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Amendment

Spectrum Management and Telecommunications

Radio Standards Specification

2 GHz Personal Communications Services

Amendment (January 2018)

A minor amendment has been made to Section 6.4 *Transmitter Output Power and Equivalent Isotropically Radiated Power* to remove the reference to the base station output power requirement.

Preface

Radio Standards Specification 133, Issue 6, *2 GHz Personal Communications Services*, replaces RSS-133, Issue 5, dated February 2009.

This document will be in force as of the publication date of Notice No. SMSE-003-13 in *Canada Gazette*, Part I. Upon publication, the public has 120 days to submit comments. Comments received will be taken into account in the preparation of the next version of the document.

Listed below are the changes:

1. The stated requirement that RSS-133 be used in conjunction with RSS-Gen, *General Requirements and Information for the Certification of Radio Apparatus*, has been moved to Section 3.1.
2. The alternative out-of-block emission limit in any 30 kHz measurement bandwidth for base station equipment has been removed.
3. The Electronic Serial Number (ESN) and the International Mobile Subscriber Identity (IMSI) feature has been removed.
4. The provision for Digital Packet Data (DPD) systems has been removed.
5. The provision for cordless-mode telephone base stations has been removed.
6. The specification that equipment's transmit power shall be measured in terms of average power has been added.

Issued under the authority of
the Minister of Industry

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1. Scope

This Radio Standards Specification (RSS) sets out the requirements for certification of transmitters and receivers used in radiocommunications systems to provide Personal Communications Services (PCS) in the bands 1850-1915 MHz and 1930-1995 MHz.

2. General Information

Equipment certified under this standard is classified as Category I equipment and a technical acceptance certificate (TAC), issued by the Certification and Engineering Bureau of Industry Canada, or a certificate issued by a Certification Body (CB), is required.

2.1 Licensing Requirements

Equipment covered by this standard is subject to licensing pursuant to subsection 4(1) of the *Radiocommunication Act*.

2.2 Related Documents

All Spectrum Management and Telecommunications publications are available on Industry Canada's website at <http://ic.gc.ca/spectrum>, under *Official Publications*.

The following Industry Canada document should be consulted:

SRSP-510 *Technical Requirements for Personal Communications Services (PCS) in the Bands 1850-1915 MHz and 1930-1995 MHz*

SRSP – Standard Radio System Plan

2.3 Definition of Bandwidth

Emission bandwidth is, for the purpose of this document, defined as the width of the signal between two points, one below the carrier frequency and one above the carrier frequency, outside of which all emissions are attenuated at least 20 dB below the transmitter power (i.e. -20 dBc), when measured with a resolution bandwidth of approximately 1% of the occupied bandwidth. In lieu of the -20 dBc bandwidth, the occupied bandwidth may be used.

3. General Requirements

3.1 RSS-Gen Compliance

RSS-133 shall be used in conjunction with RSS-Gen, *General Requirements and Information for the Certification of Radio Apparatus*, for general specifications and information relevant to the equipment for which this standard applies.

4. Measurement Method

4.1 Transmitter Output Power

The transmitter power shall be measured in terms of average power.

4.2 Transmitter Unwanted Emissions

Compliance with the unwanted emission limits shall be verified with the carrier frequency set at both the highest settable frequency and the lowest settable frequency permitted by the design of the equipment.

5. General Standard Specifications

5.1 Mobile Equipment Identifier (MEID) or International Mobile Equipment Identity (IMEI)

The 56-bit MEID developed in 3GPP2 (3rd Generation Partnership Project 2) and IMEI developed in 3GPP (3rd Generation Partnership Project) will be accepted by Industry Canada as complying with the requirements of this section.

- (a) Each mobile transmitter in service shall have a unique MEID or IMEI.
- (b) The MEID or IMEI host component shall be permanently attached to a main circuit board of the mobile transmitter and the integrity of the unit's operating software must not be alterable. The MEID or IMEI must be isolated from fraudulent contact and tampering. If the MEID or IMEI host component does not contain other information, that component must not be removable and its electrical connections must not be accessible. If the MEID, IMSI or IMEI host component contains other information, the MEID or IMEI must be encoded using one or more of the following techniques:
 - (i) multiplication or division by a polynomial;
 - (ii) cyclic coding;
 - (iii) the spreading of MEID or IMEI bits over various non-sequential memory locations.

- (c) The MEID or IMEI must be factory set and not alterable, transferable, removable or otherwise able to be manipulated. PCS mobile equipment must be designed such that any attempt to remove, tamper with, or change the MEID or IMEI chip, its logic system or firmware, as originally programmed by the manufacturer, will render the mobile transmitter inoperative.

6. Transmitter and Receiver Standard Specifications

6.1 Frequency Plan

The frequency plan is described in SRSP-510.

6.2 Types of Modulation

The devices shall employ digital modulation techniques.

6.3 Frequency Stability

The carrier frequency shall not depart from the reference frequency, in excess of ± 2.5 ppm for mobile stations and ± 1.0 ppm for base stations.

In lieu of meeting the above stability values, the test report may show that the frequency stability is sufficient to ensure that the emission bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

6.4 Transmitter Output Power and Equivalent Isotropically Radiated Power

The equivalent isotropically radiated power (e.i.r.p.) for transmitters shall not exceed the limits given in SRSP-510.

In addition, the transmitter's peak-to-average power ratio (PAPR) shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

6.5 Transmitter Unwanted Emissions

6.5.1 Out-of-Block Emissions

Equipment shall comply with the limits in (i) and (ii) below.

- (i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p(\text{watts})$.

- (ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

6.6 Receiver Spurious Emissions

Receiver spurious emissions shall comply with the limits specified in RSS-Gen.
