Spectrum Management and Telecommunications

Radio Standards Specification

Advanced Wireless Services (AWS) Equipment Operating in the Bands 1710-1780 MHz and 2110-2180 MHz
Preface


This document will be in force as of its publication on Industry Canada’s website.

Listed below are the changes:

1. the frequency bands have been extended from 1710-1755 MHz and 2110-2155 MHz to 1710-1780 MHz and 2110-2180 MHz;

2. the requirement for receiver standard spurious emissions has been removed, as it is incorporated in RSS-Gen;

3. requirements have been added for the new extended frequency bands;

4. the electronic serial number (ESN) has been phased out since 2008 and the international mobile subscriber identity (IMSI) information is now stored on the Subscriber Identity Module (SIM) card, which is not part of the device (Consequently, both ESN and IMSI requirements have been removed.); and

5. the provision for cordless-mode telephone base stations has been removed.

Issued under the authority of
the Minister of Industry

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# Contents

1. **Scope** ..................................................................................................................................................1

2. **General Information** .........................................................................................................................1
   2.1 Licensing Requirements .......................................................................................................1
   2.2 Related Documents ..............................................................................................................1

3. **General Requirements** ......................................................................................................................1
   3.1 RSS-Gen Compliance ..........................................................................................................1

4. **Measurement Method** .......................................................................................................................2
   4.1 Transmitter Output Power ....................................................................................................2
   4.2 Transmitter Unwanted Emissions ........................................................................................2

5. **General Standard Specifications** .....................................................................................................2
   5.1 Mobile Equipment Identifier (MEID) or International Mobile Equipment Identity (IMEI)2

6. **Transmitter Standard Specifications** ..............................................................................................2
   6.1 Frequency Plan .....................................................................................................................2
   6.2 Types of Modulation ...............................................................................................................3
   6.3 Mobile and Portable Equipment Operating in the Band 1755-1780 MHz ................................3
   6.4 Frequency Stability ..............................................................................................................3
   6.5 Transmitter Output Power ....................................................................................................3
   6.6 Transmitter Unwanted Emissions ........................................................................................3
   6.7 Transmitter Power Control ..................................................................................................3
   6.8 Interoperability Requirement ................................................................................................4
1. **Scope**

This Radio Standards Specification (RSS) sets out the requirements for the certification of transmitters used in radiocommunications systems to provide Advanced Wireless Services (AWS) in the bands 1710-1780 MHz and 2110-2180 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.

Equipment operating in the ancillary terrestrial component (ATC)\(^1\) of the frequency bands 2000-2020 MHz and 2180-2200 MHz is certified under RSS-170, *Mobile Earth Stations and Ancillary Terrestrial Component Equipment Operating in the Mobile-Satellite Service Bands*.

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 in the *Official Publications* section on the following website: www.ic.gc.ca/spectrum.

The following Industry Canada document should be consulted:

SRSP-513 *Technical Requirements for Advanced Wireless Services (AWS) in the Bands 1710-1780 MHz and 2110-2180 MHz*

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\(^1\) ATC mobile service in the frequency bands 2000-2020 MHz and 2180-2200 MHz is also referred to as AWS-4.
4. Measurement Method

4.1 Transmitter Output Power

The transmitter power shall be measured in terms of a root-mean-square (RMS) average value.

4.2 Transmitter Unwanted Emissions

Equipment shall be tested for all channels bandwidths and the emission limits shall be measured with the carrier frequency set at both the highest settable frequency and 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 the Third Generation Partnership Project 2 (3GPP2) and the IMEI developed in the Third Generation Partnership Project (3GPP) will be accepted by Industry Canada as complying with the requirements of this section.

(a) Each mobile transmitter in service must have a unique MEID or IMEI.

(b) The MEID or IMEI component must 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 protected from fraudulent contact and tampering. If the MEID or IMEI 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 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; or
(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. AWS 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 Standard Specifications

6.1 Frequency Plan

The frequency plan is described in SRSP-513.
6.2 Types of Modulation

The devices may employ any type of modulation techniques. The type of modulation used must be reported.

6.3 Mobile and Portable Equipment Operating in the Band 1755-1780 MHz

Mobile, portable and fixed user equipment in the band 1755-1780 MHz may operate only when under the control of a base station. The applicant shall include a statement of declaration of compliance and a description of how this control requirement is met.

6.4 Frequency Stability

The frequency stability shall be sufficient to ensure that the occupied bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

6.5 Transmitter Output Power

The equivalent isotropically radiated power (e.i.r.p.) for mobile and portable transmitters shall not exceed one watt. The e.i.r.p. for fixed and base stations in the band 1710-1780 MHz shall not exceed one watt.

Consult SRSP-513 for e.i.r.p. limits on fixed and base stations operating in the band 2110-2180 MHz.

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

6.6 Transmitter Unwanted Emissions

(i) In the first 1.0 MHz bands immediately outside and adjacent to the equipment’s smallest operating frequency block,2 which can contain the equipment’s occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least $43 + 10 \log_{10} p$ (watts) dB.

(ii) After the first 1.0 MHz outside the equipment’s smallest operating frequency block, which can contain the equipment’s occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least $43 + 10 \log_{10} p$ (watts) dB.

6.7 Transmitter Power Control

Mobile and portable equipment shall employ a means for limiting power to the minimum necessary for successful communications.

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2 Equipment’s operating frequency block size is defined as per SRSP-513.
6.8 Interoperability Requirement

Mobile and portable equipment that transmits in the band 1755-1780 MHz and receives in the band 2155-2180 MHz shall be certified only if it can be capable of operating on all frequencies in the frequency bands 1710-1780 MHz and 2110-2180 MHz.