



SLOVENSKI STANDARD

SIST EN 50081-1:1995

01-april-1995

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

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

Elektromagnetische Verträglichkeit - Fachgrundnorm Störaussendung -- Teil 1: Wohnbereich, Geschäfts- und Gewerbebereiche sowie Kleinindustrie

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

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 50081-1

January 1992

UDC 621.37.001.365

Descriptors: Radiodisturbances, electromagnetic compatibility, tests, equipment protection

English version

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

Compatibilité électromagnétique
Norme générique émission
Partie 1: Résidentiel, commercial,
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This European Standard was approved by CENELEC on 10 December 1991. 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, 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

Foreword

The present European Standard was prepared by the CENELEC Technical Committee TC 110. It was submitted to the CENELEC members for Unique Acceptance in February 1991 and was approved by all members, **with the exception of Austria**, as EN 50081-1 on 10 December 1991.

The following dates were fixed:

- latest date of publication
of an identical national standard (dop) 1992-06-01
- latest date of withdrawal
of conflicting national standards (dow) 1992-12-31

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GENERIC EMISSION STANDARD

1 Scope

This standard for emission 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 emission standard exists. Apparatus designed to radiate electromagnetic energy for radio communications purposes is excluded from this standard.

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

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

The emission requirements have been selected so as to ensure that disturbances generated by apparatus operating normally at residential, commercial and light-industrial locations do not exceed a level which could prevent other apparatus from operating as intended. Fault conditions of apparatus are not taken into account.

Apparatus installed in the locations covered by this standard are considered to be directly connected to low-voltage public mains supplies or to a dedicated DC source which is intended to interface between the apparatus and the low-voltage public mains supply. Apparatus intended to be connected to an industrial power network or to special power supply sources are covered by another generic standard.

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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	-
555	Disturbances in supply systems caused by household appliances and similar electrical equipment	
555-1	Part 1: Definitions	EN 60555-1
555-2 (mod)	Part 2: Harmonics	EN 60555-2
555-3	Part 3: Voltage fluctuations	EN 60555-3
CISPR 14 (mod)	Limits and methods of measurement of radio interference characteristics of household electrical appliances, portable tools and similar electrical apparatus	EN 55014
CISPR 22 (mod)	Limits and methods of measurement of radio interference characteristics of information technology equipment	EN 55022

3 Objective

The objective of this standard is to define limits and test methods for apparatus defined in the scope, in relation to electromagnetic emissions which may cause interference in other apparatus e.g. radio receivers.

These emission limits represent essential electromagnetic compatibility requirements.

Test requirements are specified for each port considered.

NOTE 1: The limits in this standard may not, however, provide full protection against interference to radio and television reception when the apparatus is used closer than 10 m to the receiving antenna(e).

NOTE 2: In special cases, for instance when highly susceptible apparatus is being used in proximity, additional mitigation measures may have to be employed to reduce the electromagnetic emission further below the specified levels.

4 Definitions

Definitions related to EMC and to relevant phenomena may be found in the EEC Directive, in chapter 161 of the IEV (IEC 50) and in IEC and CISPR Publications. The definitions stated in the 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 through which electromagnetic fields may radiate or impinge.

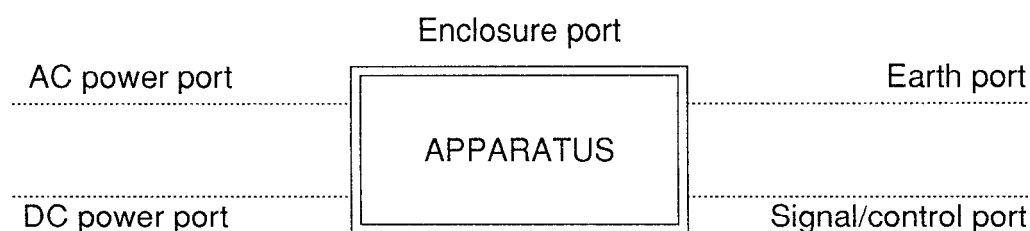


Figure 1: Examples of ports

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, etc.;
- retail outlets, e.g. shops, supermarkets, etc.;
- business premises, e.g. offices, banks, etc.;

- areas of public entertainment, e.g. cinemas, public bars, dance halls, etc.;
- outdoor locations, e.g. petrol stations, car parks, amusement and sports centres, etc.;
- light-industrial locations, e.g. workshops, laboratories, service centres, etc.

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

6 Conditions during measurement

The measurements shall be made in the operating mode producing the largest emission in the frequency band being investigated consistent with normal applications.

An attempt shall be made to maximize the emission by varying the configuration of the test sample.

If the apparatus is part of a system, or can be connected to auxiliary apparatus, then the apparatus shall be tested while connected to the minimum configuration of auxiliary apparatus necessary to exercise the ports in accordance with EN 55022.

The configuration and mode of operation during measurement shall be precisely noted in the test report.

If the apparatus has a large number of terminals, then 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 somewhere within the specified operating environmental range for the apparatus and at its rated supply voltage, unless otherwise indicated in the basic standard.

7 Documentation for the purchaser/user

7.1 Documentation which shall be supplied to the purchaser/user:

The purchaser/user shall be informed if special measures have to be taken to achieve compliance, e.g. the use of shielded or special cables.

7.2 Documentation which shall be available to the purchaser/user upon request:

A list of auxiliary apparatus which together with the apparatus comply with the emission requirements shall be made available.

8 Applicability

Measurements are made on the relevant ports of the apparatus according to table 1. Measurements 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 measurements are inappropriate and therefore unnecessary. In such a case it is required that the decision not to measure be recorded in the test report.

9 Emission limits

The emission limits for apparatus covered by this standard are given on a port by port basis.

Measurements shall be performed in well-defined and reproducible conditions for each type of disturbance.

The description of the test, the test methods, and the test set-up are given in basic standards which are referred to in table 1 and in table A.1.

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.

NOTE: The term "basic standard" has been used for want of a more suitable term. The standards referenced (EN 55014, EN 55022 & EN 60555) are stand-alone product-family standards. The reference to "basic standard" is intended to be limited to those parts of the standard that give the description of the test, the test methods and the test set-up.

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Table 1: Emission

Port	Frequency range	Limits	Basic Standard	Applicability note	Remarks
Enclosure	30 - 230 MHz 230 - 1000 MHz	30 dB(μ V/m) at 10 m 37 dB(μ V/m) at 10 m	EN 55022 Class B	See Note 1	The statistical evaluation in the basic standard applies
AC Mains	0 - 2 kHz		EN 60555-2 EN 60555-3	See Note 2	
	0,15 - 0,5 MHz limits decrease linearly with log. frequency	66-56 dB(μ V) quasi peak 56-46 dB(μ V) average	EN 55022 Class B		The statistical evaluation in the basic standard applies
	0,5 - 5 MHz	56 dB(μ V) quasi peak 46 dB(μ V) average			
	5 - 30 MHz	60 dB(μ V) quasi peak 50 dB(μ V) average			
	0,15 - 30 MHz	See basic standard Clause: discontinuous interference	EN 55014		
NOTE 1: Applicable only for apparatus containing processing devices, e.g. microprocessors, operating at frequencies greater than 9 kHz.					
NOTE 2: Applicable to apparatus covered within the scope of EN 60555-2 and EN 60555-3. Limits for apparatus not currently covered by EN 60555-2 and EN 60555-3 are under consideration.					