



Spectrum Management and Telecommunications

Radio Standards Specification

Cellular Telephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz

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Preface

Radio Standards Specification 132, issue 4, *Cellular Telephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz*, replaces issue 3, dated January 2013.

Listed below are the changes:

1. Remove the section on receiver spurious emission as it is covered in RSS-Gen.
2. Add the definition for mobile equipment and portable equipment.
3. Change mobile equipment's effective isotropic radiated power (e.i.r.p.) to effective radiated power (e.r.p.).
4. Add requirements for portable equipment.

Issued under the authority of
the Minister of Innovation, Science and Economic Development

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1. Scope

This Radio Standards Specification (RSS) sets out the requirements for certification of transmitters for cellular telephone systems in the bands 824-849 MHz and 869-894 MHz.

2. Transition Period

This document will be in force as of its publication on Innovation, Science and Economic Development Canada's (ISED) website. However, a transition period of six (6) months following its publication will be provided, within which compliance with RSS-132, issue 3 or issue 4, will be accepted. After this period, only applications for certification of equipment that complies with the requirements in RSS-132, issue 4, will be accepted. A copy of RSS-132, issue 3, may be requested by [email](#).

3. General Requirements and 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 ISED, or a certificate issued by a Certification Body (CB) is required.

3.1 Licensing requirements

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

3.2 RSS-Gen compliance

RSS-132 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.

3.3 Related documents

All Spectrum Management and Telecommunications publications are available online under [Official Publications](#).

The following departmental document should be consulted in conjunction with this RSS:

SRSP-503 *Technical Requirements for Cellular Radiotelephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz*

SRSP – Standard Radio System Plan

3.4 Definitions

Mobile equipment is equipment that is designed for use in motion as well as during halts at unspecified points in which the radiating antenna is at least 20 cm away from the human body.

Portable equipment is equipment with an embedded radiating antenna having contact directly with or within

20 cm of the human body.

4. General Standard Specifications

4.1 External controls

Section 6.4 of RSS-Gen only applies to mobile equipment and portable equipment, and not to base station equipment that is intended to be under the control of a service provider.

4.2 Mobile equipment identifier (MEID) or International mobile equipment identity (IMEI)

The 56-bit MEID developed in 3GPP2 (3rd Generation Partnership Project 2) and the IMEI developed in 3GPP (3rd Generation Partnership Project) will be accepted by ISED 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 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 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. Cellular 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 originally programmed by the manufacturer will render the mobile transmitter inoperative.

5. Transmitter Specifications

5.1 Frequency sub-bands

The frequency bands 824-849 MHz and 869-894 MHz are divided into sub-bands as described in SRSP-503. These sub-bands are:

- 824-835 MHz, 835-845 MHz, 845-846.5 MHz, and 846.5-849 MHz for mobile transmit; and
- 869-880 MHz, 880-890 MHz, 890-891.5 MHz, and 891.5-894 MHz for base transmit.

5.2 Types of modulation

Equipment certified under this standard shall use digital modulation.

5.3 Frequency stability

The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile and portable equipment and ± 1.5 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 occupied bandwidth stays within each of the sub-bands (see Section 5.1) when tested to the temperature and supply voltage variations specified in RSS-Gen.

5.4 Transmitter output power and equivalent radiated power (e.r.p.)

The transmitter output power shall be measured in terms of average power. The e.r.p shall not exceed 7 watts for mobile equipment and 5 watts for portable equipment. Refer to SRSP-503 for base station equivalent isotropic radiated power limits.

In addition, the peak-to-average power ratio (PAPR) of the transmitter 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.

5.5 Transmitter unwanted emissions

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

- (i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts).
 - (ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz 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 occupied bandwidth, power integration over 100 kHz is required.
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