

Electromagnetic compatibility (EMC) —

**Part 4-28: Testing and measurement
techniques — Variation of power
frequency, immunity test for
equipment with input current not
exceeding 16 A per phase**

ICS 33.100.20

National foreword

This British Standard is the UK implementation of EN 61000-4-28:2000+A2:2009. It is identical with IEC 61000-4-28:1999, incorporating amendments 1:2001 and 2:2009. It supersedes BS EN 61000-4-28:2000+A1:2004, which will be withdrawn on 1 March 2012.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to IEC text carry the number of the IEC amendment. For example, text altered by IEC amendment 1 is indicated by **A1** **A1**.

The UK participation in its preparation was entrusted by Technical Committee GEL/210, EMC-Policy committee, to Subcommittee GEL/210/12, EMC basic, generic and low frequency phenomena Standardization.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

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English version

**Electromagnetic compatibility (EMC) —
Part 4-28: Testing and measurement techniques —
Variation of power frequency, immunity test
for equipment with input current not
exceeding 16 A per phase
(IEC 61000-4-28:1999)**

Compatibilité électromagnétique (CEM)
Partie 4-28: Techniques d'essai et de
mesure — Essai d'immunité à la variation
de la fréquence d'alimentation
(CEI 61000-4-28:1999)

Elektromagnetische Verträglichkeit (EMV)
Teil 4-28: Prüf- und Messverfahren —
Prüfung der Störfestigkeit gegen
Schwankungen der energietechnischen
Frequenz (Netzfrequenz)
(IEC 61000-4-28:1999)

This European Standard was approved by CENELEC on 2000-01-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 77A/287/FDIS, future edition 1 of IEC 61000-4-28, prepared by SC 77A, Low-frequency phenomena, of IEC TC 77, Electromagnetic compatibility, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61000-4-28 on 2000-01-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2000-10-01
- latest date by which national standards conflicting with the EN have to be withdrawn (dow) 2003-01-01

Annexes designated “normative” are part of the body of the standard.

Annexes designated “informative” are given for information only.

In this standard, Annex ZA is normative and Annexes A and B are informative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61000-4-28:1999 was approved by CENELEC as a European Standard without any modification.

Foreword to amendment A1

The text of amendment 1:2001 to the International Standard IEC 61000-4-28:1999, prepared by SC 77B, High frequency phenomena, of IEC TC 77, Electromagnetic compatibility, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as amendment A1 to EN 61000-4-28:2000 on 2004-04-01 without any modification.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2005-05-01
- latest date by which national standards conflicting with the amendment have to be withdrawn (dow) 2007-05-01

Endorsement notice

The text of the amendment 1:2001 to the International Standard IEC 61000-4-28:1999 was approved by CENELEC as an amendment to the European Standard without any modification.

Foreword to amendment A2

The text of document 77A/673/FDIS, future amendment 2 to IEC 61000-4-28:1999, prepared by SC 77A, Low frequency phenomena, of IEC TC 77, Electromagnetic compatibility, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A2 to EN 61000-4-28:2000 on 2009-03-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2009-12-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2012-03-01

Endorsement notice

The text of amendment 2:2009 to the International Standard IEC 61000-4-28:1999 was approved by CENELEC as an amendment to the European Standard without any modification.

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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 Standard, 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 completed by a second number identifying the subdivision.