



**SLOVENSKI STANDARD**  
**SIST EN 300 220-2 V1.3.1:2003**  
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9`Y\_fca U[ bYfbUnXfi y`fj cgh]b`nUXYj Yj`nj Yn]`nfUX]`g\_`ja `gdY\_fca `fØFAŁË  
BUdfUj Y`fUh\_Y[ UXcgY[ UfGF8 gŁËFUX]`g\_UcdfYa UnUi dcfUvc`j`ZY\_j Yb bYa  
cVa c`f`cX`&`A<n`Xc`%\$\$\$`A<n`n`a c`bcglb]a ]`bjj c`f`Xc`) \$\$`a K`Ë`&`"XY.  
8cdc`b]`b]`dUfUa Yf]ž`\_]`b]gc`nU`bUa YbYg`\_UXbcgh]

ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment to be used in the 25 MHz to 1 000 MHz frequency range with power levels ranging up to 500 mW; Part 2: Supplementary parameters not intended for conformity purposes

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# ETSI EN 300 220-2 V1.3.1 (2000-09)

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*European Standard (Telecommunications series)*

**Electromagnetic compatibility and  
Radio spectrum Matters (ERM);  
Short Range Devices (SRD);  
Radio equipment to be used in the 25 MHz to 1 000 MHz  
frequency range with power levels ranging up to 500 mW;  
Part 2: Supplementary parameters not intended  
for conformity purposes**

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**Keywords**

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# Contents

Intellectual Property Rights .....	4
Foreword.....	4
1 Scope .....	5
2 References .....	5
3 Definitions, symbol and abbreviations .....	6
3.1 Definitions .....	6
3.2 Symbol .....	6
3.3 Abbreviations .....	6
4 Receiver parameters .....	7
4.1 Maximum usable sensitivity (conducted) .....	7
4.1.1 Definition .....	7
4.1.2 Limits .....	7
4.2 Average usable sensitivity (field strength) .....	7
4.2.1 Definition .....	7
4.2.2 Limits .....	8
4.3 Co-channel rejection .....	8
4.3.1 Definition .....	8
4.3.2 Limits .....	8
4.4 Adjacent channel selectivity .....	8
4.4.1 Definition .....	8
4.4.2 Limits .....	9
4.5 Spurious response rejection .....	9
4.5.1 Definition .....	9
4.5.2 Limits .....	9
4.6 Intermodulation response rejection .....	9
4.6.1 Definition .....	9
4.6.2 Limits .....	9
4.7 Blocking or desensitization .....	9
4.7.1 Definition .....	9
4.7.2 Limits .....	9
<b>Annex A (informative): Application: Social alarm systems.....</b>	<b>10</b>
A.1 General .....	10
A.2 Minimum effective radiated power .....	10
A.2.1 Definition .....	10
A.2.2 Method of measurement .....	10
A.2.3 Classification of effective radiated power levels .....	10
A.3 Receiver parameters .....	11
History .....	12

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## Foreword

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

The present document is part 2 of a multi-part deliverable, covering the Short Range Devices (SRD); Radio equipment to be used in the 25 MHz to 1 000 MHz frequency range with power levels ranging up to 500 mW, as identified below:

Part 1: "Technical characteristics and test methods";

**Part 2: "Supplementary parameters not intended for conformity purposes";**

Part 3: "Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive".

This part specifies supplementary parameters in general and for specific applications, not for the purpose of conformity to the R&TTE Directive.

Annex A provides specifications concerning social alarm systems. Requirements for equipment to be used in Social Alarm systems, are specified in EN 300 220-1 [5].

### National transposition dates

Date of adoption of this EN:	1 September 2000
Date of latest announcement of this EN (doa):	31 December 2000
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 June 2001
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# 1 Scope

The term "the present document" refers to EN 300 220-2 only.

The present document covers parameters not intended to be measured for conformity or regulatory purposes. However, they are provided to give guidance to manufacturers and users regarding reasonable reliability of the radio link and performance of the receiver.

The present document contains the technical characteristics for radio equipment referencing relevant CEPT/ERC Decisions and Recommendation CEPT ERC/Recommendation 70-03 [1].

The present document does not necessarily include all the characteristics which may be required by a user, nor does it necessarily represent the optimum performance achievable. It is a product family standard which may be completely or partially superseded by specific standards covering specific applications.

The present document applies to short range devices:

- either with a Radio Frequency (RF) output connection and/or with an integral antenna;
- for alarms, identification, telecommand, telemetry, etc., applications;
- with or without speech;
- operating on radio frequencies between 25 MHz and 1 000 MHz, with power levels up to 500 mW, radiated or conducted.

The present document covers fixed stations, mobile stations and portable stations. In the present document basic requirements are given for the different frequency bands, channel separation etc., where appropriate.

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# 2 References

[SIST EN 300 220-2 V1.3.1:2003](https://standards.iteh.ai/catalog/standards/sist/e6e450a7-cbd3-417c-81a9-)

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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] CEPT/ERC Recommendation 70-03: "Relating to the use of Short Range Devices (SRD)".
- [2] ETSI EN 300 113-1: "Radio Equipment and Systems (RES); Land mobile service; Technical characteristics and test conditions for radio equipment intended for the transmission of data (and speech) and having an antenna connector".
- [3] ETSI EN 300 390-1: "Radio Equipment and Systems (RES); Land mobile service; Technical characteristics and test conditions for radio equipment intended for the transmission of data (and speech) and using an integral antenna".
- [4] ITU-T Recommendation O.41: "Psophometer for use on telephone-type circuits".
- [5] ETSI EN 300 220-1: "Electromagnetic compatibility and Radio spectrum matters (ERM); Short Range Devices (SRD); Radio equipment to be used in the 25 MHz to 1 000 MHz frequency range with power levels ranging up to 500 mW; Part 1: Technical characteristics and test methods".
- [6] ETSI ETR 027: "Radio Equipment and Systems (RES); Methods of measurement for private mobile radio equipment".

## 3 Definitions, symbol and abbreviations

### 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

**alarm:** use of radio communication for indicating an alarm condition at a distant location

**conducted measurements:** measurements which are made using a direct 50  $\Omega$  connection to the equipment under test

**dedicated antenna:** removable antenna supplied and type tested with the radio equipment, designed as an indispensable part of the equipment

**fixed station:** equipment intended for use in a fixed location

**integral antenna:** permanent fixed antenna, which may be built-in, designed as an indispensable part of the equipment

**mobile station:** equipment normally fixed in a vehicle

**portable station:** equipment intended to be carried, attached or implanted

**radiated measurements:** measurements which involve the absolute measurement of a radiated field

**telecommand:** use of radio communication for the transmission of signals to initiate, modify or terminate functions of equipment at a distance

**telemetry:** use of radio communication for indicating or recording data at a distance

### 3.2 Symbol

For the purposes of the present document, the following symbol applies:

SND/ND

Signal + Noise + Distortion / Noise + Distortion

### 3.3 Abbreviations

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

emf	electromotive force
EMC	ElectroMagnetic Compatibility
ERP	Effective Radiated Power
PSTN	Public Switched Telephone Network
RF	Radio Frequency
SRD	Short Range Device



## 4 Receiver parameters

For the method of measurement of the following parameters, reference should be made to the appropriate subclauses in EN 300 113 -1[2], EN 300 390-1 [3] or ETR 027 [6].

### 4.1 Maximum usable sensitivity (conducted)

#### 4.1.1 Definition

The maximum usable sensitivity is the minimum level of signal (electromotive force (emf)) at the receiver input, produced by a carrier at the nominal frequency of the receiver, modulated with the normal test signal modulation, which produces:

- a SND/ND ratio of 20 dB, measured at the receiver output through a telephone psophometric weighting network as described in ITU-T Recommendation O.41 [4]; or
- after demodulation, a data signal with a bit error ratio of  $10^{-2}$ ; or
- after demodulation, a message acceptance ratio of 80 %.

#### 4.1.2 Limits

The maximum usable sensitivity shall not exceed an emf of +6 dB $\mu$ V under normal test conditions.

### 4.2 Average usable sensitivity (field strength)

This measurement only applies to equipment with an integral or dedicated antenna.

The average,  $E_{mean}$ , is calculated from eight measurements of field strength, where the receiver is rotated in  $45^\circ$  increments, starting at an arbitrary orientation.

$$E_{mean} = 20 \log_{10} \sqrt{\frac{8}{\sum_{i=1}^{i=8} x_i^2}}$$

Where  $x_i$  represents the eight field strengths in  $\mu$ V/m.

#### 4.2.1 Definition

The average usable sensitivity of the receiver is the average field strength at the antenna, expressed in dB $\mu$ V/m, produced by a carrier at the nominal frequency of the receiver, modulated with the normal test signal which produces:

- a SND/ND ratio of 20 dB, measured at the receiver output through a telephone psophometric weighting network as described in ITU-T Recommendation O.41 [4]; or
- after demodulation, a data signal with a bit error ratio of  $10^{-2}$ ; or
- after demodulation, a message acceptance ratio of 80 %.