

**Electromagnetic compatibility  
and Radio spectrum Matters (ERM);  
Citizens' Band (CB) radio equipment;  
Part 2: Harmonized EN covering the essential  
requirements of article 3.2 of the R&TTE Directive**

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**Reference**

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REN/ERM-TGDMR-266-2

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**Keywords**

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CB, radio, regulation, testing**ETSI**

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## Foreword

This final draft Harmonized European Standard (EN) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM), and is now submitted for the Vote phase of the ETSI standards Two-step Approval Procedure.

The present document has been produced by ETSI in response to a mandate from the European Commission issued under Council Directive 98/34/EC [i.1] (as amended) laying down a procedure for the provision of information in the field of technical standards and regulations.

The title and reference to the present document are intended to be included in the publication in the Official Journal of the European Union of titles and references of Harmonized Standard under the Directive 1999/5/EC [i.2].

See article 5.1 of Directive 1999/5/EC [i.2] for information on presumption of conformity and Harmonised Standards or parts thereof the references of which have been published in the Official Journal of the European Union.

The requirements relevant to Directive 1999/5/EC [i.2] are summarised in annex A.

The present document is part 2 of a multi-part deliverable covering Citizens' Band (CB) radio equipment, as identified below:

Part 1: "Technical characteristics and methods of measurement";

**Part 2: "Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive".**

Significant changes from the previous version of the harmonised standard are: the standard includes angle modulated CB equipment and the adaption of maximum transmitter power levels.

Proposed national transposition dates	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	18 months after doa

## Introduction

The present document is part of a set of standards developed by ETSI and is designed to fit in a modular structure to cover all radio and telecommunications terminal equipment within the scope of the R&TTE Directive [i.2]. The modular structure is shown in EG 201 399 [i.3].

# 1 Scope

The present document covers the technical requirements for transmitters and receivers used in stations of angle modulated, Double Side Band (DSB) modulated and/or Single Side Band (SSB) modulated Citizens' Band (CB) radio equipment operating in all or part of the frequency band 26,960 MHz to 27,410 MHz with a channel spacing of 10 kHz, and intended for analogue speech and/or data transmission.

Citizens' Band radio equipment operation is in accordance with Draft ECC Decision on the harmonised use of frequencies for Citizens' Band (CB) radio equipment [i.5].

The equipment operates on one or more channels of the carrier frequencies as shown in table 1.

**Table 1: Carrier frequencies**

<b>Carrier frequencies</b>	<b>Channel Number</b>	<b>Carrier frequencies</b>	<b>Channel Number</b>
26,965 MHz	1	27,215 MHz	21
26,975 MHz	2	27,225 MHz	22
26,985 MHz	3	27,235 MHz	24
27,005 MHz	4	27,245 MHz	25
27,015 MHz	5	27,255 MHz	23
27,025 MHz	6	27,265 MHz	26
27,035 MHz	7	27,275 MHz	27
27,055 MHz	8	27,285 MHz	28
27,065 MHz	9	27,295 MHz	29
27,075 MHz	10	27,305 MHz	30
27,085 MHz	11	27,315 MHz	31
27,105 MHz	12	27,325 MHz	32
27,115 MHz	13	27,335 MHz	33
27,125 MHz	14	27,345 MHz	34
27,433 MHz	15	27,355 MHz	35
27,155 MHz	16	27,365 MHz	36
27,165 MHz	17	27,375 MHz	37
27,175 MHz	18	27,385 MHz	38
27,185 MHz	19	27,395 MHz	39
27,205 MHz	20	27,405 MHz	40

Transmission and reception takes place on the same channel (single frequency simplex mode).

Any equipment using national regulations on Citizens' Band (CB) permitting the use of channels outside of the carrier frequencies shown in table 1 within the frequency range from 26 MHz to 28 MHz can use the present document.

The types of equipment covered by the present document are as follows:

- Base station: equipment fitted with antenna connector;
- Mobile station: equipment fitted with antenna connector.
- Hand portable stations:
  - a) Either fitted with an antenna connector; or
  - b) Without an external antenna connector but fitted with a permanent internal or a temporary internal 50 ohm RF connector which allows access to the transmitter output and the receiver input.

Hand portable station equipment without an external or internal Radio Frequency (RF) connector and without the possibility of having a temporary internal 50 ohm RF connector is not covered by the present document.

The present document is intended to cover the provisions of Article 3.2, of Directive 1999/5/EC [i.2] (R&TTE Directive), which states that "... radio equipment shall be so constructed that it effectively uses the spectrum allocated to terrestrial/space radio communications and orbital resources so as to avoid harmful interference."

In addition to the present document, other ENs that specify technical requirements in respect of essential requirements under other parts of Article 3 of the R&TTE Directive [i.2] may apply to equipment within the scope of the present document.

NOTE: A list of such ENs is included on the web site <http://www.newapproach.org>.

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## 2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

### 2.1 Normative references

The following referenced documents are necessary for the application of the present document.

- [1] ETSI EN 300 433-1 (V1.3.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Citizens' Band (CB) radio equipment; Part 1: Technical characteristics and methods of measurement".
- [2] ETSI TR 100 028 (V1.4.1) (all parts): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".

### 2.2 Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1] 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.
- [i.2] Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (R&TTE Directive).
- [i.3] ETSI EG 201 399 (V2.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); A guide to the production of candidate Harmonized Standards for application under the R&TTE Directive".
- [i.4] ETSI EN 300 135-1 (V1.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Land Mobile Service; Citizens' Band (CB) radio equipment; Angle-modulated Citizens' Band radio equipment (PR 27 Radio Equipment); Part 1: Technical characteristics and methods of measurement".
- [i.5] FM38(10)37rev2: "Draft ECC/DEC/(11)XX on the harmonised use of frequencies for Citizens' Band (CB) radio equipment".

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## 3 Definitions, symbols and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in EN 300 433-1 [1] apply.

### 3.2 Symbols

For the purposes of the present document, the symbols given in EN 300 433-1 [1] apply.

### 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in EN 300 433-1 [1] apply.

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## 4 Technical requirements

### 4.1 Environmental profile

The technical requirements of the present document apply under the environmental profile for operation of the equipment, which shall be determined by the environmental class of the equipment. The equipment shall comply with all the technical requirements of the present document at all times when operating within the boundary limits of the required operational environmental profile.

### 4.2 Transmitter requirements

#### 4.2.1 Frequency error

##### 4.2.1.1 Definition

The frequency error is defined in EN 300 433-1 [1], clause 7.1.1.

##### 4.2.1.2 Limit

The frequency error shall not exceed the limit in EN 300 433-1 [1], clause 7.1.3.

##### 4.2.1.3 Conformance

If the transmitter adjacent channels power (clause 5.3.4) has not been measured under extreme test conditions, then the conformance tests as defined in clause 5.3.1 shall be carried out.

#### 4.2.2 Transmitter power

##### 4.2.2.1 Definition

The transmitter power is defined in EN 300 433-1 [1], clause 7.2.1.

##### 4.2.2.2 Limit

The transmitter power shall not exceed the limit in EN 300 433-1 [1], clause 7.2.3.



#### 4.2.2.3 Conformance

Conformance tests as defined in clause 5.3.2 shall be carried out.

### 4.2.3 Maximum permissible frequency deviation

#### 4.2.3.1 Definition

The maximum permissible frequency deviation is defined in EN 300 433-1 [1], clause 7.3.1.

#### 4.2.3.2 Limit

The maximum permissible frequency deviation shall not exceed the limit in EN 300 433-1 [1], clause 7.3.3.

#### 4.2.3.3 Conformance

Conformance tests as defined in clause 5.3.3 shall be carried out.

### 4.2.4 Adjacent channel power

#### 4.2.4.1 Definition

The adjacent channel power is defined in EN 300 433-1 [1], clause 7.4.1.

#### 4.2.4.2 Limit

The adjacent channel power shall not exceed the limit in EN 300 433-1 [1], clause 7.4.3.

#### 4.2.4.3 Conformance

Conformance tests as defined in clause 5.3.4 shall be carried out.

### 4.2.5 Unwanted emissions in the spurious domain

#### 4.2.5.1 Definition

The unwanted emissions in the spurious domain are defined in EN 300 433-1 [1], clause 7.5.1.

#### 4.2.5.2 Limits

The unwanted emissions in the spurious domain shall not exceed the limits in EN 300 433-1 [1], clause 7.5.3, tables 2, 3 and 4.

#### 4.2.5.3 Conformance

Conformance tests as defined in clause 5.3.5 shall be carried out.

### 4.2.6 Transient behaviour of the transmitter

#### 4.2.6.1 Definition

The transient behaviour of the transmitter is defined in EN 300 433-1 [1], clause 7.6.1.

#### 4.2.6.2 Limits

The transient behaviour of the transmitter shall not exceed the limits in EN 300 433-1 [1], clause 7.6.3.

#### 4.2.6.3 Conformance

Conformance tests as defined in clause 5.3.6 shall be carried out.

### 4.3 Receiver requirements

#### 4.3.1 Spurious radiations

##### 4.3.1.1 Definition

The spurious radiations are defined in EN 300 433-1 [1], clause 8.4.1.

##### 4.3.1.2 Limits

The spurious radiations shall not exceed the limits in EN 300 433-1 [1], clause 8.4.3, tables 6 and 7.

##### 4.3.1.3 Conformance

Conformance tests as defined in clause 5.3.7 shall be carried out.

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## 5 Testing for compliance with technical requirements

### 5.1 Environmental conditions for testing

Tests defined in the present document shall be carried out at representative points within the boundary limits of the declared operational environmental profile.

Where technical performance varies subject to environmental conditions, tests shall be carried out under a sufficient variety of environmental conditions (within the boundary limits of the declared operational environmental profile) to give confidence of compliance for the affected technical requirements.

#### 5.1.1 Normal and extreme test-conditions

Measurements shall be made under normal test conditions, and also, where stated, under extreme test conditions.

The test conditions and procedures shall be as specified in EN 300 433-1 [1], clauses 5.3, 5.4 and 5.5.

#### 5.1.2 Test power source

The test power source shall meet the requirements of EN 300 433-1 [1], clause 5.2.

#### 5.1.3 Choice of samples for the measurements

Measurement shall be performed, according to the present document, on samples of equipment defined in EN 300 433-1 [1], clause 4.1.

### 5.2 Interpretation of the measurement results

The interpretation of the results recorded in a test report for the measurements described in the present document shall be as follows:

- the measured value related to the corresponding limit will be used to decide whether an equipment meets the requirements of the present document;

- the value of the measurement uncertainty for the measurement of each parameter shall be included in the test report;
- the value of the measurement uncertainty shall be, for each measurement, equal to or lower than the figures in clause 9 (table 9) of in EN 300 433-1 [1].

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with the principles of TR 100 028 [2] and shall correspond to an expansion factor (coverage factor)  $k = 1,96$  or  $k = 2$  (which provide confidence levels of respectively 95 % and 95,45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

For the test methods according to the present document, the uncertainty figures are valid to a confidence level of 95 % calculated according to the methods described in TR 100 028 [2].

## 5.3 Essential test suites

Essential test suites are referred to in annex III of R&TTE Directive [i.2].

The following essential test suites shall be used to assess the performance of equipment.

### 5.3.1 Frequency error

If the transmitter adjacent channels power (clause 5.3.4) has not been measured under extreme test conditions, then the measurements specified in EN 300 433-1 [1], clause 7.1.2 shall be carried out.

### 5.3.2 Transmitter power

The measurements specified in EN 300 433-1 [1], clause 7.2.2 shall be carried out.

### 5.3.3 Maximum permissible frequency deviation

The measurements specified in EN 300 433-1 [1], clause 7.3.2 shall be carried out.

### 5.3.4 Adjacent channels power

The measurements specified in EN 300 433-1 [1], clause 7.4.2 shall be carried out.

### 5.3.5 Unwanted emissions in the spurious domain

The measurements specified in EN 300 433-1 [1], clause 7.5.2 shall be carried out.

### 5.3.6 Transient behaviour of the transmitter

The measurements specified in EN 300 433-1 [1], clause 7.6.2 shall be carried out.

### 5.3.7 Receiver spurious radiations

The measurements specified in EN 300 433-1 [1], clause 8.4.2 shall be carried out.

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## Annex A (normative): HS Requirement and conformance Test specifications Table (HS-RTT)

The HS Requirements and conformance Test specifications Table (HS-RTT) in table A.1 serves a number of purposes, as follows:

- it provides a statement of all the requirements in words and by cross reference to (a) specific clause(s) in the present document or to (a) specific clause(s) in (a) specific referenced document(s);
- it provides a statement of all the test procedures corresponding to those requirements by cross reference to (a) specific clause(s) in the present document or to (a) specific clause(s) in (a) specific referenced document(s);
- it qualifies each requirement to be either:
  - Unconditional: meaning that the requirement applies in all circumstances; or
  - Conditional: meaning that the requirement is dependant on the manufacturer having chosen to support optional functionality defined within the schedule.
- in the case of Conditional requirements, it associates the requirement with the particular optional service or functionality;
- it qualifies each test procedure to be either:
  - Essential: meaning that it is included with the Essential Radio Test Suite and therefore the requirement shall be demonstrated to be met in accordance with the referenced procedures;
  - Other: meaning that the test procedure is illustrative but other means of demonstrating compliance with the requirement are permitted.

**Table A.1: HS Requirements and conformance Test specifications Table (HS-RTT)**

<b>Harmonized Standard EN 300 433-2</b> The following requirements and test specifications are relevant to the presumption of conformity under the article 3.2 of the R&TTE Directive						
<b>Requirement</b>			<b>Requirement Conditionality</b>		<b>Test Specification</b>	
<b>No</b>	<b>Description</b>	<b>Reference: Clause No</b>	<b>U/C</b>	<b>Condition</b>	<b>E/O</b>	<b>Reference: Clause No</b>
1	Transmitter frequency error	4.2.1	C	Does not apply if transmitter adjacent channels power is measured under extreme test conditions.	E	5.3.1
2	Transmitter power	4.2.2	U		E	5.3.2
3	Maximum permissible frequency deviation	4.2.3	U		E	5.3.3
4	Transmitter adjacent channels power	4.2.4	U		E	5.3.4
5	Transmitter unwanted emissions in the spurious domain	4.2.5	U		E	5.3.5
6	Transient behaviour of the transmitter	4.2.6	C	Applies only to equipment with cyclic keying during data transmission and having an external antenna connector.	E	5.3.6
7	Receiver spurious radiations	4.3.1	U		E	5.3.7

**Key to columns:****Requirement:**

**No** A unique identifier for one row of the table which may be used to identify a requirement or its test specification.

**Description** A textual reference to the requirement.

**Clause Number** Identification of clause(s) defining the requirement in the present document unless another document is referenced explicitly.

**Requirement Conditionality:**

**U/C** Indicates whether the requirement is to be *unconditionally* applicable (U) or is *conditional* upon the manufacturers claimed functionality of the equipment (C).

**Condition** Explains the conditions when the requirement shall or shall not be applicable for a technical requirement which is classified "conditional".

**Test Specification:**

**E/O** Indicates whether the test specification forms part of the Essential Radio Test Suite (E) or whether it is one of the Other Test Suite (O).

NOTE: All tests whether "E" or "O" are relevant to the requirements. Rows designated "E" collectively make up the Essential Radio Test Suite; those designated "O" make up the Other Test Suite; for those designated "X" there is no test specified corresponding to the requirement. The completion of all tests classified "E" as specified with satisfactory outcomes is a necessary condition for a presumption of conformity. Compliance with requirements associated with tests classified "O" or "X" is a necessary condition for presumption of conformity, although conformance with the requirement may be claimed by an equivalent test or by manufacturer's assertion supported by appropriate entries in the technical construction file.

**Clause Number** Identification of clause(s) defining the test specification in the present document unless another document is referenced explicitly. Where no test is specified (that is, where the previous field is "X") this field remains blank.

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## Annex B (informative): The EN title in the official languages

The enlargement of the European Union (EU) resulted in a requirement from the EU for a larger number of languages for the translation of the titles of Harmonized Standards and mandated ENs that are to be listed in the Official Journal to support the implementation of this legislation.

For this reason the title translation concerning the present document can be consulted via the [e-approval](#) application.

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## Annex C (informative): Bibliography

Directive 2004/108/EC of the European Parliament and of the Council of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC (EMC Directive).

Directive 2006/95/EC of the European Parliament and of the Council of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (LV Directive).

ETSI EG 201 399: "Electromagnetic compatibility and Radio spectrum Matters (ERM); A guide to the production of candidate Harmonized Standards for application under the R&TTE Directive".



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## History

Document history		
V1.1.1	August 2000	Publication
V1.1.2	December 2000	Publication
V1.2.1	July 2010	Public Enquiry PE 20101125: 2010-07-28 to 2010-11-25
V1.3.1	May 2011	Vote V 20110705: 2011-05-06 to 2011-07-05