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Radijska oprema in sistemi (RES) - Elektromagnetna združljivost (EMC) opreme digitalnih izboljšanih brezvrvičnih telekomunikacij (DECT)

Radio Equipment and Systems (RES); Electro-Magnetic Compatibility (EMC) for Digital European Cordless Telecommunications (DECT) equipment

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33.100.01	Elektromagnetna združljivost na splošno	Electromagnetic compatibility in general

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Radio Equipment and Systems (RES); Electro-Magnetic Compatibility (EMC) for Digital European Cordless Telecommunications (DECT) equipment

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New presentation - see History box

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Foreword

This European Telecommunication Standard (ETS) was produced by the Radio Equipment and Systems (RES) Technical Committee of the European Telecommunications Standards Institute (ETSI).

Other standards cover radio communications equipment not listed in the scope.

This ETS is based upon the Generic Standards EN 50081-1 [1] and EN 50082-1 [2], the general standard ETS 300 339 [3] and other standards, where appropriate, to meet the protection requirements of the Council Directive 89/336/EEC [4].

Every ETS prepared by ETSI is a voluntary standard. This ETS contains text which may be used for regulatory purposes. This text does not make this ETS mandatory in its status as a standard. However, the ETS can be referenced, wholly or in part, for mandatory application by decisions of regulatory bodies.

Transposition dates	
Date of latest announcement of this ETS (doa):	28 February 1995
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 August 1995
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1 Scope

This European Telecommunication Standard (ETS) covers the assessment of radio communication and ancillary equipment in respect of Electro-Magnetic Compatibility (EMC).

This ETS specifies the minimum performance and the methods of measurements of EMC on Digital European Cordless Telecommunications (DECT) radio and ancillary equipment.

This ETS specifies the applicable EMC tests, the limits, and the performance criteria for digital radio equipment as described in ETS 300 175-2 [5] , and I-ETS 300 176 [6], operating in the frequency range 1 880 to 1 900 MHz, and for the associated ancillary equipment.

The environment classification used in this ETS refers to the environment classification used in the Generic Standards EN 50081-1 [1] and EN 50082-1 [2], except the vehicular environment class which refers to ISO 7637 [7].

The EMC requirements have been selected to ensure an adequate level of compatibility for apparatus at residential, commercial, light industrial and vehicular environments. The levels, however, do not cover extreme cases which may occur in any location but with a low probability of occurrence.

This ETS may not cover those cases where a potential source of interference, which is producing individually repeated transient phenomena, or a continuous phenomena, is permanently present, e.g. a radar or broadcast site in the near vicinity. In such a case it may be necessary to use special protection applied to either the source of interference, or the interfered part, or both.

Compliance of radio equipment to the requirements of this ETS does not signify compliance to any requirement related to the use of the equipment (i.e. licensing requirements).

Compliance to this ETS does not signify compliance to any safety requirements. However, it is the responsibility of the assessor of the equipment that any observation regarding the equipment becoming dangerous or unsafe as a result of the application of the tests of this ETS, should be recorded in the test report.

2 Normative references

This ETS 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 listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

[1] EN 50081-1 (1992): "Electromagnetic compatibility - Generic emission standard. Part 1: Residential, commercial and light industry".

[2] EN 50082-1 (1992): "Electromagnetic compatibility - Generic immunity standard. Part 1: Residential, commercial and light industry".

[3] Draft prETS 300 339 (1993): "Radio Equipment and Systems (RES) - General Electro-Magnetic Compatibility (EMC) for radio equipment".

[4] 89/336/EEC: "Council Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility".

[5] ETS 300 175-2 (1993): "Radio Equipment and Systems (RES) - Digital European Cordless Telecommunications (DECT) Common interface Part 2: Physical layer".

[6] I-ETS 300 176: "Radio Equipment and Systems (RES) - Digital European Cordless Telecommunications (DECT) Approval test specification".

[7] ISO 7637 (1990): "Road vehicles-Electrical disturbance by conducting and coupling" Part 1: "Passenger cars and light commercial vehicles with nominal 12 V supply voltage".

ISO 7637 (1990): "Road vehicles-Electrical disturbance by conducting and coupling" Part 2: "Commercial vehicles with nominal 24 V supply voltage-Electrical transient conduction along supply lines only".

[8] ETS 300 175-3: "Radio Equipment and Systems (RES) - Digital European Cordless Telecommunications (DECT) Common interface Part 3: Medium access control layer".

[9] CCITT Recommendation 0.153 (1988): "Basic parameters for the measurement of error performance at bit rates below the primary rates".

[10] EN 55022: "Limits and methods of measurement of radio interference characteristics of information technology equipment".

[11] CISPR Publication No. 16-1: "Specification for radio disturbance and immunity measuring apparatus and methods".

[12] ENV 50140: "Basic immunity standard - Radiated, radio frequency, electro-magnetic fields".

[13] IEC 801-2 (second edition 1991) Part 2: "Electrostatic discharge requirements".

[14] IEC 801-4 (1988) Part 4: "Electrical fast transients / burst requirements".

[15] ENV 50141: "Basic immunity standard - Conducted disturbances induced by radio-frequency fields".

[16] IEC 1000-4-11: "Voltage dips, short interruptions and voltage variations. Immunity tests".

[17] IEC 1000-4-5: "Surge immunity requirements".

3 Definitions

For the purposes of this ETS the following definitions apply:

ancillary equipment: Equipment (apparatus), used in connection with a receiver or transceiver is considered as an ancillary equipment (apparatus) if:

- the equipment is intended for use in conjunction with a receiver, or transceiver to provide additional operational and/or control features to the radio equipment (e.g. to extend control to another position or location); and

- the equipment cannot be used on a stand alone basis to provide user functions independently of a receiver or transceiver; and

- the receiver or transceiver to which it is connected, is capable of providing some intended operation such as transmitting and/or receiving without the ancillary equipment (i.e. it is not a sub-unit of the main equipment essential to the main equipment basic functions).

base station equipment: Used to describe DECT equipment including Fixed Parts (FPs) and/or Portable Parts (PPs) as defined in ETS 300 175-2 [5] which are powered via an ac power input port or a dc power input port.

DECT equipment: Apparatus which includes one or more transceivers and/or receivers and/or parts thereof which conform to the requirements of ETS 300 175-2 [5].

host equipment: Any equipment which has a complete user functionality when not connected to the DECT radio equipment, and to which the DECT radio equipment provides additional functionality, and to which connection is necessary for the DECT radio equipment to offer functionality.

integral antenna: An antenna designed to be connected to the equipment without the use of an external connector and considered to be part of the equipment. An integral antenna may be fitted internally or externally to the equipment.

manufacturer: The legal entity responsible under the terms of the Council Directive, 89/336/EEC [4], for placing the product on the market.

mobile equipment: Used to describe all DECT equipment powered by a vehicular power supply.

port: A particular interface of the specified equipment (apparatus) with the electro-magnetic environment.

portable equipment: Used to describe all DECT equipment powered by an internal battery.

NOTE: More than one of the equipment classifications may apply to certain equipment, as described in subclause 5.2, dependent upon the manufacturer's declaration of normal intended use.

4 General test conditions

4.1 Test conditions

The equipment shall be tested under normal test conditions contained in the relevant product and basic standards or in the information accompanying the equipment, which are within the manufacturers declared range of humidity, temperature, and supply voltage.

The test conditions shall be recorded in the test report.

The test configuration shall be as close to normal intended use as possible, and shall be recorded in the test report.

Whenever the EUT is provided with a detachable antenna, the EUT shall be tested with the antenna fitted in a manner typical of normal intended use.

For DECT equipment parts for which connection to a host equipment is necessary to offer functionality the test configuration shall be as defined in subclause 5.4.

4.2 Arrangements for test signals at the input of the transceiver

4.2.1 Loop back data

The normal test modulation shall be transmitted by the test system and looped back in the radio equipment, as described in ETS 300 175-3 [8] and I-ETS 300 176 [6].

4.2.2 Speech equipment

Audio input signals may be connected to the EUT either by a non-metallic acoustic tube or, if provided, electrical connections. The DECT equipment shall not be modified to provide any electrical connection ports for the purposes of this test. Suitable test arrangements for the acoustic tube are described in I-ETS 300 176 [6].

4.3 Normal test modulation

For all types of DECT equipment the wanted input signal shall be a RF carrier set to the nominal centre frequency of one of the DECT RF channels, using gaussian shaped frequency-shift keying (BT = 0,5) and modulated with a 1 152 kbit/s bit sequence.

The encoding of the bit sequence shall conform to the encoding specified in ETS 300 175-2 [5] and ETS 300 175-3 [8].