



SLOVENSKI STANDARD

SIST ETS 300 673:1999

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Radijska oprema in sistemi (RES) - Standard EMC za opremo VSAT (satelitski terminal z ozkim snopom), ki deluje na 4/6 GHz in 11/12/14 GHz, in za opremo prenosljivih zemeljskih postaj (TES) za satelitsko novinarstvo (SNG), ki delujejo na 11/12/13/14 GHz

Radio Equipment and Systems (RES); ElectroMagnetic Compatibility (EMC) standard for 4/6 GHz and 11/12/14 GHz Very Small Aperture Terminal (VSAT) equipment and 11/12/13/14 GHz Satellite News Gathering (SNG) Transportable Earth Station (TES) equipment

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**Radio Equipment and Systems (RES);
ElectroMagnetic Compatibility (EMC) standard for
4/6 GHz and 11/12/14 GHz Very Small Aperture Terminal (VSAT)
equipment and
11/12/13/14 GHz Satellite News Gathering (SNG)
Transportable Earth Station (TES) equipment**

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Foreword

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

This ETS is intended to become a Harmonized EMC Standard, the reference of which is intended to be published in the Official Journal of the European Communities referencing the Council Directive 89/336/EEC [3] (EMC Directive). Conformity to the Harmonized EMC Standard will confer presumption of compliance with the essential requirements of the EMC Directive.

The technical specifications which are relevant to the EMC Directive are listed in normative annex A of this ETS.

This ETS is based upon the Generic Standards EN 50081-1 [1] and EN 50082-1 [2] and other standards, where appropriate.

Transposition dates	
Date of adoption:	21 February 1997
Date of latest announcement of this ETS (doa):	30 June 1997
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 December 1997
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1 Scope

This European Telecommunication Standard (ETS) covers the assessment of Very Small Aperture Terminals (VSAT) and Satellite News Gathering (SNG) Transportable Earth Stations (TESs) communication equipment in respect of Electromagnetic Compatibility (EMC). Technical specifications related to the antenna port and emissions from the enclosure port of the equipment, for frequencies above 1 000 MHz, are not included in this ETS. Such specific technical specifications are found in the relevant product standards for the effective use of the radio spectrum.

This ETS specifies the applicable EMC tests, the limits, and the minimum performance criteria for the following Earth Stations (ES) as defined in annex B.

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].

The EMC requirements have been selected to ensure an adequate level of compatibility for apparatus in residential, commercial and light industrial 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 phenomenon is 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 VSAT equipment to the requirements of this ETS does not imply compliance to any requirement related to the use of the equipment (e.g. licensing requirements).

2 Normative references

This ETS incorporates by dated and 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 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] 89/336/EEC: "Council Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility" as amended by 92/31/EEC: "Council Directive amending 89/336/EEC".
- [4] EN 55022 (1994): "Limits and methods of measurement of radio disturbance characteristics of information technology equipment".
- [5] CISPR 16-1 (1993): "Specification for radio disturbance and immunity measuring apparatus and methods; Part 1: Radio disturbance and immunity measuring apparatus".
- [6] ENV 50140 (1993): "Electromagnetic Compatibility - Basic immunity standard - Radiated, radio-frequency electromagnetic field. Immunity test".
- [7] EN 61000-4-2 (1995): "Electromagnetic compatibility (EMC); Part 4: Testing and measurement techniques; Section 2: Electrostatic discharge immunity test; Basic EMC publication".
- [8] EN 61000-4-4 (1995): "Electromagnetic Compatibility (EMC); Part 4: Testing and measurements techniques - Section 4: Electrical fast transient/burst immunity test. Basic EMC publication".

- [9] EN 61000-4-6: "Electromagnetic Compatibility - Basic immunity standard - Conducted disturbances induced by radio-frequency fields. Immunity test".
- [10] EN 61000-4-11 (1994): "Electromagnetic Compatibility (EMC); Part 4: Testing and measurements techniques - Section 11: Voltage dips, short interruptions and voltage variations immunity tests - Basic EMC publication".
- [11] ENV 50142 (1994): "Electromagnetic Compatibility - Basic immunity standard. Surge immunity test".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETS, the following definitions apply:

ancillary equipment: An equipment used in connection with an ES is considered as ancillary if the following three conditions are met:

- the equipment is intended for use in conjunction with an ES to provide additional operational and/or control features (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 an ES; and
- the absence of the equipment does not inhibit the operation of the ES.

carrier-on state: A transmit ES is in this state when it is authorized to transmit, and when it transmits a signal, either authorized by a Centralized Control and Monitoring Function (CCMF) when designed for unattended operation or by local control when designed for attended operation.

carrier-off state: A transmit ES is in this state when it is authorized to transmit, and when it does not transmit any signal, either authorized by a CCMF when designed for unattended operation or by local control when designed for attended operation.

NOTE: The existence of a carrier-off state depends on the system of transmission used. For VSATs designed for continuous transmission mode there may be no carrier-off state.

enclosure port: The physical boundary of the apparatus through which an electromagnetic field may radiate or impinge (figure 1).

manufacturer (supplier): The legal entity responsible under the terms of the Council Directive, 89/336/EEC [3], for placing the product on the market.

port: A particular interface of the specified apparatus with the external electromagnetic environment (figure 1).

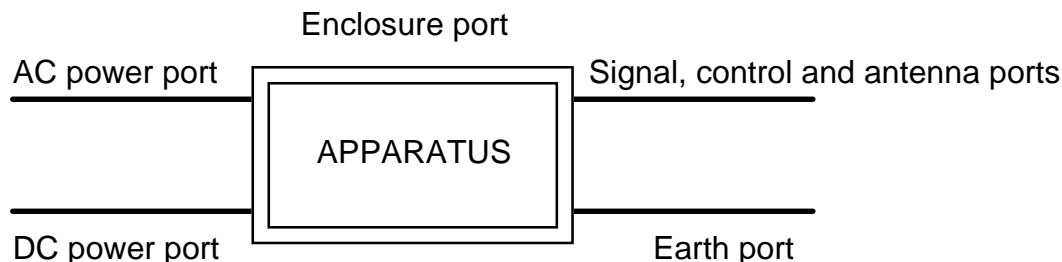


Figure 1: Examples of ports

transmission disabled state: A transmit ES is in this state when it is not authorized to transmit either by a CCMF when designed for unattended operation or by local control when designed for attended operation.

3.2 Abbreviations

For the purposes of this ETS, the following abbreviations apply:

CCMF	Centralized Control and Monitoring Functions
CMF	Control and Monitoring Functions
EIRP	Equivalent Isotropically Radiated Power
EMC	ElectroMagnetic Compatibility
ES	Earth Station
EUT	Equipment Under Test
LISN	Line Impedance Stabilizing Network
LNB	Low Noise Block converter
QTMA	Quality of Transmission Measurement Apparatus
RF	Radio Frequency
rms	root mean square
SNG	Satellite News Gathering
TES	Transportable Earth Station
VSAT	Very Small Aperture Terminal

4 General test conditions

4.1 Test conditions

For Earth Stations with or without ancillary equipment, and/or various terrestrial ports, the number of test configurations shall be determined. The assessment shall include sufficient representative configurations of the ES to adequately exercise the equipment. These configurations shall be recorded in the test report.

In the following clauses, the Equipment Under Test (EUT) is the ES with the selected configuration of ancillary equipment.

The equipment shall be tested under conditions which are within the manufacturers declared range of humidity, temperature, and supply voltage.

The test conditions shall be recorded in the test report.

4.2 Arrangements for tests

In order to measure the unwanted emissions and electromagnetic immunity under operational conditions, the following arrangements shall be provided by the manufacturer:

- a) a special test equipment to put the ES terminal in its normal operating mode, and providing the ES with a receive signal to emulate the operational conditions of reception. This equipment shall control the EUT, when it is capable of transmission, so that it switches between the transmission disabled, carrier-on and carrier-off states;
- b) the specific Quality of Transmission Measurement Apparatus (QTMA).

For the measurement of the quality of transmission a communications link shall be established and the wanted input signal shall be applied to the Radio Frequency (RF) input of the receiver via the antenna. For tests on the receiver, the level of the signal received from the test transmitter shall be as close as possible to the normal operation level of the EUT receiver. Care should be taken to avoid the broad band noise from the power amplifier of the test transmitter from influencing the measurement.

Adequate measures shall be taken to avoid the effects of the unwanted signal on the measuring equipment.

The special test equipment, the QTMA and the source of the wanted input signal shall be located outside the test environment. Adequate measures shall be taken to protect them from the effects of all the radiated fields within the test environment.