

INTERNATIONAL STANDARD

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BASIC EMC PUBLICATION

**Electromagnetic compatibility (EMC) -
Part 4-29: Testing and measurement techniques - Voltage dips, short
interruptions and voltage variations on d.c. input power port immunity tests**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**Electromagnetic compatibility (EMC) -
Part 4-29: Testing and measurement techniques -
Voltage dips, short interruptions and voltage variations
on DC input power port immunity tests**

FOREWORD

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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 61000-4-29:2000. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

IEC 61000-4-29 has been prepared by subcommittee 77A: EMC – Low frequency phenomena, of IEC technical committee 77: Electromagnetic compatibility. It is an International Standard.

It forms part 4-29 of IEC 61000. It has the status of a basic EMC publication in accordance with IEC Guide 107.

This second edition cancels and replaces the first edition published in 2000. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) Increase of the output voltage of the test generator to take into account new DC networks voltages;
- b) provision of tolerances for the duration of the voltage changes;
- c) limitation of the current when applying short interruptions in low impedance condition;
- d) general technical clarifications for the specifications of the test generator and their verification;
- e) clarifications regarding the loads used to verify the switching characteristics and the peak inrush current drive capability of the test generator;
- f) clarifications regarding the evaluation of test results and test reports;
- g) description of the DC environment.

The text of this International Standard is based on the following documents:

Draft	Report on voting
77A/1276/CDV	77A/1282/RVC

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 61000 series, published under the general title *Electromagnetic compatibility (EMC)*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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: IEC 61000-6-1).

This part is an international standard which gives ~~test procedures related to~~ immunity requirements for testing DC equipment and systems with voltage dips, ~~short~~ interruptions and ~~voltage~~ variations on the DC input power ports.

1 ~~Scope and object~~

This part of IEC 61000 defines test methods for immunity to voltage dips, short interruptions and voltage variations at the DC input power port of electrical or electronic equipment.

This document is applicable to ~~low voltage d.c. power ports of equipment supplied by external d.c. networks~~ equipment and systems whose DC input power ports are intended to be connected to low voltage DC networks external to the equipment and systems.

The object of this document is to establish a common and reproducible basis for testing electrical and electronic equipment when subjected to voltage dips, short interruptions or voltage variations on DC input power ports.

This document defines:

- the range of test levels;
- the test generator;
- the test set-up;
- the test procedure.

The test described hereinafter applies to electrical and electronic equipment and systems. It also applies to modules or subsystems whenever the equipment under test's (EUT) rated power is greater than the test generator capacity specified in Clause 6.

The ripple at the DC input power port is not included in the scope of this document. It is covered by IEC 61000-4-17.

This document does not specify the tests to be applied to particular apparatus or systems. Its main aim is to give a general basic reference to IEC product committees. These product committees (or users and manufacturers of equipment) remain responsible for the appropriate choice of the tests and the severity level to be applied to their equipment.

2 Normative references

~~The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61000. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 61000 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.~~

~~IEC 60050(161), International Electrotechnical Vocabulary (IEV) — Chapter 161: Electromagnetic compatibility~~

~~IEC 61000-4 11, Electromagnetic compatibility (EMC) — Part 4: Testing and measuring techniques — Section 11: Voltage dips, short interruptions and voltage variations immunity tests~~

There are no normative references in this document.

Bibliography

IEC 60038:2021, *IEC standard voltages*

IEC 60050-161:1990, *International Electrotechnical Vocabulary (IEV) - Part 161: Electromagnetic compatibility*

IEC 61000-4-11, *Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current up to 16 A per phase*

IEC 61000-4-17, *Electromagnetic compatibility (EMC) - Part 4-17: Testing and measurement techniques - Ripple on d.c. input power port immunity test*

IEC SRD 63317:2025, *Low-voltage direct current (LVDC) industry applications*