to operation of the surrounding plant, or

c) in installations which take a long time to complete, where the initial environment may be much more severe than the operational environment, e.g. large telephone switching offices, large computer installations, power stations, etc.

NOTE – Reference should be made to specialized standards for environmental data relative to these conditions.

2 Definition and object of a "storage test"

A "storage test" is intended to simulate the effects of one or more environmental stresses acting on products during their normal storage life, and when the assumption of fatigue accumulation is likely, to establish whether:

a) storage prevents the use of the product in its intended application, for example the solderability characteristics of component leads or printed circuit boards are worsened, the drift of electrical parameters is excessive, open circuits or short circuits are caused, or

b) significant performance and/or reliability degradation occurs for products operated after storage, or

c) for emergency equipment, the ability of products to function correctly and reliably is not impaired after prolonged non-operation.

NOTE – For the reliability determination of relatively new products or those stored for long periods, and for the determination of functioning reliability after storage, reference should be made to the IEC standards dealing with reliability and maintainability.

3 Examples of degradation mechanisms and of failure types under storage conditions

The following are typical examples of failure mechanisms and failure types occurring as a result of storage:

3.1 Component leads and printed circuit board solderability can be degraded due to oxidation or diffusion processes between base material and overplating. These processes are accelerated by heat, resulting in the formation of surfaces with greatly reduced solderability. Humid corrosion phenomena, perhaps accelerated by polluting substances in the atmosphere, may also be active.

3.2 Other examples of failure mechanisms due to humidity changes are: