

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



BASIC EMC PUBLICATION

PUBLICATION FONDAMENTALE EN CEM

**Electromagnetic compatibility (EMC) –  
Part 4-4: Testing and measurement techniques – Electrical fast transient/burst  
immunity test**

**Compatibilité électromagnétique (CEM) –  
Partie 4-4: Techniques d'essai et de mesure – Essai d'immunité aux transitoires  
électriques rapides en salves**



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTROMAGNETIC COMPATIBILITY (EMC) –****Part 4-4: Testing and measurement techniques –  
Electrical fast transient/burst immunity test**

## FOREWORD

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International Standard IEC 61000-4-4 has been prepared by subcommittee 77B: High frequency phenomena, of IEC technical committee 77: Electromagnetic compatibility.

It forms Part 4-4 of IEC 61000. It has the status of a basic EMC publication in accordance with IEC Guide 107, *Electromagnetic compatibility – Guide to the drafting of electromagnetic compatibility publications*.

This third edition cancels and replaces the second edition published in 2004 and its amendment 1 (2010) and constitutes a technical revision.

This third edition improves and clarifies simulator specifications, test criteria and test setups.

The text of this standard is based on the following documents:

FDIS	Report on voting
77B/670/FDIS	77B/673/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The list of all currently available parts of the IEC 61000 series, under the general title *Electromagnetic compatibility (EMC)*, can be found on the IEC web site.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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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 are 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 electrical fast transients/bursts.

## ELECTROMAGNETIC COMPATIBILITY (EMC) –

### Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test

#### 1 Scope

This part of IEC 61000 relates to the immunity of electrical and electronic equipment to repetitive electrical fast transients. It gives immunity requirements and test procedures related to electrical fast transients/bursts. It additionally defines ranges of test levels and establishes test procedures.

The object of this standard is to establish a common and reproducible reference in order to evaluate the immunity of electrical and electronic equipment when subjected to electrical fast transient/bursts on supply, signal, control and earth ports. 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.<sup>1</sup>

The standard defines:

- test voltage waveform;
- range of test levels;
- test equipment;
- calibration and verification procedures for test equipment;
- test setups;
- test procedure.

The standard gives specific actions for laboratory and in situ tests.

#### 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 60050-161:1990, *International Electrotechnical Vocabulary – Chapter 161: Electromagnetic compatibility*

#### 3 Terms, definitions and abbreviations

##### 3.1 Terms and definitions

For the purposes of this document, the terms and definitions of IEC 60050-161, as well as the following apply.

<sup>1</sup> TC 77 and its subcommittees are prepared to co-operate with product committees in the evaluation of the value of particular immunity tests for their products.