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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 2, *Intelligent Transportation Systems' (ITS) On-Board Units (OBUs) in the 5895 – 5925 MHz Band,* replaces RSS-252, issue 1, *Intelligent Transportation Systems – Dedicated Short Range Communications (DSRC) –On-Board Unit (OBU),* dated September 2017.

The main changes are listed below:

1. **removed** all sections from issue 1
2. **added** sections 1-5 to establish the technical parameters for Cellular Vehicle-to-Everything (C-V2X)

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 Street
   Ottawa ON K1A 0H5
   Canada

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

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 documents related to spectrum and telecommunications are available on ISED’s Spectrum Management and Telecommunications website.

Issued under the authority of
the Minister of Innovation, Science and Industry

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Martin Proulx
Director General
Engineering, Planning and Standards Branch

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1. Scope

This Radio Standard Specification (RSS) sets out the certification requirements for licence-exempt radio apparatus operating in the 5895 MHz – 5925 MHz band.

2. Purpose and application

Equipment subject to this standard consists of licence-exempt, On-Board Units (OBUs), radio apparatus operating in the 5895 – 5925 MHz frequency band intended for use in Intelligent Transportation System (ITS) applications.

3. Definitions

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 may 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 in which the radiating structure(s) of the devices is/are more than 20 cm away from the body of the user.

Portable Unit - A device designed to be used so that the radiating structure(s) of the device is/are 20 centimeters 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, a mobile unit, or is integrated in a portable unit. An OBU can be operational while the vehicle or the portable unit is either in motion or stationary. The OBUs receive and transmit on one or more radio-frequency (RF) channels.

4. General requirements and references

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

4.1. Coming into force

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

A copy of RSS-252, issue 1, is available upon request by email.

4.2. Certification requirements

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

4.3. Licensing requirements

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

4.4. RSS-Gen compliance

Equipment being certified under this standard shall also comply with the general requirements set out in RSS-Gen, *General Requirements for Compliance of Radio Apparatus*.

4.5. Normative publications

The following documents shall be consulted in conjunction with this RSS:

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

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ANSI – American National Standards Institute
ETSI – European Telecommunications Standards Institute
KDB – Knowledge Database

The applicable version of ETSI/ANSI standards and accepted KDBs are listed on ISED's Certification and Engineering Bureau website.

4.6. Related documents

All spectrum-related documents referred to in this paper are available on ISED's Spectrum Management and Telecommunications website.

The following document should be consulted in conjunction with this RSS:
3GPP Specification 21.914, Release 14,
https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=3179

Note that 3GPP Release 14 is the earliest version that shall be used. Newer 3GPP releases containing C-V2X may be referenced.

5. Transmitter requirements

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

5.1. Measurement method

All measurements shall be performed in accordance with the techniques and procedures for measuring equipment provided in ANSI C63.26, *American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services*.

5.2. Transmitter power

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

5.3. Unwanted emissions

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

a) -29 dBm/100 kHz at the band edges (5895 MHz and 5925 MHz) up to 1 MHz above or below the band edges;
b) -35 dBm/100 kHz at 1 MHz above or below the band edges up to 10 MHz above or below the band edges;
c) -43 dBm/100 kHz at 10 MHz above or below the band edges up to 20 MHz above or below the band; and
d) -53 dBm/100 kHz at 20 MHz above or below the band edges.