
9`Y_hfca U[bYfbUnXfi y`nj cgh]b`nUXYj Yj`nj Yn]`n`fUX]`g_`ja`gdY_hfca`fDFAŁĚ
Ghcf]hYj`_cdYbg_]`a`cV]b]`_ca`i`b]`UW`Ě`FUX]`g_`UcdfYa`UnU76`f7`]h]nYbg`6`UbXŁ
n`Ua`d`]i`Xbc`a`cXi`UW`c`]b`Xj`cVc`b]a`fB`G6Łcn]fca`UYbcVc`b]a`fGG6ŁdfYbcgca
Ě`%`XY`HM`b]`bY`_UfU`hYf]gh]`Y]b`a`Yf]bY`a`YtcXY

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Double Side Band (DSB) and/or Single Side Band (SSB) amplitude modulated citizen's
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and Radio spectrum Matters (ERM);
Land Mobile Service;
Double Side Band (DSB) and/or Single Side Band (SSB)
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Part 1: Technical characteristics
and methods of measurement**

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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 the first part of a multi-part standard, the titles of which are:

- Part 1: Technical characteristics and methods of measurement;**
 Part 2: Harmonized EN covering essential requirements under article 3.2 of R&TTE Directive.

Every EN prepared by ETSI is a voluntary standard. The present document contains text concerning the type approval of equipment to which it relates. This text does not make the present document mandatory in its status as a standard. However, the present document can be referenced, wholly or in part, for mandatory application by decisions of regulatory bodies.

The national regulations on Citizens' Band (CB) equipment that permit the use of other types of modulation or power levels will not necessarily be affected by the adoption of the present document.

National transposition dates

Date of latest announcement of this EN (doa):	31 March 2001
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 September 2001
Date of withdrawal of any conflicting National Standard (dow):	30 September 2001

Introduction

The present document is intended to specify the minimum performance and the methods of measurement of CB Double Side Band (DSB) and/or Single Side Band (SSB) amplitude modulated radio equipment as specified in the Scope.

Clause 5 provides the corresponding limits. These limits have been chosen to ensure an acceptable grade of service and to minimize harmful interference to other equipment and services.

Administrative arrangements (e.g. for type approval, marking, antennas), and conditions for the use of CB DSB and/or SSB amplitude modulated radios are to be determined by the national regulatory authorities.

The present document may be used by European notified accredited test laboratories for the assessment of the performance of the equipment. In order to avoid any ambiguity in that assessment, the present document standard contains instructions for the presentation of equipment for type testing purposes (clause 4), conditions (clauses 6 and 7) and measurement methods (clauses 8 and 9).

The present document was drafted on the assumption that:

- a) the type test measurements would be performed only once in one of the accredited test laboratories, and then accepted by the various authorities in order to obtain type approval;
- b) if equipment available on the market is required to be checked it should be tested in accordance with the methods specified in the present document.

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1 Scope

The present document applies to Double Side Band (DSB) and/or Single Side Band (SSB) amplitude modulated Citizen's Band (CB) radio equipment operating in 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.

The present document covers the minimum characteristics considered necessary in order to make the best use of the available frequencies. It does not necessarily include all the characteristics that may be required by a user, nor does it necessarily represent the optimum performance achievable.

The present document covers base stations, mobile stations and two categories of hand-portable stations.

The present document is complementary to ETS 300 135 [1] which concerns angle modulated CB radio equipment (CEPT PR 27).

Any CB equipment covered by the present document that can also work with angle modulation is also required to meet ETS 300 135 [1].

The present document is based upon existing national standards.

The present document applies to equipment with a socket for an external antenna and to equipment with an integral antenna.

In the case of equipment that is intended for use with either an integral antenna or an external antenna, the equipment is specified to be measured as equipment intended for use with an external antenna and specified to meet the appropriate limits. In addition to this the following characteristics of the transmitter and receiver are specified to be measured as for equipment for use with an integral antenna and the appropriate limits are defined:

- transmitter carrier power;
 - spurious emissions of the transmitter;
 - spurious radiation of the receiver.
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2 References

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 and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [1] ETSI ETS 300 135 (1991): "Radio Equipment and Systems (RES); Angle-modulated Citizens Band radio equipment (CEPT PR 27 Radio Equipment); Technical characteristics and methods of measurement".
- [2] CISPR Publication No 16-1 (1993): "Specification for radio disturbance and immunity measuring apparatus and methods - Part 1: Radio disturbance and immunity measuring apparatus".
- [3] CCITT Recommendation O.41 (1988): "Psophometer for use on telephone-type circuits".
- [4] ETSI ETR 028 (1992): "Radio Equipment and Systems (RES); Uncertainties in the measurement of mobile radio equipment characteristics".
- [5] ETSI ETS 300 680-2: "Radio Equipment and Systems (RES); ElectroMagnetic Compatibility (EMC) standard for Citizens Band (CB) radio and ancillary equipment (speech and/or non-speech); Part 2: Double Side Band (DSB) and/or Single Side Band (SSB)".

- [6] Council Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility.

3 Definitions, abbreviations and symbols

3.1 Definitions

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

base station: Equipment fitted with an antenna socket, for use with an external antenna, and intended for use in a fixed location

mobile station: Mobile equipment fitted with an antenna socket, for use with an external antenna, normally used in a vehicle or as a transportable station

hand-portable station: Equipment fitted either with an antenna socket, an integral antenna, or both, normally used on a stand-alone basis, to be carried on a person or held in the hand

integral antenna: An antenna designed to be connected to the equipment without the use of a 50 Ω external connector and considered to be part of the equipment. An integral antenna may be fitted internally or externally to the equipment

Double Side Band (DSB) modulation: DSB amplitude modulation (A3E)

Single Side Band (SSB) modulation: SSB amplitude modulation with suppressed carrier (J3E), using the Upper Side Band (USB) or the Lower Side Band (LSB)

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3.2 Abbreviations (standards.iteh.ai)

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

A3E	DSB amplitude modulation
ac	alternating current
CB	Citizens' Band
dBa	relative sound level in dB incorporating A-weighting curve
DSB	Double Side Band
emf	electro-motive force
IF	Intermediate Frequency
J3E	SSB amplitude modulation with suppressed carrier
LSB	Lower Side Band
PEP	Peak Envelope Power
ptt	push-to-talk
RF	Radio Frequency
rms	root mean square
SINAD	SND/ND
SND/N	(Signal + Noise + Distortion)/(Noise)
SND/ND	(Signal + Noise + Distortion)/(Noise + Distortion)
SSB	Single Side Band
USB	Upper Side Band

3.3 Symbols

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

E_0	reference field strength, (see annex A)
R_0	reference distance, (see annex A)

4 General

4.1 Presentation of equipment for testing purposes

The manufacturer shall provide a production model of the equipment for type testing.

Tests shall be carried out on the highest and lowest channel within the switching range of the equipment and on a channel near the middle of the switching range. The switching range of the receiver and transmitter shall be declared by the manufacturer.

NOTE: The switching range is the maximum frequency range over which the receiver or the transmitter can be operated without reprogramming or realignment.

In the case of equipment fitted with one channel only, all tests are carried out on that channel.

In the case of equipment fitted with two channels, all tests are carried out on both channels.

4.2 Mechanical and electrical design

4.2.1 General

The equipment submitted by the manufacturer or his representative, shall be designed, constructed and manufactured in accordance with sound engineering practice, and with the aim to minimize harmful interference to other equipment and services.

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4.2.2 Controls

Those controls which, if maladjusted might increase the interfering potentialities of the equipment or improper functioning of the transceiver, shall not be accessible to the user.

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4.2.3 Marking

The marking shall be in accordance with the requirements of the national regulatory authorities.

4.3 Interpretation of the measurement results

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

- a) the measured value related to the corresponding limit shall be used to decide whether an equipment meets the minimum requirements of the present document;
- b) the actual measurement uncertainty for each particular measurement shall be included in the test report;
- c) the values, of the actual measurement uncertainty shall be, for each measurement, equal to or less than the figures given in clause 10 (table of measurement uncertainty).

5 Technical characteristics

5.1 Common characteristics

5.1.1 Frequency band

The maximum operating frequency band shall be from 26,960 MHz to 27,410 MHz. Equipment may operate on one or more channels up to a maximum of 40 channels.

The operating frequency band specified in the present document is currently allocated for CB equipment in most European countries. This fact does not prevent the upholding of the other 27 MHz frequency bands allocated to CB equipment in some countries, nor future extensions which could be decided by CEPT/ERC or by the national regulatory authorities.

5.1.2 Carrier frequencies and channel numbers.

The allowed carrier frequencies and associated channel numbers are given in table 1. Transmission and reception shall take place on the same channel (single frequency simplex mode).

Table 1: Carrier frequency and channel number

Carrier frequencies (MHz)	Channel number	Carrier frequencies (MHz)	Channel number	Carrier frequencies (MHz)	Channel number
26,965	1	27,135	15	27,295	29
26,975	2	27,155	16	27,305	30
26,985	3	27,165	17	27,315	31
27,005	4	27,175	18	27,325	32
27,015	5	27,185	19	27,335	33
27,025	6	27,205	20	27,345	34
27,035	7	27,215	21	27,355	35
27,055	8	27,225	22	27,365	36
27,065	9	27,235	24	27,375	37
27,075	10	27,245	25	27,385	38
27,085	11	27,255	23	27,395	39
27,105	12	27,265	26	27,405	40
27,115	13	27,275	27		
27,125	14	27,285	28		

5.1.3 Channel spacing

The channel spacing shall be 10 kHz.

5.1.4 Multi-channel equipment

Multi-channel equipment may be used, provided that such equipment is only designed for the channels indicated in clause 5.1.2.

Precautions shall be taken against extension of the usable frequency range by the user, e.g. the physical and electrical design of the channel switching system shall permit operation in not more than the channels indicated in clause 5.1.2.

5.1.5 Type of modulation

Equipment only capable of using A3E or J3E shall be tested according to the present document by using the appropriate type of modulation.

Equipment capable of using both A3E and J3E shall be tested to the present document in both modes of modulation.