



# SLOVENSKI STANDARD SIST EN 50082-1:1997

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Electromagnetic compatibility - Generic immunity standard -- Part 1: Residential, commercial and light industry

Elektromagnetische Verträglichkeit (EMV) - Fachgrundnorm Störfestigkeit -- Teil 1: Wohnbereich, Geschäfts- und Gewerbebereiche sowie Kleinbetriebe

Compatibilité électromagnétique - Norme générique immunité -- Partie 1: Résidentiel, commercial et industrie légère

Ta slovenski standard je istoveten z: EN 50082-1:1997

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**ICS:**

33.100.20      Imunost      Immunity

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EUROPEAN STANDARD

EN 50082-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 1997

ICS 33.100

Supersedes EN 50082-1:1992

Descriptors: Radio disturbances, electromagnetic compatibility, tests, equipment protection

English version

## Electromagnetic compatibility - Generic immunity standard Part 1: Residential, commercial and light industry

Compatibilité électromagnétique  
Norme générique immunité  
Partie 1: Résidentiel, commercial et  
industrie légère

Elektromagnetische  
Verträglichkeit (EMV)  
Fachgrundnorm Störfestigkeit  
Teil 1: Wohnbereich, Geschäfts- und  
Gewerbebereiche sowie Kleinbetriebe



**REPUBLIKA SLOVENIJA**  
**MINISTRSTVO ZA ZNANOST IN TEHNOLOGIJO**  
Urad RS za standardizacijo in meroslovje  
LJUBLJANA

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PREVZET PO METODI RAZGLASITVE -11- 1997

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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.

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# 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

### Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 210, EMC.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50082-1 on 1997-03-11.

This European Standard supersedes EN 50082-1:1992 and its corrigendum February 1992.

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) 1998-03-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2001-07-01

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## 1 Scope

This standard for EMC immunity requirements applies to electrical and electronic apparatus intended for use in the residential, commercial and light-industrial environment, as described in Clause 5, for which no dedicated product or product-family immunity standard exists.

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

Immunity requirements in the frequency range 0 Hz to 400 GHz are covered. No measurements need to be performed at frequencies where no requirements are specified.

This standard applies to apparatus intended to be directly connected to a public low-voltage 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 5.

Apparatus intended to be connected to an industrial power network and apparatus intended to be operated in an industrial environment as described in EN 50082-2 are covered by that generic standard.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Title</u>	<u>EN/HD</u>
IEC 50(161)	International Electrotechnical Vocabulary Chapter 161: Electromagnetic compatibility	-
IEC 1000-4-2	Electromagnetic compatibility (EMC) Part 4: Testing and measurement techniques Section 2: Electrostatic discharge immunity test	EN 61000-4-2
IEC 1000-4-3 (mod)	Section 3: Radiated, radio-frequency electromagnetic field, immunity test	EN 61000-4-3
IEC 1000-4-4	Section 4: Electrical fast transient/burst immunity test	EN 61000-4-4
IEC 1000-4-5	Section 5: Surge immunity test	EN 61000-4-5
IEC 1000-4-6	Section 6: Conducted disturbances induced by radio-frequency fields - immunity test	EN 61000-4-6

<u>Publication</u>	<u>Title</u>	<u>EN/HD</u>
IEC 1000-4-8	Section 8: Power-frequency magnetic field immunity test	EN 61000-4-8
IEC 1000-4-11	Section 11: Voltage dips, short interruptions and voltage variations immunity test	EN 61000-4-11
CISPR 22	Limits and methods of measurement of radio interference characteristics of information technology equipment	EN 55022
-	Radiated electromagnetic field from digital radio telephones - Immunity test.	ENV 50204:1995

### 3 Objective

The objective 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 1: Safety considerations are not covered in this standard.

NOTE 2: 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.

### 4 Definitions

Definitions related to EMC and to relevant phenomena may be found in the EC Council Directives, in chapter 161 of the IEC (IEC 50) and in IEC and CISPR Publications. The definitions stated in EC Council Directive 89/336/EEC take precedence.

*The following particular definitions are used in this standard:*

**port:** Particular interface of the specified apparatus with the external electromagnetic environment (see figure 1).

**enclosure port:** The physical boundary of the apparatus which electromagnetic fields may radiate through or impinge on.

**cable port:** A point at which a conductor or a cable is connected to the apparatus. Examples are signal, control and power ports.

**public mains network:** Electricity lines to which all categories of consumers have access and which are operated by a supply or distribution undertaking for the purpose of supplying electrical energy.

**functional earth port:** A point on the apparatus which is connected to earth for purposes other than electrical safety.

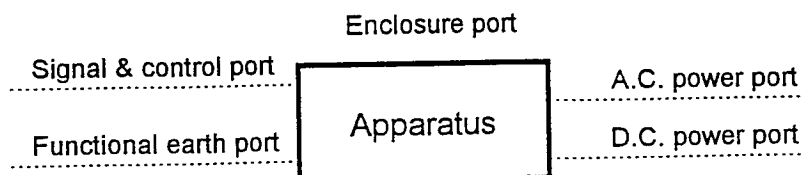


Figure 1: Examples of ports

## 5 Description of locations

The environments encompassed by this standard are residential, commercial and light-industrial locations, both indoor and outdoor. The following list, although not comprehensive, gives an indication of locations which are included:

- residential properties, e.g. houses, apartments;
- retail outlets, e.g. shops, supermarkets;
- business premises, e.g. offices, banks;
- areas of public entertainment, e.g. cinemas, public bars, dance halls;
- outdoor locations, e.g. petrol stations, car parks, amusement and sports centres;
- light-industrial locations, e.g. workshops, laboratories, service centres.

Locations which are characterised by being supplied directly at low voltage from the public mains network are considered to be residential, commercial or light industrial.

## 6 Performance criteria

The variety and the diversity of the apparatus within the scope of this document makes it difficult to define precise criteria for the evaluation of the immunity test results.

If as a result of the application of the tests defined in this standard the apparatus becomes dangerous or unsafe then the apparatus shall be deemed to have failed the test.

A functional description and a definition of performance criteria, during or as a consequence of the EMC testing, shall be provided by the manufacturer and noted in the test report, based on the following criteria:

**Performance criterion A:** The apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer then either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.

**Performance criterion B:** The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer then either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.

**Performance criterion C:** Temporary loss of function is allowed, provided the function is self recoverable or can be restored by the operation of the controls.

## 7 Conditions during testing

The tests shall be made in the frequency bands being investigated, with the EUT in the most susceptible operating mode consistent with normal applications. The configuration of the test sample shall be varied to achieve maximum susceptibility.

If the apparatus is part of a system, or can be connected to auxiliary apparatus, the apparatus shall be tested while connected to the minimum representative configuration of auxiliary apparatus necessary to exercise the ports in a similar manner to that described in EN 55022.

In cases where a manufacturer's specification specifically requires external protection devices or measures which are clearly specified in the user's manual, the test requirements of this standard shall be applied with the external protection devices or measures in place.

The configuration and mode of operation during the tests shall be precisely noted in the test report. It is not always possible to test every function of the apparatus, in such cases the most critical mode of operation shall be selected.

If the apparatus has a large number of similar ports or ports with many similar connections, a sufficient number shall be selected to simulate actual operating conditions and to ensure that all the different types of termination are covered.

The tests shall be carried out within the operating ranges of temperature, humidity and pressure specified for the product and at the rated supply voltage, unless otherwise indicated in the basic standard.

## 8 Product documentation

If the manufacturer is using his own specification for an acceptable level of EMC performance or degradation of EMC performance during or after the testing required by this standard, this specification shall be made available upon request.



## 9 Applicability

The application of tests for evaluation of immunity depends on the particular apparatus, its configuration, its ports, its technology and its operating conditions.

Tests shall be applied to the relevant ports of the apparatus according to tables 1 to 5. Tests shall only be carried out where the relevant ports exist.

It may be determined from consideration of the electrical characteristics and usage of a particular apparatus that some of the tests are inappropriate and therefore unnecessary. In such a case it is required that the decision and justification not to test shall be recorded in the test report.

## 10 Immunity test requirements

The immunity test requirements for apparatus covered by this standard are given on a port by port basis.

Tests shall be conducted in a well-defined and reproducible manner.

The tests shall be carried out as single tests in sequence. The sequence of testing is optional.

The description of the test, the test generator, the test methods, and the test set-up to be used are given in basic standards which are referred to in the following tables.

The contents of these basic standards are not repeated here, however modifications or additional information needed for the practical application of the tests are given in this standard.

[SIST EN 50082-1:1997](https://standards.iteh.ai/catalog/standards/sist/001fc2e9-2dfb-46b9-86ff-2453637801c/sist-en-50082-1-1997)

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