



SLOVENSKI STANDARD SIST EN 301 489-22:2001

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9`Y_fca U[bYfbUnXfi y`^j cghfØ A 7 L]b`nUXYj Yj`nj Yn]`n'fUX]`g_ Ja`gdY_fca`fØFA L!
GHUbXUfX`YY_fca U[bYfbY`nXfi y`^j cgh]`fØ A 7 L'nUfUX]`g_c`cdfYa c`]b`ghcf]`lj Y!`&&"
XY.`DcgYVbY`nU hYj Y`nUnYa Y`g_Y`fc bYža cV]`bY]b`Z_gbYfUX]`g_Y`cXXU`b]_Y]b
gdfY`Ya b]_Y`J<: `hf`gdfY`Ya bc!cXXU`bYfUX]`g_Y`dcghU`Y`J<: `nUYfcbUj`h] bY
i`g`i`[`Y`

Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 22: Specific conditions for ground based VHF aeronautical mobile and fixed radio equipment

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Candidate Harmonized European Standard (Telecommunications series)

**Electromagnetic compatibility
and Radio spectrum Matters (ERM);
ElectroMagnetic Compatibility (EMC) standard
for radio equipment and services;
Part 22: Specific conditions for ground-based VHF
aeronautical mobile and fixed radio equipment**

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Contents

Intellectual Property Rights	4
Foreword	4
1 Scope	6
2 References	6
3 Definitions and abbreviations	7
3.1 Definitions	7
3.2 Abbreviations	7
4 Test conditions	8
4.1 General	8
4.2 Arrangements for test signals	8
4.2.1 Arrangement for test signals at the input to the transmitter	8
4.2.2 Arrangements for test signals at the output from the transmitter	8
4.2.3 Arrangements for test signals at the input to the receiver	8
4.2.4 Arrangements for test signals at the output from the receiver	8
4.2.5 Arrangements for testing transmitters and receivers together (as a system)	8
4.3 RF exclusion band for radio communications equipment	9
4.3.1 Transmitter exclusion bands for EM emission measurements	9
4.3.2 Receiver exclusion bands for EM emission measurements	9
4.3.3 Transmitter exclusion bands for immunity tests	9
4.3.4 Receiver exclusion bands for immunity tests	9
4.4 Narrow band responses of receivers	9
4.5 Normal test modulation	10
5 Performance assessment	10
5.1 General	10
5.2 Equipment which can provide a continuous communications link	10
5.3 Equipment which does not provide a continuous or duty cycle communications link	11
5.4 Ancillary equipment	11
5.5 Equipment classification	11
6 Performance criteria	11
6.1 Performance criteria A for continuous phenomena applied to transmitters and receivers	12
6.2 Performance criteria B for transient phenomena applied to transmitters and receivers	12
6.3 Performance criteria C for immunity tests with power interruptions	12
6.4 Performance criteria for equipment which does not provide a continuous or duty cycle communications link	13
6.5 Performance criteria for ancillary equipment tested on a stand alone basis	13
7 Applicability overview	13
7.1 Emission	13
7.1.1 General	13
7.1.2 Special conditions	13
7.2 Immunity	13
7.2.1 General	13
7.2.2 Special conditions	13
Annex A (normative): Definitions of ground based aeronautical radio communications equipment in the scope of the present document	15
A.1 Ground based aeronautical VHF radio communications equipment	15
A.2 Ground based aeronautical VDL Mode 2 and VDL Mode 4 radio communications equipment	15
History	16

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Foreword

This Candidate Harmonized European Standard (Telecommunications series) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

The present document has been produced by ETSI in response to a mandate from the European Commission issued under the Council Directive 98/34/EC [7] (as amended) laying down a procedure for the provision of information in the field of technical standards and regulation.

The present document, together with EN 301 489-1 [1], is intended to become a Harmonized EMC Standard, the reference of which will be published in the Official Journal of the European Communities referencing the Council Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility (the "EMC Directive" 89/336/EEC [3] as amended), and the Council Directive on the approximation of the laws of the Member States relating to radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (the "R&TTE Directive" 1999/5/EC [2]).

The present document is part 22 of a multi-part deliverable covering the ElectroMagnetic Compatibility (EMC) standard for radio equipment and services, as identified below:

- Part 1: "Common technical requirements";
- Part 2: "Specific conditions for radio paging equipment";
- Part 3: "Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz";
- Part 4: "Specific conditions for fixed radio links and ancillary equipment and services";
- Part 5: "Specific conditions for Private land Mobile Radio (PMR) and ancillary equipment (speech and non-speech)";
- Part 6: "Specific conditions for Digital Enhanced Cordless Telecommunications (DECT) equipment";
- Part 7: "Specific conditions for mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS)";
- Part 8: "Specific conditions for GSM base stations";
- Part 9: "Specific conditions for wireless microphones and similar Radio Frequency (RF) audio link equipment";
- Part 10: "Specific conditions for First (CT1 and CT1+) and Second Generation Cordless Telephone (CT2) equipment";
- Part 11: "Specific conditions for FM broadcasting transmitters";
- Part 12: "Specific conditions for Earth Stations operated in the frequency ranges between 4 GHz and 30 GHz in the Fixed Satellite Service (FSS)";
- Part 13: "Specific conditions for Citizens' Band (CB) radio and ancillary equipment (speech and non-speech)";
- Part 15: "Specific conditions for commercially available amateur radio equipment";

- Part 16: "Specific conditions for analogue cellular radio communications equipment, mobile and portable";
- Part 17: "Specific conditions for Wideband data and HIPERLAN equipment";
- Part 18: "Specific conditions for Terrestrial Trunked Radio (TETRA) equipment";
- Part 19: "Specific conditions for Receive Only Mobile Earth Stations (ROMES) operating in the 1,5 GHz band providing data communications";
- Part 20: "Specific conditions for Mobile Earth Stations (MES) used in the Mobile Satellite Services (MSS)";
- Part 22: "Specific conditions for ground based VHF aeronautical mobile and fixed radio equipment".**

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Date of adoption of this EN:	17 November 2000
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1 Scope

The present document, together with EN 301 489-1 [1] covers the assessment of ground base station, ground mobile and hand-held/portable aeronautical VHF radio communications and associated ancillary equipment, in respect of ElectroMagnetic Compatibility (EMC).

Technical specifications related to the antenna port and emissions from the enclosure port of the radio equipment covered in this scope, are not included in the present document. Such technical specifications are found in the relevant product standards for the effective use of the radio spectrum.

The present document also covers EMC requirements for VDL Mode 2 and VDL Mode 4 ground base station radio equipment.

The present document specifies the applicable test conditions, performance assessment and performance criteria for ground based aeronautical radio equipment and associated ancillary equipment.

Definitions of types of ground base station, ground mobile and hand held/portable aeronautical VHF radio communications covered by the present document are given in annex A.

In case of differences (for instance concerning special conditions, definitions, abbreviations) between the present document and EN 301 489-1 [1], the provisions of the present document take precedence.

The environmental classification and the emission and immunity requirements used in the present document are as stated in EN 301 489-1 [1], except for any specific conditions included in the present document.

The EMC requirements have been selected to ensure an adequate level of compatibility for apparatus within aerodrome, en route, vehicular and hand held/portable operational environments. The levels, however, do not cover extreme cases which may occur in any location but with a low probability of occurrence.

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2 References

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The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

- [1] ETSI EN 301 489-1 (V1.2.1) (2000): "Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements".
- [2] 1999/5/EEC: "Council Directive on the approximation of the laws of the Member States relating to radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity".
- [3] 89/336/EEC: "Council Directive on the approximation of the laws of the member states relating to electromagnetic compatibility".
- [4] ETSI EN 300 676 (V1.2.1) (2000): "Ground based VHF hand held, mobile and fixed radio transmitters, receivers and transceivers for the VHF aeronautical mobile service using amplitude modulation; Technical characteristics and methods of measurement".
- [5] ITU R Radio Regulations 1 - 18 (1998).

- [6] ITU-T Recommendation P.53: "Psophometer for use on telephone-type circuits".
- [7] Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in EN 301 489-1 [1], clause 3 and the following apply or take precedence over those in EN 301 489-1 [1].

base station: aeronautical radio equipment, used in the aeronautical mobile service, for use with an external antenna and intended for use at a fixed location

integral antenna equipment: radio communications equipment with an antenna integrated into the equipment without the use of an external connector and considered to be part of the equipment. An integral antenna may be internal or external to the equipment. In equipment of this type, a 50 Ω RF connection point shall be provided for test purposes

necessary bandwidth: for a given class of emission, the width of the frequency band which is just sufficient to ensure the transmission of information at the rate and with the quality required under specified conditions (ITU-R Radio Regulations [5], clause 146)

occupied bandwidth: width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage $\beta/2$ of the total mean power of a given emission. Unless otherwise specified by ITU-R for the appropriate class of emission, the value of $\beta/2$ should be taken as 0,5 % (ITU-R Radio Regulations [5])

simplex: instantaneous one-way communications link

product standard: functional standard describing frequency management parameters of radio product

operating frequency range: range(s) of continuous radio frequencies covered by the Equipment Under Test (EUT)

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AC	Alternating Current
AM	Amplitude Modulation
BW	Bandwidth
BER	Bit Error Ratio
DC	Direct Current
DSB	Double Side Band full carrier
D8PSK	Differentially Encoded 8 Phase Shift Keying
EM	ElectroMagnetic
EMC	ElectroMagnetic Compatibility
EMF	ElectroMotive Force
EUT	Equipment Under Test
Fc	Centre of transmitter necessary bandwidth
GFSK	Gaussian Frequency Shift Keying
PEP	Peak Envelope Power
RF	Radio Frequency
rms	root mean of squares
TDM	Time Division Multiplexed
VDL	VHF Digital Link
VHF	Very High Frequency