Innovation, Science and Economic Development Canada
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Spectrum Management and Telecommunications

Radio Standards Specification

Intelligent Transportation Systems' (ITS) On-Board Units (OBUs) in the 5895 – 5925 MHz Band

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Canada

Preface

Radio Standards Specification RSS-252, issue 3, *Intelligent Transportation Systems' (ITS) On-Board Units (OBUs) in the 5895-5925 MHz Band,* replaces RSS-252, issue 2, dated October 2023.

The main changes are listed below:

1. added channel allocation section 3.2
2. clarified that transmitter power in section 3.3 applies on a per-channel basis
3. modified the unwanted emission limits in section 3.4
4. editorial changes and clarifications, as appropriate

Inquiries may be submitted by one of the following methods:

1) Online using the General Inquiry form (in the form, select the Directorate of Regulatory Standards radio button and specify "RSS-252" in the General Inquiry field)

2) By mail to the following address:

   Innovation, Science and Economic Development Canada
   Engineering, Planning and Standards Branch
   Attention: Regulatory Standards Directorate
   235 Queen St
   Ottawa ON K1A 0H5
   Canada

3) By email to consultationradiostandards-consultationnormesradio@ised-isde.gc.ca

Additional information and guidance are available on the Innovation, Science and Economic Development Canada (ISED) webpages Common Questions and Answers and General Notices.

Comments and suggestions for improving this standard may be submitted online using the Standard Change Request form, or by mail or email to the above addresses.

All ISED publications related to spectrum management and telecommunications are available on the Spectrum management and telecommunications website.

Issued under the authority of the
Minister of Industry

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Wen Kwan
Director General
Engineering, Planning and Standards Branch

Contents

1. Scope

This Radio Standards Specification (RSS) sets out the certification requirements for licence-exempt on-board units (OBUs) radio apparatus operating in the 5895-5925 MHz frequency band and intended for use in intelligent transportation system (ITS) applications.

2. General requirements and references

This section sets out the general requirements and references related to this RSS.

2.1 Transition period

This document will be in force as of the date of its publication on Innovation, Science and Economic Development Canada's (ISED) website.

However, a transition period is provided, ending six months after the publication of this standard. During this period, applications for certification under RSS-252 issue 2 or issue 3 will be accepted. After this period, only applications for the certification of equipment under RSS-252, issue 3, will be accepted, and equipment manufactured, imported, distributed, leased, offered for sale, or sold in Canada shall comply with this present issue.

A copy of RSS-252, issue 2, may be requested by email: consultationradiostandards-consultationnormesradio@ised-isde.gc.ca.

2.2 Certification requirements

Equipment covered by this standard is classified as Category I and shall be certified. Either a technical acceptance certificate (TAC) issued by ISED's Certification and Engineering Bureau or a certificate issued by a recognized certification body (CB) is required.

2.3 Licensing requirements

Equipment covered by this standard is exempt from licensing requirements pursuant to section 15 of the *Radiocommunication Regulations*.

2.4 RSS-Gen compliance

In addition to the requirements specified in this standard, equipment being certified under this standard shall also comply with the applicable requirements set out in RSS-Gen, *General Requirements for Compliance of Radio Apparatus*.

2.5 References

This section specifies the external documents relevant for this RSS.

2.5.1 Normative references

This standard refers to the following publication:

- ANSI/USEMCSC C63.26, American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

The edition adopted by ISED shall be used, as posted on the Normative Test Standards and Acceptable Alternate Procedures webpage.

2.5.2 Related documents

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

- 3GPP Specification 21.914, Release 14

The 3GPP Release 14 is the earliest version that shall be used. Newer 3GPP releases containing C-V2X are acceptable.

2.6 Definitions

The following terms are used in this document.

Cellular Vehicle-to-Everything (C-V2X): The use of cellular radio techniques defined by the 3rd Generation Partnership Program (3GPP) to transfer data between roadside and mobile units, between mobile units, and between portable and mobile units to perform operations related to the improvement of traffic flow, traffic safety, and other intelligent transportation service applications in a variety of environments. C-V2X systems can also transmit status and instructional messages related to the units involved.

Mobile unit: A device designed to be used in motion as well as during halts at unspecified points, so that the radiating structure(s) of the device is/are more than 20 cm away from the body of the user.

Portable unit: A device designed to be used while handheld or worn on the human body, so that the radiating structure(s) of the device is/are 20 cm or less from the body of the user.

On-board unit (OBU): A C-V2X transceiver that is normally mounted in or on a vehicle or mobile unit, or is integrated into a portable unit. An OBU can be operational while the

vehicle or the portable unit is either in motion or stationary. OBUs receive and transmit on one or more radio frequency (RF) channels.

3. Transmitter requirements

This section sets out the technical requirements applicable to radio transmitters subject to this standard.

3.1 Measurement method

All measurements shall be performed in accordance with the techniques and procedures for measuring this type of equipment provided in ANSI/USEMCSC C63.26.

3.2 Channel allocation

The following channel allocations shall be followed.

a) 5895 MHz – 5905 MHz, 5905 MHz – 5915 MHz, and 5915 MHz – 5925 MHz for 10 MHz channels,
b) 5895 MHz – 5915 MHz and 5905 MHz – 5925 MHz for 20 MHz channels, and
c) 5895 MHz – 5925 MHz for the 30 MHz channel.

3.3 Transmitter power

The average equivalent isotropic radiated power (e.i.r.p.) for C-V2X OBU transmitters shall not exceed 2 W (33 dBm) per channel.

3.4 Unwanted emissions

Average conducted power measured at the antenna port shall not exceed:

a. -16 dBm/100 kHz at the band edges (5895 MHz and 5925 MHz) up to and including 1 MHz above and below the band edges;

b. -13 dBm/MHz more than 1 MHz above and below the band edges up to and including 5 MHz above and below the band edges;

c. -16 dBm/MHz more than 5 MHz above and below the band edges up to and including 30 MHz above and below the band edges; and

d. -28 dBm/MHz more than 30 MHz above and below the band edges.