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Australian STANDARD

Electromagnetic compatibility (EMC)

Part 4.5: Testing and measurement techniques—Surge immunity test

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AS IEC 61000.4.5:2017

Australian Standard®

Electromagnetic compatibility (EMC)

Part 4.5: Testing and measurement techniques—Surge immunity test

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PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee TE-003, Electromagnetic Compatibility, to supersede AS/NZS 61000.4.5:2006, *Electromagnetic compatibility (EMC),* Part 4.5: *Testing and measurement technique—Surge immunity test.* After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to provide guidance in relation to the immunity requirements, test methods, and range of recommended test levels for equipment with regard to unidirectional surges caused by over-voltages from switching and lightning transients.

This Standard is identical with, and has been reproduced from IEC 61000-4-5:2014 (ED.3.0), *Electromagnetic compatibility (EMC),* Part 4-5: *Testing and measurement techniques—Surge immunity test.*

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

(a) In the source text 'this part of 61000' should read 'this Australian Standard'.

(b) A full point substitutes for a comma when referring to a decimal marker.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the annex to which they apply. A 'normative' annex is an integral part of a Standard, whereas an 'informative' annex is only for information and guidance.

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INTRODUCTION

IEC 61000 is published in separate parts according to the following structure:

Part 1: General

General considerations (introduction, fundamental principles)

Definitions, terminology

Part 2: Environment

Description of the environment

Classification of the environment

Compatibility levels

Part 3: Limits

Emission limits

Immunity limits (insofar as they do not fall under the responsibility of the product committees)

Part 4: Testing and measurement techniques

Measurement techniques

Testing techniques

Part 5: Installation and mitigation guidelines

Installation guidelines

Mitigation methods and devices

Part 6: Generic standards

Part 9: Miscellaneous

Each part is further subdivided into several parts, published either as international standards or as technical specifications or technical reports, some of which have already been published as sections. Others will be published with the part number followed by a dash and a second number identifying the subdivision (example: IEC 61000-6-1).

This part is an International Standard which gives immunity requirements and test procedures related to surge voltages and surge currents.

AUSTRALIAN STANDARD

Electromagnetic compatibility (EMC)

Part 4.5: Testing and measurement techniques—Surge immunity test

1 Scope and object

This part of IEC 61000 relates to the immunity requirements, test methods, and range of recommended test levels for equipment with regard to unidirectional surges caused by over-voltages from switching and lightning transients. Several test levels are defined which relate to different environment and installation conditions. These requirements are developed for and are applicable to electrical and electronic equipment.

The object of this standard is to establish a common reference for evaluating the immunity of electrical and electronic equipment when subjected to surges. The test method documented in this part of IEC 61000 describes a consistent method to assess the immunity of an equipment or system against a defined phenomenon.

NOTE As described in IEC Guide 107, this is a basic EMC publication for use by product committees of the IEC. As also stated in Guide 107, the IEC product committees are responsible for determining whether this immunity test standard is applied or not, and if applied, they are responsible for determining the appropriate test levels and performance criteria. TC 77 and its sub-committees are prepared to co-operate with product committees in the evaluation of the value of particular immunity test levels for their products.

This standard defines:

– a range of test levels;
– test equipment;
– test setups;
– test procedures.

The task of the described laboratory test is to find the reaction of the equipment under test (EUT) under specified operational conditions to surge voltages caused by switching and lightning effects.

It is not intended to test the capability of the EUT's insulation to withstand high-voltage stress. Direct injections of lightning currents, i.e. direct lightning strikes, are not considered in this standard.

2 Normative references

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

IEC 60050 (all parts), *International Electrotechnical Vocabulary (IEV)* (available at www.electropedia.org)