

# Electromagnetic compatibility (EMC) —

## Part 6-1: Generic standards — Immunity for residential, commercial and light-industrial environments

The European Standard EN 61000-6-1:2001, with the incorporation of  
Amendment A1:2001, has the status of a British Standard

ICS 33.100.20

# National foreword

This British Standard is the official English language version of EN 61000-6-1:2001. It was derived by CENELEC from IEC 61000-6-1:1997. It supersedes BS EN 50082-1:1998 which will be withdrawn on 2004-07-01.

The CENELEC common modifications have been implemented at the appropriate places in the text and are indicated by common modification tags **Ⓒ** **Ⓔ**

NOTE In July 2005 CENELEC issued an Interpretation Sheet 1, this is included before Annex ZA at the end of the standard.

The UK participation in its preparation was entrusted by Technical Committee GEL/210, EMC-Policy, to Subcommittee GEL/210/12, Basic and Generic standards, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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

From 1 January 1997, all IEC publications have the number 60000 added to the old number. For instance, IEC 27-1 has been renumbered as IEC 60027-1. For a period off time during the change over from one numbering system to the other, publications may contain identifiers from both systems.

## Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

**Compliance with a British Standard does not of itself confer immunity from legal obligations.**

## Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 18, an inside back cover, and a back cover.

The BSI copyright date displayed in this document indicates when the document was last issued.

## Amendments issued since publication

| Amd. No. | Date         | Comments                                    |
|----------|--------------|---------------------------------------------|
| 16356    | 30 June 2006 | Inclusion of CENELEC Interpretation Sheet 1 |
|          |              |                                             |
|          |              |                                             |
|          |              |                                             |

This British Standard, having been prepared under the direction of the Electrotechnical Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 23 October 2001

© BSI 2006

ISBN 0 580 38590 6

EUROPEAN STANDARD

**EN 61000-6-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2001

ICS 33.100

Supersedes EN 50082-1:1997

English version

**Electromagnetic compatibility (EMC)  
Part 6-1: Generic standards -  
Immunity for residential, commercial and  
light-industrial environments  
(IEC 61000-6-1:1997, modified)**

Compatibilité électromagnétique (CEM)  
Partie 6-1: Normes génériques -  
Immunité pour les environnements  
résidentiels, commerciaux et de  
l'industrie légère  
(CEI 61000-6-1:1997, modifiée)

Elektromagnetische Verträglichkeit (EMV)  
Teil 6-1: Fachgrundnormen -  
Störfestigkeit -  
Wohnbereich, Geschäfts- und  
Gewerbebereiche sowie Kleinbetriebe  
(IEC 61000-6-1:1997, modifiziert)

This European Standard was approved by CENELEC on 2001-07-03. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

**CENELEC**

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

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

© 2001 CENELEC - All rights of exploitation in any form and by any means reserved worldwide for CENELEC members.

Ref. No. EN 61000-6-1:2001 E

**AVA** Documents  
Document Sharing Hub

## **Foreword**

The text of the International Standard IEC 61000-6-1:1997, prepared by IEC TC 77, Electromagnetic compatibility, together with the common modifications prepared by the Technical Committee CENELEC TC 210, Electromagnetic compatibility (EMC), was submitted to the formal vote and was approved by CENELEC as EN 61000-6-1 on 2001-07-03.

This European Standard supersedes EN 50082-1:1997.

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) 2002-04-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2004-07-01

Annexes designated "normative" are part of the body of the standard.

In this standard, annex ZA is normative.

Annex ZA has been added by CENELEC.

## **Endorsement notice**

The text of the International Standard IEC 61000-6-1:1997 was approved by CENELEC as a European Standard with agreed common modifications as given below.

## CONTENTS

|                                                                                                                                 | Page |
|---------------------------------------------------------------------------------------------------------------------------------|------|
| INTRODUCTION .....                                                                                                              | 4    |
| Clause                                                                                                                          |      |
| 1 Scope and object .....                                                                                                        | 5    |
| 2 Normative references .....                                                                                                    | 6    |
| 3 Definitions .....                                                                                                             | 7    |
| 4 Description of locations .....                                                                                                | 7    |
| 5 Performance criteria .....                                                                                                    | 8    |
| 6 Conditions during testing .....                                                                                               | 9    |
| 7 Product documentation .....                                                                                                   | 10   |
| 8 Applicability .....                                                                                                           | 10   |
| 9 Immunity test requirements .....                                                                                              | 10   |
| Tables                                                                                                                          |      |
| 1 Immunity – Enclosure port .....                                                                                               | 11   |
| 2 Immunity – Ports for signal lines and control lines .....                                                                     | 12   |
| 3 Immunity – DC input and d.c. output power ports .....                                                                         | 13   |
| 4 Immunity – Input and output a.c. power ports .....                                                                            | 14   |
| 5 Immunity – Functional earth ports .....                                                                                       | 15   |
| Interpretation Sheet 1.....                                                                                                     | 16   |
| Annex ZA (normative) Normative references to international publications with their<br>corresponding European publications ..... | 18   |

## 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 sections which can be published either as International Standards or technical reports.

**ELECTROMAGNETIC COMPATIBILITY (EMC) –**  
**Part 6: Generic standards –**  
**Section 1: Immunity for residential, commercial**  
**and light-industrial environments**

**1 Scope and object**

This section of IEC 61000-6 for EMC immunity requirements applies to electrical and electronic apparatus intended for use in residential, commercial and light-industrial environments, as described in clause 4, for which no dedicated product or product-family immunity standard exists.

Immunity requirements in the frequency range 0 Hz to 400 GHz are covered.

Where a relevant dedicated product or product-family EMC immunity standard exists, it shall take precedence over all aspects of this generic standard.

This standard applies to apparatus intended to be directly connected to a low-voltage public mains network or connected to a dedicated d.c. source which is intended to interface between the apparatus and the low-voltage public mains network. This standard applies also to apparatus which is battery operated or is powered by a non-public, but non-industrial, low-voltage power distribution system if this apparatus is intended to be used in the locations described in clause 4.

Apparatus intended to be connected to an industrial power network and apparatus intended to be operated in an industrial environment are covered by the industrial generic standard, IEC 61000-6-2.

The object of this standard is to define the immunity test requirements for apparatus defined in the scope in relation to continuous and transient, conducted and radiated disturbances including electrostatic discharges.

These test requirements represent essential electromagnetic compatibility immunity requirements.

The immunity requirements have been selected to ensure an adequate level of immunity for apparatus at residential, commercial and light-industrial locations. The levels do not however cover extreme cases which may occur at any location but with an extremely low probability of occurrence. Not all disturbance phenomena have been included for testing purposes in this standard but only those considered as relevant for the equipment covered by this standard.

Test requirements are specified for each port considered.

NOTE – In special cases, situations will arise where the levels of disturbances may exceed the test levels specified in this standard; for example where a hand-held transmitter is used in proximity to an apparatus. In these instances, special mitigation measures may have to be employed.