

Australian/New Zealand Standard™

**Electromagnetic compatibility (EMC)**

**Part 2.14: Environment—Overvoltages  
on public electricity distribution  
networks**



## **AS/NZS IEC/TR 61000.2.14:2009**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-034, Power Quality. It was approved on behalf of the Council of Standards Australia on 3 June 2009 and on behalf of the Council of Standards New Zealand on 19 June 2009.

This Standard was published on 15 July 2009.

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First published as AS/NZS IEC/TR 61000.2.14:2009.

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Jointly published by Standards Australia, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 9199 9

## PREFACE

This Technical Report was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-034, Power Quality. This document is informative and of a more descriptive nature than a normative Standard.

The objective of this Technical Report is to provide the users of electromagnetic emissions Standards and the users of electrical and electronic equipment intended for connection to low- and medium-voltage operated electricity supply networks with a description of various phenomena and processes that cause overvoltages.

This Technical Report is identical with, and has been reproduced from IEC/TR 61000-2-14: Ed. 1.0 (2006), *Electromagnetic compatibility (EMC)—Part 2.14: Environment—Overvoltages on public electricity distribution networks*.

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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 (in so far 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: 61000-6-1).

## STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

**Australian/New Zealand Standard****Electromagnetic compatibility (EMC)****Part 2.14: Environment—Overvoltages on public electricity distribution networks**

Any table, figure or text of the international standard that is struck through is not part of this standard. Any Australian/New Zealand table, figure or text that is added is part of this standard and is identified by shading.

**1 Scope**

This part of IEC 61000 describes the electromagnetic environment with respect to the voltages in excess of normal that are found on electricity supply networks operating at low and medium nominal voltages and that can be impressed on equipment connected to those networks, without considering further effects (e.g. amplification or attenuation) within an installation. Since these overvoltages have the potential to hinder the functioning of electrical and electronic equipment, they fall within the definition of *electromagnetic disturbance* in the field of EMC. Various categories of overvoltage are described based on relative magnitude, duration and energy content.

This Technical Report describes the phenomena of overvoltages, it does not specify compatibility levels and does not directly specify emission and immunity levels.

The report describes the various phenomena and processes that cause overvoltages, including the transfer into the networks concerned of overvoltages that originate in or traverse other networks and installations, including higher voltage networks and the installations of electricity users. The effects of overvoltages on equipment are outlined. Some case studies of overvoltage events are presented.

Recommendations are made regarding the general technical approach to mitigating the risk of equipment being hindered from operating as intended by the effects of overvoltages. (It is not the function of IEC publications to assign responsibility for mitigating measures to any of the parties involved.)

The purpose of this report is to ensure that this important category of electromagnetic disturbance is included in the description of the environment in Part 2 of IEC 61000. For that purpose, only a brief description is provided of the various overvoltages and their causes and effects. A much more detailed treatment can be found in IEC 62066. A UIE publication – *Guide to quality of electrical supply for industrial installations, Part VI: Transient and temporary overvoltages and currents* – has a similar content. Measurement methods are specified in IEC 61000-4-30.

NOTE: This Technical Report does not include detailed measurement results for overvoltages, therefore it is not possible to provide an assessment of the probability of occurrence.

**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 60050-161, *International Electrotechnical Vocabulary (IEV) – Chapter 161: Electromagnetic compatibility*