RSS-210 — Licence-Exempt Radio Apparatus: Category I Equipment

Issue 11

June 25, 2024

Expand all content / collapse all content

Contents

▼ Preface

Radio Standards Specification RSS-210, issue 11, *Licence-Exempt Radio Apparatus: Category I Equipment*, replaces RSS-210, issue 10, dated December 2019.

The main changes are listed below:

1. Added sections 6.1, 6.2 and 6.3 to clarify general requirements and references in section 6
2. Added section 7: Measurement method
3. Annex A
    i. Added section A.1.1 to introduce terms and definitions
    ii. Section A.1.3(b): Clarified the restrictions of frequency bands designated for the use of the Government of Canada
    iii. Section A.1.5(d): Clarified the restrictions of frequency bands designated for the use of the Government of Canada
4. Annex B
    i. Section B.8: Clarified the operating frequency range

ii. Section B.10: Removed requirement related to RSS-310, issue 4, for certification-exempt devices operating in the 24-24.25 GHz frequency band

5. Annex C

i. Section C.2(d): Clarified unwanted emission limits

6. Annex E

i. Clarified the measurement method for annex E, which shall be based on ANSI C63.26

ii. Section E.1.8: Clarified unwanted emission restrictions for Family Radio Service (FRS) and General Mobile Radio Service (GMRS)

iii. Section E.2.8: Clarified unwanted emission restrictions for General Mobile Radio Service-M (GMRS-M) devices

7. Annex F

i. Section F.2(a): Clarified harmonic emission limits

8. Annex G

i. Added technical specification for Wireless Multichannel Audio Systems (WMAS)

ii. Section G.4: Clarified the use of modulation settings when using ETSI EN 300 422-1

9. Annex J

i. Section J.2: Modified restrictions section

ii. Section J.3: Added new requirements on the operation of frequency bands

iii. Added section J.3.2 to introduce the new power limits for field disturbance sensors (FDS) and its operation in unmanned aircraft (UA)

iv. Added items (c) through (e) in section J.3.2 to define new power limits

v. Added new section J.3.3 to replace previous section J.2.2.

vi. Removed all items in previous section J.4, except for item J.4(a), which was moved to J.5(b)

10. Annex K

    i. Section K.3: Clarified operational bandwidth

    ii. Section K.4: Clarified radiated emission limits

    iii. Section K.5: Clarified measurement procedure requirements

11. Made 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-210” 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

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 Innovation, Science and Economic Development Canada publications related to spectrum management and telecommunications are available on the Spectrum management and telecommunications website.

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

_____

Martin Proulx
Director General
Engineering, Planning and Standards Branch

▼ 1. Scope

This Radio Standards Specification (RSS) sets out the certification requirements for several types of licence-exempt radio apparatus.

Radio apparatus covered by this standard are primarily low-power and are mainly used for consumer or commercial purposes.

▼ 2. Coming into force and transition period

This document will be in force upon publication on Innovation, Science and Economic Development Canada's (ISED) website. However, a transition period of six (6) months from the publication date will be provided. During this period, applications for certification under issue 10 or issue 11 of RSS-210 will be accepted. After this period, only applications for the certification of equipment under RSS-210, issue 11, 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-210, issue 10, is available upon request by emailing consultationradiostandards-consultationnormesradio@ised-isde.gc.ca.

▼ 3. 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, or a certificate issued by a recognized certification body (CB) is required.

▼ 4. Licensing requirements

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

▼ 5. 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*.

▼ 6. General requirements and references

This section lists all references related to this standard.

6.1 General

ISED documents are available in the Official publications section of the Spectrum management and telecommunications website. For the ANSI and ETSI standards listed in section 6.2, the editions that have been adopted by ISED shall be used, as posted on the Normative Test Standards and Acceptable Alternate Procedures web page.

6.2 Normative references

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

- ANSI C63.10, *American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices*
- ANSI C63.26, *American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services*

- ETSI EN 300 422-1, *Wireless Microphones; Audio PMSE up to 3 GHz; Part 1: Audio PMSE Equipment up to 3 GHz; Harmonised Standard for access to radio spectrum*

6.3 Informative reference

The following document, referred to in annex G, should be consulted:

- Client Procedures Circular CPC-2-1-28, *Voluntary Licensing of Licence-Exempt Wireless Microphones in the TV Bands*

▼ 7. Measurement method

Unless otherwise specified, the measurements shall be performed and reported in accordance with ANSI C63.10.

▼ 8. Technical specifications

This section provides information on technical specifications.

8.1 Emissions falling within restricted frequency bands

Unless otherwise indicated, equipment for which emissions fall within the restricted frequency bands listed in RSS-Gen shall comply with the provisions set forth in RSS-Gen.

8.2 General field strength limits

RSS-Gen includes the general field strength limits of unwanted emissions, where applicable, for transmitters and receivers operating in accordance with the provisions specified in this standard.

Unless otherwise indicated, unwanted emissions of transmitters and receivers are permitted to fall within the restricted frequency bands listed in RSS-Gen and the TV bands 54-72 MHz, 76-88 MHz, 174-216 MHz and 470-602 MHz; however, fundamental emissions are prohibited in these bands, except where equipment operation is permitted under RSS-210.

8.3 Transmitters with wanted and unwanted emissions that are within the general field strength limits

Transmitters whose wanted and unwanted emissions fall within the general field strength limits specified in RSS-Gen may operate licence-exempt in any of the frequency bands, other than the restricted frequency bands listed in RSS-Gen and the TV bands 54-72 MHz, 76-88 MHz, 174-216 MHz and 470-602 MHz, and shall be certified under RSS-210. Under no circumstances shall the level of any unwanted emissions exceed the level of the fundamental emissions.

Devices operating below 490 kHz for which all emissions are at least 40 dB below the general field strength limits listed in RSS-Gen are Category II devices and are subject to the requirements specified in RSS-310, *Licence-Exempt Radio Apparatus: Category II Equipment*.

8.4 Cordless telephones

This section sets out the general conditions applicable to all cordless telephones, regardless of the frequency band of operation. In addition, there are standards specific to those

bands that can be used for cordless telephones, as specified in the annexes of this RSS or in other RSSs, depending on the frequency bands.

A cordless telephone comprises a base station and a portable handset:

- the handset is intended to operate as an extension of the base station by eliminating the connecting handset cord of the standard telephone
- the base station is intended to be connected to a telephone line that has access to a public switched telephone network

Cordless telephones operate in full-duplex mode, which allows simultaneous conversations between both parties.

A cordless telephone's base station shall comply with both RSS-210 and Compliance Specification CS-03, *Compliance Specification for Terminal Equipment, Terminal Systems, Network Protection Devices, Connection Arrangements and Hearing Aids Compatibility*, and shall be certified under both documents.

▼ Annex A: Momentarily operated and remote control devices

The provisions of this annex are specific to momentarily operated transmitters and receivers, and remote control devices.

A.1 Momentarily operated devices

This section specifies the requirements for momentarily operated devices.

A.1.1 General

The operation of momentarily operated devices is permitted in the bands specified in table A1 and table A2 of this annex, but is prohibited in the restricted frequency bands listed in RSS-Gen, *General Requirements for Compliance of Radio Apparatus*.

Momentary operation also includes devices that operate periodically for a short time. However, refer to section A.1.2(c) and section A.1.5 for requirements applicable for periodic operation.

The frequency bands and field strength limits in table A1 and table A2 are reserved exclusively for the transmission of a control signal, such as those used with alarm systems, door openers, remote switches, etc. Data may be sent with a control signal. Radio control of toys or model aircraft, as well as continuous transmissions (such as voice or video), are not permitted, except as provided in section A.1.5.

A.1.2 Technical requirements

Devices shall comply with the following requirements:

a. A manually operated transmitter shall be equipped with a push-to-operate switch and be under manual control at all times during transmission. When released, the transmitter shall cease transmission within no more than 5 seconds of being released.

b. A transmitter that has been activated automatically shall cease transmission within 5 seconds of activation.

c. Periodic transmissions at regular, predetermined intervals are not allowed, except as specified in section A.1.5. Nonetheless, polling or supervision transmissions that determine system integrity of transmitters used in security or safety applications are permitted as long as the total duration of transmission does not exceed 2 seconds per hour for each transmitter.

d. Intentional radiators used for radio control during emergencies involving fire, security of goods (e.g. burglar alarms) and safety-of-life, when activated to signal an alarm, may operate during the interval of the alarm condition.

A.1.3 Field strength limits

The device shall meet the following field strength requirements:

a. The field strength of emissions from momentarily operated intentional radiators shall not exceed the limits in table A1, based on the average value of the measured emissions. The requirements of the “Pulsed Operation” section of RSS-Gen apply for averaging pulsed emissions and limiting peak emissions.
Alternatively, compliance with the limits in table A1 may be based on the use of a CISPR quasi-peak detector.

b. Unwanted emissions shall be 10 times below the fundamental emissions field strength limits in table A1 or

comply with the limits specified in RSS-Gen, whichever is less stringent.

Table A1: Permissible field strength limits for momentarily operated devices

Fundamental frequency (MHz), excluding restricted frequency bands specified in RSS-Gen	Field strength of the fundamental emissions (µV/m at 3 m)
70-130	1,250
130-174	1,250 to 3,750*
174-260**	3,750
260-470**	3,750 to 12,500*
Above 470	12,500

*Linear interpolation with frequency, f, in MHz:

- for 130-174 MHz: field strength (µV/m) = (56.81818 x f) - 6136.3636
- for 260-470 MHz: field strength (µV/m) = (41.6667 x f) - 7083.3333

**Frequency bands 225-328.6 MHz and 335.4-399.9 MHz are designated for use by the Government of Canada. Manufacturers should be aware of possible harmful interference and degradation of their licence-exempt radio equipment in these frequency bands.

A.1.4 Bandwidth of momentary signals

The occupied bandwidth of momentarily operated devices shall be less than or equal to 0.25% of the centre frequency for devices operating between 70 MHz and 900 MHz. For devices operating above 900 MHz, the occupied bandwidth shall be less than or equal to 0.5% of the centre frequency.

A.1.5 Reduced field strengths

Devices not meeting the requirements in sections A.1.2(a) or A.1.2(b) shall comply with the following requirements:

a. Devices may be employed for any type of operation provided they comply with the requirements of section A.1.4 and with the field strength limits specified in table A2.

b. In addition, devices operated under the provisions of this section shall be capable of automatically limiting their operation so that the duration of each transmission is not greater than 1 second and the silent period between transmissions is at least 30 times the duration of the transmission, but not less than 10 seconds under any circumstances. However, devices that are designed for limited use for the purpose of initial programming, reprogramming or installing, and not for regular operations, may operate for up to 5 seconds provided such devices are used only occasionally in connection with each unit being programmed or installed.

c. The field strength limits shown in table A2 are based on the average value of the measured emissions.

Alternatively, compliance with the limits in table A2 may be based on the use of a CISPR quasi-peak detector.

d. Unwanted emissions shall be 10 times below the fundamental emissions field strength limits in table A2 or comply with the general field strength limits specified in RSS-Gen, whichever is less stringent.

Table A2: Reduced field strength limits for momentarily operated devices

Fundamental frequency (MHz), excluding restricted frequency bands specified in RSS-Gen	**Field strength of the fundamental emissions (µV/m at 3 m)**
70-130	500
130-174	500 to 1,500*
174-260**	1,500
260-470**	1,500 to 5,000*
Above 470	5,000

Fundamental frequency (MHz), excluding restricted frequency bands specified in RSS-Gen	Field strength of the fundamental emissions (µV/m at 3 m)
*Linear interpolation with frequency, f, in MHz: • for 130-174 MHz: field strength (µV/m) = (22.72727 x f) - 2454.545 • for 260-470 MHz: field strength (µV/m) = (16.6667 x f) - 2833.3333 **Frequency bands 225-328.6 MHz and 335.4-399.9 MHz are designated for use by the Government of Canada. Manufacturers should be aware of possible harmful interference and degradation of their licence-exempt radio equipment in these frequency bands.	

A.2 Remote control devices

This section applies specifically to remote control devices.

A.2.1 Band 26.991-27.259 MHz (one-way, non-voice remote controls)

Operation in this band is reserved for one-way, non-voice usage for remote controls, under the following conditions:

a. Only the following channel carrier frequencies (in MHz) are permitted: 26.995, 27.045, 27.095, 27.145, 27.195 and 27.255.

b. For single sideband (SSB) modulation, the transmitter radio frequency (RF) peak envelope power shall not exceed 4 W.

c. For double sideband (DSB), digital or frequency modulation (FM), the transmitter unmodulated carrier power shall not exceed 4 W.

d. The antenna gain shall not exceed that of a half-wave dipole.

e. The authorized bandwidth is 8 kHz for DSB, digital or FM, and 4 kHz for SSB modulations. For SSB modulations, either upper or lower sideband may be used.

f. The carrier frequency stability shall not exceed ±50 ppm. However, devices with output powers of 2.5 W or less may have a frequency stability of up to ±100 ppm.

g. The average power of unwanted emissions, measured with a resolution bandwidth of 300 Hz for A.2.1(g)(i) and A.2.1(g)(ii), and 3 kHz for A.2.1(g)(iii), shall comply with the following limits, where P_{MEAN} is the mean transmitter power in dBW:

    i. (P_{MEAN} – 25) dBW on any frequency removed from the centre of the authorized bandwidth by more than 50%, up to and including 100% of the authorized bandwidth.

    ii. (P_{MEAN} – 35) dBW on any frequency removed from the centre of the authorized bandwidth by more than 100%, up to and including 250% of the authorized bandwidth.

    iii. –43 dBW or the general field strength limits specified in RSS-Gen, whichever is less stringent, on any frequency removed from the centre of the authorized

bandwidth by more than 250% of the authorized bandwidth.

A.2.2 Bands 47.02-47.35 MHz (vehicle detector transmitters)

The requirements in this section are specific to vehicle detector transmitters meeting all of the following conditions:

a. they are used by municipalities and traffic departments for controlling traffic lights
b. they are one-way communication devices
c. they are buried beneath the asphalt

Devices shall comply with the following requirements:

a. Each transmitter is turned on for approximately 28 milliseconds (ms) on the approach of a vehicle and on again for another 28 ms at the tail of that vehicle (i.e. 56 ms per vehicle). The peak transmitter output power during transmission shall not exceed 100 mW.
b. Only the following frequencies (in MHz) shall be permitted: 47.02, 47.03, 47.05, 47.07, 47.11, 47.13, 47.15, 47.17, 47.23, 47.25, 47.27, 47.29, 47.30, 47.31, 47.33, 47.35.
c. Power spectral density beyond a nominal bandwidth of 12.5 kHz shall be suppressed by at least 20 dB relative to the in-band power spectral density.

A.2.3 Bands 72-73 MHz (model aircraft) and 75.40-76 MHz (general remote control)

This section outlines the carrier frequencies and standards specifications for control of model aircraft and for general usage of remote controls.

A.2.3.1 Carrier frequencies

In the 72-73 MHz band, the following carrier frequencies (in MHz) are allowed for radio control of model aircraft:

72.01	72.21	72.41	72.61	72.81
72.03	72.23	72.43	72.63	72.83
72.05	72.25	72.45	72.65	72.85
72.07	72.27	72.47	72.67	72.87
72.09	72.29	72.49	72.69	72.89
72.11	72.31	72.51	72.71	72.91
72.13	72.33	72.53	72.73	72.93
72.15	72.35	72.55	72.75	72.95
72.17	72.37	72.57	72.77	72.97
72.19	72.39	72.59	72.79	72.99

In the 75.4-76 MHz band, the following frequencies are for general use by any type of remote control device other than radio control of model aircraft. Voice communication is permitted for emergency use if it is of the push-to-talk type.

75.41	75.53	75.65	75.77	75.89
75.43	75.55	75.67	75.79	75.91
75.45	75.57	75.69	75.81	75.93

75.47	75.59	75.71	75.83	75.95
75.49	75.61	75.73	75.85	75.97
75.51	75.63	75.75	75.87	75.99

A.2.3.2 Specifications

Following is a list of specifications for devices operated under the provisions of this section:

a. For single sideband (SSB) modulation, the transmitter radio frequency (RF) peak envelope power (PEP) shall not exceed 0.75 W.

b. For double sideband (DSB), digital or frequency modulation (FM), the transmitter unmodulated carrier power shall not exceed 0.75 W.

c. The antenna gain shall not exceed that of a half-wave dipole.

d. The authorized bandwidth is 8 kHz for DSB, digital or FM, and 4 kHz for SSB modulations. For SSB modulations, either upper or lower sideband may be used.

e. The carrier frequency stability shall not exceed ±20 ppm.

f. The average power of unwanted emissions shall comply with the following limits, where P_{MEAN} is the mean transmitter power in dBW:

    i. (P_{MEAN} – 25) dBW on any frequency removed from the centre of the authorized bandwidth by more than 50%, up to and including 100% of the authorized

bandwidth, measured with a resolution bandwidth of 300 Hz.

ii. (P_{MEAN} – 45) dBW on any frequency removed from the centre of the authorized bandwidth by more than 100%, up to and including 125% of the authorized bandwidth, measured with a resolution bandwidth of 300 Hz.

iii. (P_{MEAN} – 55) dBW on any frequency removed from the centre of the authorized bandwidth by more than 125%, up to and including 250% of the authorized bandwidth, measured with a resolution bandwidth of 300 Hz.

iv. –56 dBW or the general field strength limits specified in RSS-Gen, whichever is less stringent, on any frequency removed from the centre of the authorized bandwidth by more than 250% of the authorized bandwidth, measured with a resolution bandwidth of 3 kHz.

▼ Annex B: Devices operating in frequency bands for any application

This annex provides the technical requirements for devices operating in various frequency bands for any application, except for section B.11, which is specific to radar and other mobile devices.

B.1 Band 160-190 kHz

Devices in this band shall comply with the following requirements:

a. Devices shall limit the total input power to the final radio frequency stage (exclusive of filament or heater power) to a maximum of 1.0 W. The total length of the transmission line, antenna and ground lead (if used) shall not exceed 15 m.

b. Emissions outside of this band shall be attenuated at least 20 dB below the level of the unmodulated carrier or to the general field strength limits listed in RSS-Gen, *General Requirements for Compliance of Radio Apparatus*, whichever is less stringent.

B.2 Band 510-1705 kHz

Devices in this band shall comply with the following requirements:

a. The following limits apply inside the band:

   i. the total input power to the final radio frequency stage (exclusive of filament or heater power) shall not exceed 100 mW. The total length of the transmission line, antenna and ground lead (if used) shall not exceed 3 m; or

   ii. the field strength shall not exceed 15 μV/m, as measured at a distance of 47715/(frequency in kHz) m (equivalent to wavelength/2π) from the coaxial cable, if the transmitter employs a leaky coaxial cable as a radiating antenna.

b. Emissions outside of this band shall be attenuated at least 20 dB below the level of the unmodulated carrier or to the general field strength limits listed in RSS-Gen, whichever is less stringent.

B.3 Band 1.705-10 MHz

Devices in this band shall comply with the following requirements:

a. the average field strength of any emission within the band shall not exceed 100 µV/m when measured at a distance of 30 m

b. if the 6 dB bandwidth of the emission is less than 10% of the centre frequency, the average field strength of any emission within the band shall not exceed 15 µV/m or (the 6 dB bandwidth of the device in kHz) divided by (the centre frequency of the device in MHz) µV/m, whichever is the higher level, when measured at a distance of 30 m

c. emissions outside of this band shall comply with the general field strength limits specified in RSS-Gen

B.4 Band 1.705-37 MHz (swept frequency)

Notwithstanding that this band encompasses some restricted frequency bands listed in RSS-Gen, swept frequency devices are permitted when all of the following conditions are met:

a. the sweep is never stopped with the fundamental emission within any restricted frequency band listed in RSS-Gen

b. the field strength shall not exceed the limits specified in section B.3, when measured while sweeping is stopped in the 1.705-10 MHz band

c. the field strength shall not exceed the limits specified in section B.5, when measured while sweeping is stopped in the 6.765-6.795 MHz band

d. the field strength shall not exceed the limits specified in section B.6, when measured while sweeping is stopped in the 13.110-14.010 MHz band

e. the fundamental emission dwelling on any restricted frequency band listed in RSS-Gen shall not exceed 1.0% of the time that the device is actively transmitting, without compensation for duty cycle

f. outside of the swept frequency band, the limits specified at B.5(a)(ii), B.5(a)(iii) and B.5(a)(iv) shall apply (this test is to be carried out during frequency sweep operation)

B.5 Band 6.765-6.795 MHz

Devices in this band shall comply with the following requirements (the more strict limit applies at transition frequencies):

a. the field strength of any emission shall not exceed the following limits:

   i. 15.5 mV/m (83.81 dBµV/m) at 30 m, inside the allocated band

   ii. 334 µV/m (50.47 dBµV/m) at 30 m, outside the allocated band up to F_c ± 150 kHz

iii. 106 µV/m (40.51 dBµV/m) at 30 m, between F_c ± 150 kHz and F_c ± 450 kHz

iv. RSS-Gen general field strength limits for frequencies outside F_c ± 450 kHz, except for harmonic emissions, which shall not exceed 316 µV/m at 30 m

where: F_c = 6.78 MHz

b. the carrier frequency stability shall not exceed ±100 ppm

B.6 Band 13.110-14.010 MHz

Devices in this band shall comply with the following requirements (the more strict limit applies at transition frequencies):

a. the field strength of any emission shall not exceed the following limits:

i. 15.848 mV/m (84 dBµV/m) at 30 m, within the band 13.553-13.567 MHz

ii. 334 µV/m (50.47 dBµV/m) at 30 m, within the bands 13.410-13.553 MHz and 13.567-13.710 MHz

iii. 106 µV/m (40.51 dBµV/m) at 30 m, within the bands 13.110-13.410 MHz and 13.710-14.010 MHz

iv. RSS-Gen general field strength limits for frequencies outside the band 13.110 14.010 MHz

b. the carrier frequency stability shall not exceed ±100 ppm

B.7 Band 40.66-40.70 MHz

Devices in this band shall comply with the following requirements:

a. The average field strength of any emissions within this band shall not exceed 10 mV/m (80 dBµV/m) measured at a distance of 3 m. Alternatively, it shall not exceed 233 mV/m (107.35 dBµV/m) measured with a CISPR quasi-peak detector.

b. The 6 dB bandwidth of the emission shall fall within the 40.66-40.70 MHz band edges.

c. The field strength of harmonic emissions shall not exceed 225 µV/m (47.04 dBµV/m) measured at a distance of 3 m with a CISPR quasi-peak detector.

d. The field strength of any emissions outside the band 40.66-40.70 MHz, except harmonic emissions, shall not exceed the general field strength limits specified in RSS-Gen.

e. The carrier frequency stability shall not exceed ±100 ppm.

B.8 Band 43.710-50.000 MHz

Devices in this band shall comply with the following requirements:

a. Devices used as part of a communication system shall operate on one of the carrier frequency pairs listed in table B1, except as provided in B.8(b).

Table B1: Channel frequencies for devices operating in the band 43.710-50.000 MHz

Channel	Base transmit frequency (MHz)	Handset/portable transmit frequency (MHz)
1	43.720	48.760
2	43.740	48.840
3	43.820	48.860
4	43.840	48.920
5	43.920	49.020
6	43.960	49.080
7	44.120	49.100
8	44.160	49.160
9	44.180	49.200
10	44.200	49.240
11	44.320	49.280
12	44.360	49.360
13	44.400	49.400
14	44.460	49.460
15	44.480	49.500
16	46.610	49.670
17	46.630	49.845
18	46.670	49.860
19	46.710	49.770

Channel	Base transmit frequency (MHz)	Handset/portable transmit frequency (MHz)
20	46.730	49.875
21	46.770	49.830
22	46.830	49.890
23	46.870	49.930
24	46.930	49.990
25	46.970	49.970

b. Frequencies shall be paired as shown in table B1; however, pairing for channels 1 through 15 may be accomplished by pairing any of the 15 base transmitter frequencies with any of the 15 handset/portable transmitter frequencies (flexible pairing).

c. Devices operating on channels 1 through 15 shall incorporate an automatic channel selection mechanism that will prevent the establishment of a link on any occupied frequency. A description of the means and procedures used to achieve automatic channel selection shall be provided in the application for equipment certification.

d. The average field strength shall not exceed 10 mV/m (80 dBµV/m) when measured at a distance of 3 m.

e. The occupied bandwidth shall not exceed the 20 kHz authorized bandwidth, centred on the test carrier

frequency. Outside of this 20 kHz authorized bandwidth, emissions shall be attenuated at least 26 dB below the level of the unmodulated carrier, measured with a minimum resolution bandwidth of 300 Hz and the CISPR average detector, or to the general field strength limits specified in RSS-Gen, whichever is less stringent.

f. The field strength of any emission on any frequency that is removed from the centre of the authorized bandwidth by more than ±20 kHz shall not exceed the general field strength limits specified in RSS-Gen.

g. The carrier frequency stability shall not exceed ±100 ppm.

B.9 Band 88-108 MHz

Devices in this band shall comply with the following requirements:

a. The occupied bandwidth shall not exceed the 200 kHz authorized bandwidth.

b. The average field strength of any emissions within the authorized bandwidth shall not exceed 250 µV/m (47.96 dBµV/m) measured at a distance of 3 m.

c. The field strength of any emissions outside the 200 kHz authorized bandwidth or outside the band 88-108 MHz shall not exceed the general field strength limits specified in RSS-Gen.

d. If the input signal is audio and the transmitter is frequency-modulated, compliance with the above requirements shall be demonstrated by modulating the

transmitter with a 2.5 kHz tone at a level 16 dB higher than the level that is required for producing a frequency deviation of 75 kHz, or 50% of the manufacturer's rated deviation, whichever is less. The rated deviation values should be included in the user manual and the test report.

B.10 Bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz and 24-24.25 GHz

Devices operating in the frequency bands listed in table B2 may be used for any application and shall comply with the following requirements:

a. The field strength of fundamental and harmonic emissions measured at the distance of 3 m shall not exceed the limits in table B2.

Table B2: Field strength limits for fundamental and harmonic emissions

Fundamental frequency (MHz)	Field strength (mV/m) of fundamental emissions	Field strength (mV/m) of harmonic emissions
902-928	50	0.5
2400-2483.5	50	0.5
5725-5875	50	0.5
24000-24250	250	2.5

The field strength shall be measured using an average detector, except for the fundamental emission in the frequency band 902-928 MHz, which is based on measurements using a CISPR quasi-peak detector.

b. Emissions radiated outside of the specified frequency bands, except for harmonic emissions, shall be attenuated by at least 50 dB below the level of the fundamental emission or to the general field strength limits listed in RSS-Gen, whichever is less stringent.

c. The provisions of RSS-Gen regarding pulsed operation do not apply to measurements performed in the 902-928 MHz frequency range.

Devices within the scope of RSS-247, *Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices*, may instead be certified under this section of RSS-210 if they operate in one of the bands listed in table B2 and comply with all requirements specified above.

B.11 Bands 17.15 GHz and 94 GHz

The following carrier frequencies and their associated maximum radiated emissions are available for use by radar and other mobile devices:

a. 17.15 GHz: up to 0.3 W e.i.r.p. (equivalent isotropically radiated power)

b. 94 GHz: up to 0.4 W e.i.r.p.

Parameters, such as occupied bandwidth and permissible unwanted emissions, will be evaluated on a case-by-case basis. Please contact ISED for more information at consultationradiostandards-consultationnormesradio@ised-isde.gc.ca.

▼ Annex C: Medical telemetry, wireless microphones, auditory assistance, goods tracking and law enforcement devices

The provisions of this annex are for medical telemetry, wireless microphones, auditory assistance (e.g. sound receivers, remote speakers, hearing assistance and audio broadcast), goods tracking and law enforcement devices.

C.1 Bands 72-73 MHz, 74.6-74.8 MHz and 75.2-76.0 MHz (auditory assistance and wireless microphones)

These bands are used exclusively for auditory assistance and wireless microphones.

Devices shall comply with the following requirements:

a. The occupied bandwidth shall not exceed the 200 kHz authorized bandwidth and shall lie within the permitted bands.

b. The average field strength of any emission within the 200 kHz authorized bandwidth shall not exceed 80 mV/m measured at a distance of 3 m.

c. The field strength of any emissions on any frequency outside of the 200 kHz authorized bandwidth shall not

exceed 1.5 mV/m measured at a distance of 3 m using a CISPR average detector.

C.2 Band 216-217 MHz (auditory assistance, medical telemetry, goods tracking and law enforcement devices)

This band is available for one-way voice and two-way data transmission for auditory assistance, medical telemetry, goods tracking and law enforcement devices. Law enforcement agencies have exclusive use of the sub-band 216.45-216.50 MHz. The sub-bands 216-216.45 and 216.50-217 MHz are permitted for any user.

All transmissions are on a no-interference, no-protection basis, especially with respect to TV channel 13 (of 210-216 MHz). However, it is advisable to avoid the band 216-216.3 MHz where TV channel 13’s sound carrier image frequency is located.

Devices shall comply with the following requirements:

a. The peak output power shall not exceed 100 mW.

b. The e.i.r.p. shall not exceed 160 mW.

c. The channel plan, frequency stability limits and unwanted emission masks are given in table C1.

Table C1: Channel plan, frequency stability limits and unwanted emission masks for devices operating in the band 216-217 MHz

Channel spacing (kHz)	Centre frequencies (MHz)	Frequency stability limits (ppm)	Unwanted emissions
5	215.9975+0.005n, n = 1 to 200	±1.5	Mask A
12.5	215.99375+0.0125n, n = 1 to 80	±5.0	Mask B
25	215.9875+0.025n, n = 1 to 40	±50	Mask C
50	215.975+0.05n, n = 1 to 20	±50	Mask D

d. The device's user manual, in addition to the user manual requirements of RSS-Gen, *General Requirements for Compliance of Radio Apparatus*, shall contain the following or equivalent notice:

If TV channel 13 (210-216 MHz) is used in the area, the installer shall reduce or adjust the radio frequency radiated power so that nearby TV channel 13 receivers do not receive radio interference from the system installed. ***Suggestions****: A test with a TV receiver equipped with a "rabbit-ear antenna" and tuned to channel 13 should be conducted at the perimeter of the user's intended coverage area and should not overlap other user(s)' areas without the user(s)' consent. If this does not resolve the problem, a channel near the 217 MHz edge and not near 216 MHz should be used.*

e. The requirements of RSS-Gen for restricted frequency bands do not apply to 216-217 MHz medical telemetry devices in health care facilities. However, ISED may, if deemed necessary, impose more attenuation than masks A to D for some restricted frequency bands.

f. The peak power of any unwanted emissions shall be measured with a bandwidth of at least 300 Hz and shall comply with the limits described in the applicable mask, per table C1. In the following masks, *P* is the peak transmitter output power in dBW and f_D is the difference between the channel frequency and the emission component frequency in kHz.

Mask A

i. [*P* – 30 – 20 (f_D – 2)] dBW, or –55 dBW, or (*P* – 65) dBW, whichever is less stringent, for emissions at f_D that are greater than 2 kHz and less than or equal to 3.75 kHz

ii. –55 dBW or the general field strength limits specified in RSS-Gen, whichever is less stringent, for emissions at f_D that are greater than 3.75 kHz

Mask B

i. The authorized bandwidth is 11.25 kHz

ii. (*P* – 25) dBW for emissions at frequencies separated from the channel centre frequency by more than 50% and less than 100% of the authorized bandwidth

iii. (*P* – 35) dBW for emissions at frequencies separated from the channel centre frequency by more than 100%

and less than 250% of the authorized bandwidth

iv. –55 dBW or the limits specified in RSS-Gen, whichever is less stringent, for emissions at frequencies separated from the channel centre frequency by more than 250% of the authorized bandwidth

Mask C

i. (*P* – 30) dBW for emissions at 12.5 kHz to 22.5 kHz away from the channel centre frequency

ii. –55 dBW or the general field strength limits specified in RSS-Gen, whichever is less stringent, for emissions at frequencies greater than 22.5 kHz away from the channel centre frequency

Mask D

i. (*P* – 30) dBW for emissions at 25 kHz to 35 kHz away from the channel centre frequency

ii. –55 dBW or the general field strength limits specified in RSS-Gen, whichever is less stringent, for emissions at frequencies more than 35 kHz away from the channel centre frequency

C.3 Band 608-614 MHz (medical telemetry)

Operation in this band is reserved for medical telemetry devices in health care facilities (e.g. hospitals and clinics).

Devices shall comply with the following requirements:

a. The field strength of the fundamental emissions shall not exceed 200 mV/m, measured at a distance of 3 m using a

CISPR quasi-peak detector (nominal 120 kHz bandwidth). Systems using bandwidth wider than 120 kHz are permitted to have output power proportionate to their bandwidth. In this case, the field strength limit shall be as follows:

$$\textit{field strength} = 200\ x\sqrt{\left(\frac{B}{120}\right)}\text{, mV/m at a distance of 3 m}$$

where: B is the occupied bandwidth, measured in kHz. The field strength shall be measured using a minimum bandwidth of B.

Note: The full value of the field strength will not show on a quasi-peak detector because of the limited bandwidth of the detector. Details of the measurement shall be reported.

b. Emissions outside of the band 608-614 MHz shall not exceed the general field strength limits specified in RSS-Gen.

c. The device's user manual, in addition to the user manual requirements of RSS-Gen, shall contain the following or equivalent notice:

Installation of this telemetry device is permitted in hospitals and health care facilities only. This device shall not be

operated in mobile vehicles (including ambulances and other vehicles associated with health care facilities). The installer/user of this device shall ensure that it is at least 80 km from the Dominion Radio Astrophysical Observatory (DRAO) near Penticton, British Columbia. The coordinates of DRAO are: latitude N 49° 19' 15", longitude W 119° 37' 12". For medical telemetry systems not meeting this 80 km separation (e.g. the Okanagan Valley, British Columbia) the installer/user must coordinate with, and obtain the written concurrence of, the Director of DRAO prior to installing or operating the equipment. The DRAO office can be contacted by email at NRC.DRAO-OFR.CNRC@nrc-cnrc.gc.ca.

C.4 Bands 1395-1400 MHz and 1427-1429.5 MHz (medical telemetry)

Operation in these bands is reserved for medical telemetry devices used in health care facilities in Canada, except in the areas of Sydney, Nova Scotia, or Gander, Newfoundland and Labrador, due to possible interference to government radar operations.

Wireless medical telemetry devices may transmit any emission type appropriate for communications that are related to the provision of medical care, except for video and voice. Waveforms such as electrocardiograms (ECGs) are not considered video.

Devices shall comply with the following requirements:

a. The field strength shall not exceed 740 mV/m at a distance of 3 m, measured with an average detector and a 1 MHz

resolution bandwidth.

b. Unwanted emissions below 960 MHz shall not exceed 200 µV/m at a distance of 3 m, measured with a CISPR quasi-peak detector.

c. Unwanted emissions above 960 MHz shall not exceed 500 µV/m at a distance of 3 m, measured with a CISPR average detector and a 1 MHz resolution bandwidth.

d. The emission bandwidth shall be contained within the bands of operation under all normal operating conditions, as specified in the user manual.

e. The device's user manual, in addition to the user manual requirements of RSS-Gen, shall conspicuously contain the following notice:

   This equipment shall not be operated in the areas of Sydney, Nova Scotia, or Gander, Newfoundland and Labrador. Please contact your local Innovation, Science and Economic Development Canada (ISED) office for further information. Addresses are listed in Radio Information Circular RIC-66, which is available on ISED's website.

   Alternatively, the notice may be printed on a separate insert to be included in the equipment packaging, which shall be highly visible upon opening the packaging.

▼ Annex D: Radio frequency identification devices in the band 433.5-434.5 MHz

The requirements of this annex are for radio frequency identification (RFID) devices used to identify the contents of commercial shipping containers. Operation shall be limited to commercial and industrial areas such as ports, rail terminals and warehouses. Two-way operation is permitted in order to interrogate and load data into devices. Voice communication is prohibited.

Devices shall comply with the following requirements:

a. A means for automatically limiting operation shall be provided so that the duration of each transmission shall not be greater than 60 seconds and be permitted only to reinitiate an interrogation in the case of transmission error. Under normal circumstances (no transmission error), the silent period between transmissions shall not be less than 10 seconds.

b. The field strength of any emissions radiated within the band 433.5-434.5 MHz shall not exceed 11 mV/m measured at 3 m with an average detector. The peak level of any emission within this specified frequency band shall not exceed 55 mV/m measured at 3 m.

c. The field strength of emissions on any frequencies outside this specified band shall not exceed the general field strength limits specified in RSS-Gen, *General Requirements for Compliance of Radio Apparatus*.

▼ Annex E: Family Radio Service, General Mobile Radio Service and General Mobile Radio Service-M

The requirements of this annex are for Family Radio Service (FRS), General Mobile Radio Service (GMRS) and General Mobile Radio Service-M devices.

The measurements for annex E shall be performed and reported in accordance with ANSI C63.26.

E.1 Family Radio Service and General Mobile Radio Service

This section applies specifically to FRS and GMRS devices.

E.1.1 Restrictions

The following restrictions shall apply:

a. FRS and GMRS devices are not permitted to include transmitter(s) (or transmitting modes) operating in other licensed and licence-exempt services except services covered in RSS-210 and RSS-247, *Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices*.

b. FRS and GMRS devices are permitted to transmit non-voice emission exclusively for selective calling or tone-operated squelch to establish or continue a voice communication, or to transmit digital data containing location information or text messaging, and are subject to the following restrictions:

    i. An FRS/GMRS unit may transmit tones to make contact or to continue communications with a particular FRS/GMRS unit. If the tone is audible (greater than 300 Hz), it may be transmitted continuously for periods not exceeding 15 seconds at a time. If the

tone is inaudible (300 Hz or less), it may be transmitted continuously only while the user is talking.

ii. An FRS/GMRS unit may transmit digital data containing location information or requesting location information from one or more other FRS/GMRS units, or containing a brief text message to another specific FRS/GMRS unit. Digital data transmissions must be initiated by the user using a manual action or command. However, an FRS/GMRS unit receiving an interrogation request may automatically respond with its location. Digital data transmissions shall not exceed 1 second, and shall be limited to one transmission within a 30-second period. However, an FRS/GMRS unit may automatically respond to more than one interrogation request received within a 30-second period.

c. The antenna of FRS devices shall be an integral part of the unit.

d. FRS/GMRS devices shall not:

i. be designed to interconnect to public switched telephone networks

ii. be designed to transmit data in store-and-forward packet operation mode

iii. incorporate one or more scrambling features (e.g. encryption, voice inversion, obscuring)

e. All frequency determining circuitry, including crystals and programming controls, shall be internal to the transmitter

and made inaccessible to the user from the exterior of the device.

E.1.2 Channel frequencies

The 22 simplex channel carrier frequencies for use by FRS/GMRS devices are provided in table E1.

Table E1: Channel carrier frequencies for FRS/GMRS devices

Channel	Channel carrier frequency (MHz)
1	462.5625
2	462.5875
3	462.6125
4	462.6375
5	462.6625
6	462.6875
7	462.7125
8	467.5625
9	467.5875
10	467.6125
11	467.6375
12	467.6625
13	467.6875
14	467.7125

15	462.5500
16	462.5750
17	462.6000
18	462.6250
19	462.6500
20	462.6750
21	462.7000
22	462.7250

E.1.3 Emission types and modulation requirements

FRS/GMRS devices shall transmit only these emission types: A1D, A3E, F1D, F2D, F3E, G1D, G2D, G3E, H1D, H3E, J1D, J3E, R1D and R3E. Each device shall have the capability to transmit F3E or G3E emissions.

For frequency modulation and phase modulation, the peak frequency deviation shall not exceed ±2.5 kHz for channels 8-14 and ±5 kHz for other channels.

For emission type A3E, the modulation shall be greater than 85% and shall not exceed 100%. For other amplitude modulation, the modulation shall not exceed 100%.

E.1.4 Authorized bandwidth

The maximum permissible occupied bandwidth is 12.5 kHz for channels 8-14 and 20 kHz for other channels.

E.1.5 Transmitter output power and effective radiated power

Transmitter output power shall be measured as average carrier power during one unmodulated cycle when transmitting emission type A1D, A3E, F1D, F2D, F3E, G1D, G2D or G3E and as peak envelope power when transmitting emission type H1D, H3E, J1D, J3E, R1D or R3E.

The maximum permissible transmitted effective radiated power (e.r.p.) of the equipment under any operating conditions shall not exceed 0.5 W for channels 8-14 and 2 W for other channels.

E.1.6 Tone requirements

In addition to the tones permitted in section E.1.1(b), FRS/GMRS devices are permitted to transmit brief tones to indicate the end of a transmission.

E.1.7 Audio frequency filter

FRS/GMRS devices shall include an audio frequency low-pass filter, unless they comply with the emission masks without filter in section E.1.8. The filter shall be between the modulation limiter and the modulated stage of the transmitter and its attenuation shall comply with the limits in table E2.

Table E2: Audio frequency filter attenuation for FRS/GMRS devices

Frequency, f (kHz)	Attenuation greater than the attenuation at 1 kHz (dB)
$3 \leq f \leq 20$	$60 \log_{10}(f/3)$
$f > 20$	50

E.1.8 Transmitter unwanted emission

Unwanted emissions shall not exceed the levels specified in E.1.8(a), E.1.8(b) and E.1.8(c) as applicable. For the given formulas, *P* is the transmitter output power in dBW, measured with the same type of detector as the unwanted emissions, and f_D is the difference between the channel frequency and the emission component frequency in kHz.

a. For emission types A1D, A3E, F1D, F2D, F3E, G1D, G2D and G3E with audio frequency filtering:

    i. (*P* – 25) dBW, measured with a bandwidth of 300 Hz, on any frequency removed from the centre frequency of the authorized bandwidth by more than 50%, up to and including 100% of the authorized bandwidth

    ii. (*P* – 35) dBW, measured with a bandwidth of 300 Hz, on any frequency removed from the centre frequency of the authorized bandwidth by more than 100%, up to and including 250% of the authorized bandwidth

    iii. –43 dBW, measured with a bandwidth of at least 30 kHz, on any frequency removed from the centre frequency of the authorized bandwidth by more than 250% of the authorized bandwidth

b. For emission types A1D, A3E, F1D, F2D, F3E, G1D, G2D and G3E without audio frequency filtering:

    i. [$P – 83 \log_{10}(f_D/5)$] dBW, measured with a bandwidth of 300 Hz, on any frequency removed from the centre frequency of the authorized bandwidth by a

displacement frequency f_D of more than 5 kHz, up to and including 10 kHz

ii. [P – 116 $\log_{10}(f_D/6.1)$] dBW or –50 dBW, whichever is less stringent, measured with a bandwidth of 300 Hz, on any frequency removed from the centre of the authorized bandwidth by a displacement frequency f_D of more than 10 kHz, up to and including 250% of the authorized bandwidth

iii. –43 dBW, measured with a bandwidth of at least 30 kHz, on any frequency removed from the centre frequency of the authorized bandwidth by more than 250% of the authorized bandwidth

c. For emission types H1D, H3E, J1D, J3E, R1D and R3E:

i. (P – 25) dBW, measured with a bandwidth of 300 Hz, on any frequency removed from the centre frequency of the authorized bandwidth by more than 50%, up to and including 150% of the authorized bandwidth

ii. (P – 35) dBW, measured with a bandwidth of 300 Hz, on any frequency removed from the centre frequency of the authorized bandwidth by more than 150%, up to and including 250% of the authorized bandwidth

iii. –43 dBW, measured with a bandwidth of at least 30 kHz, on any frequency removed from the centre frequency of the authorized bandwidth by more than 250% of the authorized bandwidth

Unwanted emissions falling within the restricted frequency bands of RSS-Gen, *General Requirements for Compliance of Radio Apparatus*, shall not exceed the limits provided in this section or the general field strength limits specified in RSS-Gen, whichever is less stringent.

E.1.9 Frequency stability

The carrier frequency stability shall not exceed ±2.5 ppm.

E.2 General Mobile Radio Service-M

This section applies specifically to General Mobile Radio Service-M (GMRS-M) devices.

E.2.1 Restrictions

The following restrictions shall apply:

a. A single digital data transmission from a GMRS-M device shall not exceed 250 ms, and the total digital data transmission time from an individual GMRS-M device shall not exceed 1 second within a 30-second period.

b. Devices shall not be designed:

    i. to interconnect to public switched telephone networks

    ii. to transmit data in store-and-forward packet operation mode

    iii. to operate in the continuous carrier transmit mode

c. All frequency determining circuitry, including crystals and programming controls, shall be internal to the transmitter

and made inaccessible to the user from the exterior of the device.

E.2.2 Channel frequencies

The 5 channel carrier frequencies shown in table E3, which are shared with FRS/GMRS, are available for GMRS M operation.

Table E3: Channel carrier frequencies for GMRS-M devices

Channel	Channel carrier frequency (MHz)
1	462.5500
2	462.6125
3	462.6375
4	462.6625
5	462.6875

E.2.3 Listen-Before-Talk

GMRS-M devices shall employ a Listen-Before-Talk (LBT) mechanism to detect the presence of any emission on the channel they intend to occupy. If an emission is present, the GMRS-M device shall not transmit.

GMRS-M devices may utilize a protocol that enables them to automatically select any 1 of the 5 available GMRS-M channels; however, the device shall only be capable of transmitting on one channel at any given time.

E.2.4 Emission types and modulation requirements

GMRS-M devices are permitted to transmit only the following emission types: A1D, A2B, A2D, A3E, F1D, F2B, F2D, F3E and G3E. Simultaneous amplitude modulation and frequency or phase modulation of a transmitter are not required.

For emission types F1D, F2B, F2D or F3E, the peak frequency deviation shall not exceed ±5 kHz.

For emission type A3E, the modulation shall be greater than 85% and shall not exceed 100%. For all other amplitude modulation, the modulation shall not exceed 100%.

E.2.5 Audio frequency filter

GMRS-M devices shall comply with the requirement to employ an audio frequency filter as outlined in section E.1.7.

E.2.6 Authorized bandwidth

The authorized bandwidth is 8 kHz for emission types A1D, A2B, A2D and A3E, and 20 kHz for emission types F1D, F2B, F2D, F3E and G3E.

E.2.7 Transmitter output power and effective radiated power

Transmitter output power shall be measured as average carrier power during one unmodulated cycle. The maximum permissible transmitted effective radiated power (e.r.p.) of GMRS-M devices shall not exceed 2.0 W.

E.2.8 Transmitter unwanted emissions

Unwanted emissions shall not exceed the levels specified in E.2.8(a) and E.2.8(b), as applicable. For the given formulas, *P* is the transmitter output power in dBW, measured with the same

type of detector as the unwanted emissions, and f_D is the difference between the channel frequency and the emission component frequency in kHz.

a. For emission types A1D, A2B, A2D, A3E, F1D, F2B, F2D, F3E and G3E with audio frequency filtering:

    i. (*P* – 25) dBW, measured with a bandwidth of 300 Hz, on any frequency removed from the centre frequency of the authorized bandwidth by more than 50%, up to and including 100% of the authorized bandwidth

    ii. (*P* – 35) dBW, measured with a bandwidth of 300 Hz, on any frequency removed from the centre frequency of the authorized bandwidth by more than 100%, up to and including 250% of the authorized bandwidth

    iii. –43 dBW, measured with a bandwidth of at least 30 kHz, on any frequency removed from the centre frequency of the authorized bandwidth by more than 250% of the authorized bandwidth

b. For emission types A1D, A2B, A2D, A3E, F1D, F2B, F2D, F3E and G3E without audio frequency filtering:

    i. [P – 83 $\log_{10}(f_D/5)$] dBW, measured with a bandwidth of 300 Hz, on any frequency removed from the centre frequency of the authorized bandwidth by a displacement frequency f_D of more than 5 kHz, up to and including 10 kHz

    ii. [P – 116 $\log_{10}(f_D/6.1)$] dBW, or –50 dBW, whichever is less stringent, measured with a bandwidth of 300 Hz, on any frequency removed from the centre of the

authorized bandwidth by a displacement frequency f_D of more than 10 kHz, up to and including 250% of the authorized bandwidth

iii. –43 dB dBW, measured with a bandwidth of at least 30 kHz, on any frequency removed from the centre frequency of the authorized bandwidth by more than 250% of the authorized bandwidth

Unwanted emissions falling within the restricted frequency bands of RSS-Gen shall not exceed the limits provided in this section or the general field strength limits specified in RSS-Gen, whichever is less stringent.

E.2.9 Transmitter frequency stability

The carrier frequency stability shall not exceed ±5 ppm.

▼ Annex F: Devices operating in the bands 902-928 MHz, 2435-2465 MHz, 5785-5815 MHz, 10.5-10.55 GHz, 24.075-24.175 GHz and 33.4-36 GHz

The provisions of this annex are specific to devices operating in the bands 902-928 MHz, 2435-2465 MHz, 5785-5815 MHz, 10.5-10.55 GHz, 24.075-24.175 GHz and 33.4-36 GHz.

F.1 Field disturbance sensors

This section sets out the requirements for field disturbance sensor (FDS) units operating in the frequency bands shown in table F1. An FDS is a device designed to detect changes in a radio frequency field as a result of movement of persons or objects within its range.

Perimeter protection systems, which employ a leaky transmission line as the radiating source, are excluded from the requirements of this section.

Devices shall comply with the following requirements:

a. The average field strength of fundamental and harmonic emissions measured at a distance of 3 m shall not exceed the limits shown in table F1.

Table F1: Field strength limits for fundamental and harmonic emissions

Fundamental frequency (MHz)	**Field strength (mV/m) of fundamental emissions**	**Field strength (mV/m) of harmonic emissions, but see F.1(b) and F.1(c)**
902-928	500	1.6
2435-2465	500	1.6
5785-5815	500	1.6
10500-10550	2500	25
24075-24175	2500	25

b. Harmonic emissions falling into restricted frequency bands listed in RSS-Gen, *General Requirements for Compliance of Radio Apparatus*, and that are below 17.7 GHz shall meet

the general field strength limits specified in RSS-Gen, regardless of the limits given in table F1.

c. Harmonic emissions falling into restricted frequency bands listed in RSS-Gen and that are at or above 17.7 GHz shall not exceed the field strength limits described in F.1(c)(i) and F.1(c)(ii), measured at a distance of 3 m, using a CISPR average detector:

    i. 25 mV/m for the second and third harmonic emissions of FDS units operating in the band 24075-24175 MHz and for those designed for use only within buildings or for intermittent use, such as to open building doors

    ii. 7.5 mV/m for all other harmonic emissions of FDS units operating in the band 24075 24175 MHz and for all other types of FDS

d. The FDS units designed to be used in motor vehicles or aircraft shall include features to prevent continuous operation, unless their emissions in the restricted frequency bands listed in RSS-Gen, other than the second and third harmonic emissions from devices operating in the band 24075-24175 MHz, comply with the general field strength limits specified in RSS-Gen.
Continuous operation of FDS designed to be used in farm equipment (e.g. forklifts that are intended primarily for use indoors or for very specialized operations), or railroad locomotives, railroad cars, and other equipment that travels on fixed tracks, is permitted. An FDS is considered

not to be operating in a continuous mode if its operation is limited to specific activities of limited duration (e.g. putting a vehicle into reverse gear or activating a turn signal).

e. Emissions radiated outside of the specified frequency bands, except for harmonic emissions, shall be attenuated by at least 50 dB below the level of the fundamental emission or to the general field strength limits specified in RSS-Gen, whichever is less stringent.

F.2 Speed radar meters

This section sets out the requirements for speed radar meters operating in the frequency bands 10.5-10.55 GHz, 24.075-24.175 GHz and 33.4-36 GHz. Devices shall comply with the following requirements:

a. The average field strength of fundamental and harmonic emissions measured at the distance of 3 m shall not exceed the limits shown in table F2.

Table F2: Field strength limits for fundamental and harmonic emissions

Fundamental frequency (MHz)	Field strength (mV/m) for fundamental emissions	Field strength (mV/m) for harmonic emissions, but see F.2(b) and F.2(c)
10500-10550	2500	25

24075-24175	2500	25
33400- 36000	2500	80

b. Harmonic emissions falling into restricted frequency bands listed in RSS-Gen and that are below 17.7 GHz shall meet the general field strength limits specified in RSS-Gen, regardless of the limits given in table F2.

c. Harmonic emissions falling into restricted frequency bands listed in RSS-Gen and that are at or above 17.7 GHz shall not exceed the following field strength limits measured at a distance of 3 m using an average detector:

    i. 25 mV/m for the second and third harmonic emissions of devices operating in the band 24.075-24.175 GHz and for the second harmonic emission of devices operating in the band 33.4-36.0 GHz

    ii. 7.5 mV/m for all other harmonic emissions of FDS units operating in 24.075-24.175 GHz and 33.4-36.0 GHz bands and for other type of speed radar meters

d. Emissions radiated outside of the specified frequency bands, except for harmonic emissions, shall be attenuated by at least 50 dB below the level of the fundamental emissions or the general field strength limits specified in RSS-Gen, whichever is less stringent.

e. The carrier frequency stability shall be sufficient to ensure that the 40 dB bandwidth stays within the operating frequency band when tested at the temperature and

supply voltage variations specified for the frequency stability measurement in RSS-Gen.

▼ Annex G: Wireless microphones operating in the television bands, in the 614-616 MHz band and in the 653-663 MHz band

G.1 General

This annex sets out the technical requirements for wireless microphones operating in the television bands (54-72 MHz, 76-88 MHz, 174-216 MHz and 470-608 MHz), and in the 614-616 MHz and 653-663 MHz frequency bands.

For the purpose of this standard, the term “wireless microphones” refers to wireless microphone devices and devices used for cue and control communications and synchronization of video camera signals.

For the purpose of this standard, the term Wireless Multichannel Audio Systems (WMAS) refers to wireless audio transmission systems using broadband digital transmission techniques for microphone and in-ear monitor system applications and other multichannel audio use.

G.2 Frequency bands, e.i.r.p., authorized bandwidth and frequency stability

The transmit power shall be measured in terms of average value over any period of continuous transmission. The frequency bands, e.i.r.p., authorized bandwidth and frequency

stability limits for devices are provided in table G1 for wireless microphones and table G2 for WMAS.

Table G1: Specifications for wireless microphones

Frequency bands (MHz)	e.i.r.p. (mW)	Authorized bandwidth (kHz)	Frequency stability (± ppm)
54-72 76-88 174-216	≤ 50	≤ 200	≤ 50
470-608	≤ 250	≤ 200	≤ 50
614-616 653-663	≤ 20	≤ 200	≤ 50

Table G2: Specifications for WMAS

Frequency bands (MHz)	e.i.r.p. (mW)	Authorized bandwidth (MHz)
54-72 76-88 174-216	≤ 50	≤ 1
54-72 76-88 174-216	≤ 100*	> 1 and ≤ 6
470-608	≤ 250	≤ 6
657-663	≤ 20	≤ 6

*WMAS equipment users seeking to obtain a voluntary licence via CPC-2-1-28 shall be limited to 50 mW for equipment operating on any authorized bandwidth in these bands.

G.3 Occupied bandwidth

The occupied bandwidth for wireless microphones shall not exceed the authorized bandwidth specified in tables G1 and G2, above.

WMAS shall have a bandwidth less than 6 megahertz and shall have a mode of operation capable of operating with at least three (3) audio channels per megahertz.

For WMAS operating in the TV bands (54-72 MHz, 76-88 MHz, 174-216 MHz and 470-608 MHz), the 6 megahertz (or less) channel shall fall entirely within a single TV channel.

G.4 Transmitter frequency stability

The frequency stability of wireless microphones shall comply with the limits specified in table G1, when tested under the frequency stability testing conditions specified in RSS-Gen, *General Requirements for Compliance of Radio Apparatus*.

The frequency stability for WMAS shall be sufficient to ensure that the authorized bandwidth stays within the TV channel (6 MHz) when tested to the temperature and supply voltage variations specified in RSS-Gen.

G.5 Transmitter unwanted emissions

The transmitter unwanted emissions shall meet and be measured according to the requirements in sections 4.2.4.1.2 and 4.2.4.2.2 of ETSI EN 300 422-1.

G.6 Modulation

Wireless microphones may employ any type of modulation. The type of modulation used shall be reported.

WMAS shall employ digital modulation.

Equipment employing amplitude modulation (AM) or frequency modulation (FM) shall have a modulation index that does not exceed 100% or a frequency deviation that does not exceed ±75 kHz, respectively.

G.7 User manual

The following text shall be included in the device's user manual:

This device operates on a no-interference, no-protection basis. Should the user seek to obtain protection from other radio services operating in the same TV bands, a radio licence is required. For further details, consult Innovation, Science and Economic Development Canada's Client Procedures Circular CPC-2-1-28, Voluntary Licensing of Licence-Exempt Wireless Microphones in the TV Bands.

▼ Annex H: Vehicle identification

This annex outlines the technical requirements for automatic vehicle identification systems (AVIS) that employ swept frequency techniques to automatically identify transportation vehicles (e.g. cars, trucks or trains). The devices shall operate in the frequency bands 2900-3260 MHz, 3267-3332 MHz, 3339-3345.8 MHz or 3358-3600 MHz, and shall comply with the following conditions:

a. The field strength in the antenna main beam shall not exceed 3 mV/m, measured at a distance of 3 m using an average detector with a 1 MHz resolution bandwidth.

b. The AVIS shall employ a horn antenna or other comparable directional antenna pointing upwards to attenuate the radio frequency field in the horizontal direction. The field strength shall not be greater than 400 μV/m at a distance of 3 m in any direction within ±10 degrees of the horizontal plane of the antenna as measured with an average detector with a 1 MHz resolution bandwidth.

c. The user manual shall provide proper installation instructions to comply with requirement (b). A copy of the installation instructions shall be included with the equipment certification application.

d. The field strength of emissions falling into the restricted frequency bands listed in RSS-Gen, *General Requirements for Compliance of Radio Apparatus*, shall meet the general field strength limits specified in RSS-Gen. The field strength of emissions outside the frequency range swept by the signal shall not exceed 100 μV/m measured at a

distance of 3 m using an average detector with a 1 MHz resolution bandwidth.

e. The signal sweep rate shall be between 4,000 and 50,000 sweeps per second.

f. Signal emission from the AVIS shall only occur when the vehicle to be identified is within the radiated field of the system.

g. In measuring unwanted emissions, the spectrum shall be investigated from 30 MHz or the lowest radio frequency signal generated in the equipment, whichever is lower, without going below 9 kHz, and up to 20 GHz.

Note: The sub-band 3500-3600 MHz is within the restricted frequency bands of RSS-Gen and ISED may impose further restrictions if necessary.

▼ Annex I: Fixed point-to-point systems in the band 24.05-24.25 GHz

This annex sets out the technical requirements for fixed point-to-point systems operating in the frequency band 24.05-24.25 GHz. Fixed point-to-point operation is limited to systems employing a fixed transmitter that transmits to a fixed location. Point-to-multipoint systems, omnidirectional applications and multiple co-located transmitters transmitting the same information are prohibited.

Note: For devices operating in the band 24.05-24.25 GHz with a field strength not exceeding 250 mV/m measured at a distance of 3 m, the requirements are found in annex B.

Devices shall comply with the following requirements:

a. The average field strength of emissions in this band shall not exceed 25 V/m measured at a distance of 3 m. The power delivered to the antenna shall not exceed 1 mW.

b. The carrier frequency stability shall not exceed ±10 ppm.

c. The antenna gain shall be at least 33 dBi. Alternatively, the beam width of the main lobe shall not exceed 3.5 degrees in the azimuth and elevation planes. For antenna gains greater than 53 dBi, the output power shall be reduced as necessary, such that the field strength limit is not exceeded.

d. Except for harmonic emissions, unwanted emissions shall be attenuated by at least 50 dB below the level of the fundamental emissions or to the general field strength limits specified in RSS-Gen, *General Requirements for Compliance of Radio Apparatus*, whichever is less stringent. Harmonic emissions shall not exceed 2.5 mV/m measured at a distance of 3 m.

e. The peak field strength of emissions shall not exceed 25 V/m measured at 3 m along the antenna boresight.

▼ Annex J: Devices operating in the band 57-71 GHz

This annex sets out the requirements for licence-exempt field disturbance sensors and wireless communication devices operating in the 57-71 GHz band.

J.1 Definitions

Field disturbance sensor (FDS) was defined in section F.1 and can be either fixed or mobile. Radar devices are a subcategory of FDS devices.

Frequency-agile field disturbance sensors are FDS devices such as frequency-modulated continuous-wave radar (FMCW radar) or swept-frequency radars.

Pulsed FDS is a low-power device typically transmitting nanosecond-long pulses that are emitted in sweeps and instantaneously spread across the wide intended band.

Personal portable electronic device is personal use equipment such as smartphones, tablets and laptops.

J.2 Restrictions

The devices certified under this annex are not permitted to be used on satellites. Devices used on aircraft are permitted under the following conditions:

a. Except as allowed in J.2(b), devices are only to be used when the aircraft is on the ground.

b. Devices used in-flight are subject to the following restrictions:

    i. they shall be used within closed, exclusive on-board, communication networks within the aircraft

    ii. they shall not be used in wireless avionics intra-communication (WAIC) applications where external structural sensors or external cameras are mounted on the outside of the aircraft structure

iii. they shall not be used on aircraft equipped with a body/fuselage that provides little or no RF attenuation except when installed on unmanned air vehicles (UAVs) and complying with J.2(d)

iv. devices operating in the 59.3-71.0 GHz band shall not be used except if they meet all of the following conditions:

1. they are FDS
2. they are installed within personal portable electronic devices
3. they comply with the relevant requirements in J.3.2(a), J.3.2(b) and J.3.2(c)

c. Devices' user manuals shall include text indicating restrictions shown in J.2(a) and J.2(b).

d. FDS devices deployed on UAVs shall comply with all of the following conditions:

i. they operate in the 60-64 GHz band

ii. the UAVs limit their altitude operation to the regulations established by Transport Canada (e.g. altitudes below 122 metres above ground)

iii. they comply with J.3.2(d)

J.3 Emission limits within the band 57-71 GHz

This section specifies the emission limits inside the allocated band.

J.3.1 General

Within the band 57-71 GHz, the power of any emissions shall be measured during the transmission interval and shall comply with the limits in this section. For the purpose of this annex, the terms “average e.i.r.p.” and “peak e.i.r.p.” refer to e.i.r.p. with transmitter output power measured in terms of average value or peak value, respectively.

J.3.2 Emission limits for FDS

FDS devices operating in the 57-71 GHz band shall not exceed –10 dBm peak transmitter conducted output power and 10 dBm peak e.i.r.p. The following exceptions apply:

a. FDS devices that occupy a bandwidth of 500 MHz or less and where this bandwidth is contained wholly within the frequency band 61.0-61.5 GHz shall comply with the following limits: the equipment shall not exceed 40 dBm average e.i.r.p. and 43 dBm peak e.i.r.p. in the 61.0-61.5 GHz band. In addition, the average and peak e.i.r.p. of any emission outside of the band 61.0-61.5 GHz, but still within the band 57-71 GHz, shall not exceed 10 dBm average e.i.r.p. and 13 dBm peak e.i.r.p.

b. FDS devices may operate in any mode as indicated in J.3.2(b)(i) and J.3.2(b)(ii), as long as they operate in only one of these modes for at least 33 ms before switching to another mode.

    i. FDS devices operating in the 57.0-59.4 GHz band shall comply with one of the following limits, depending on the operating condition of the device:

1. the peak e.i.r.p. shall not exceed 20 dBm for indoor usage (devices operating and situated in or designed to be used in, or carried within the interior of a building)
2. the peak e.i.r.p. for outdoor usage (devices operating, situated in, designed to be used in, or carried in open air) shall not exceed 30 dBm

ii. FDS devices operating in the 57.0-61.56 GHz band shall have the peak e.i.r.p. not exceeding 3 dBm or, if the sum of continuous transmitter off-times of at least 2 ms equals at least 16.5 ms within any contiguous interval of 33 ms, the peak e.i.r.p. shall not exceed 20 dBm.

iii. FDS operating in the 57.0-64.0 GHz band shall comply with one of the following limits, depending on the operating condition of the device:

1. the peak e.i.r.p. shall not exceed 14 dBm and the sum of continuous transmitter off-times of at least 2 ms shall equal at least 25.5 ms within any contiguous interval of 33 ms
2. for devices employed for outdoor operation (temporary or permanently fixed application) or vehicular uses (excluding in-cabin applications and operations), the peak e.i.r.p. shall not exceed 20 dBm and the sum of continuous transmitter off-times of at least 2 ms shall equal at least 16.5 ms within any contiguous interval of 33 ms

c. For pulsed FDS devices operating in the 57-64 GHz band that have a maximum pulse duration of 6 ns:

   i. the average e.i.r.p. shall not exceed 13 dBm and the transmit duty cycle shall not exceed 10% during any 0.3 µs time window

   ii. the average integrated e.i.r.p. within the 61.5-64.0 GHz band shall not exceed 5 dBm in any 0.3 µs time window

   iii. peak emissions shall not exceed 20 dB above the maximum permitted average emission limit applicable to the device

   iv. the bandwidth is the frequency band bounded by the points that are 10 dB below the highest radiated emission, as based on the complete transmission system including the antenna

d. For FDS devices installed on UAVs, their peak e.i.r.p. shall not exceed 20 dBm and the sum of continuous transmitter off-times of at least 2 ms shall equal at least 16.5 ms within any contiguous interval of 33 ms. See also J.2(d).

J.3.3 Emission limits for devices other than FDS

Following are the conditions for devices other than FDS:

a. Except when J.3.3(b) applies, the average e.i.r.p. of any emission shall not exceed 40 dBm and the peak e.i.r.p. of any emission shall not exceed 43 dBm.

b. For fixed point-to-point equipment located outdoors:

i. The average e.i.r.p. of any emission shall not exceed 82 dBm minus 2 dB for every dB the antenna gain is less than 51 dBi. The peak e.i.r.p. of any emission shall not exceed 85 dBm minus 2 dB for every dB the antenna gain is less than 51 dBi.

ii. The provisions for reducing the transmit power based on the antenna gain, as per J.3.3(b)(i), shall not require that the power levels be reduced below the limits specified in J.3.3(a).

iii. Compliance testing shall be performed using the highest gain and the lowest gain antennas with which the equipment is certified. Further, this equipment shall not be marketed and operated with antennas other than those listed in the certification application with which the equipment is certified.

c. Except as specified in J.3.3(d), the peak transmitter conducted output power shall not exceed 500 mW. Depending on the gain of the antenna, it may be necessary to operate the intentional radiator using a lower peak transmitter output power in order to comply with the e.i.r.p. limits specified in J.3.3(a) and J.3.3(b).

d. For devices with an emission bandwidth less than 100 MHz, the peak transmitter conducted output power (PTCOP) shall be less than or equal to the product of 500 mW times their emission bandwidth divided by 100 MHz. For the purpose of J.3.3(d), emission bandwidth is the instantaneous frequency range occupied by a steady radiated signal with modulation, outside which the

radiated power spectral density is 6 dB below the maximum radiated power spectral density in the band, as measured with a 100 kHz resolution bandwidth. The centre frequency shall be stationary during the measurement interval, even if not stationary during normal operation (e.g. for frequency hopping devices).

J.4 Spurious emissions

Any emissions outside the band 57-71 GHz shall consist solely of spurious emissions and shall not exceed:

a. the fundamental emission levels

b. the general field strength limits specified in RSS-Gen, *General Requirements for Compliance of Radio Apparatus*, for emissions below 40 GHz

c. 90 pW/cm^2 peak at a distance of 3 m for emissions between 40 GHz and 200 GHz

J.5 Measurement requirements

Following are the measurement requirements for emissions:

a. Emissions shall be measured up to 200 GHz.

b. Conducted measurement for emissions above 40 GHz are permitted provided the antenna characteristics can be determined accurately.

c. Compliance measurements of frequency-agile FDS shall be performed with any related frequency sweep, step, or hop function activated.

d. Corrections to the transmitter conducted output power may be considered due to the antenna and cabling loss.

e. The provisions of RSS-Gen requiring the application of a peak limit that is 20 dB above the average limit shall not apply to devices subject to J.3.2(a) and J.3.2(b).

f. The provisions of RSS-Gen requiring averaging over a time interval of 0.1 seconds shall not apply to devices subject to J.3.2(a), J.3.2(b) and J.3.2(c).

J.6 Transmitter frequency stability

Fundamental emissions shall be contained within the frequency bands specified in this annex during all conditions of operation when tested at the temperature and voltage variations specified for the frequency stability measurement in RSS-Gen.

J.7 Group installations

Any transmitter that is certified under this annex may be mounted in a group installation for simultaneous operation with one or more certified transmitters, without any additional equipment authorization. However, no transmitter operating under the provisions of this annex shall be equipped with external phase-locking inputs that permit beam-forming arrays to be realized.

▼ Annex K: Wideband devices operating within the band 5925-7250 MHz

This annex applies to wideband devices operating in the band 5925-7250 MHz.

K.1 General

Devices shall operate in the band 5925-7250 MHz and shall have a 10 dB bandwidth less than 500 MHz.

Devices with a 10 dB bandwidth greater than or equal to 500 MHz shall comply with RSS-220, *Devices Using Ultra-Wideband (UWB) Technology*.

K.2 Restrictions on use

Devices subject to this annex are not permitted for operation on board aircraft or satellites and shall also not be used for operating toys.

The use of a fixed outdoor infrastructure, including antennas mounted on outdoor structures such as poles or buildings, is not permitted, except for operation on board ships or land vehicles.

K.3 Bandwidth

The operating bandwidth shall comply with the following:

a. The 10 dB bandwidth of the device shall be within the band 5925-7250 MHz under all conditions of operation, including the effects from stepped frequency, frequency hopping or other modulation techniques that may be employed, as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage.

b. The 10 dB bandwidth of the device shall be at least 50 MHz and less than 500 MHz. For transmitters that employ frequency hopping, stepped frequency or similar modulation types, measurement of the 10 dB bandwidth specified in this paragraph shall be made with the frequency hop or step function disabled, and with the transmitter operating continuously at a frequency chosen in accordance with the provisions of RSS-Gen, *General Requirements for Compliance of Radio Apparatus*, for determining measurement frequencies.

K.4 Limits of radiated emissions

Transmitter radiated emissions shall comply with the following e.i.r.p. limits:

a. The average e.i.r.p. of radiated emissions above 960 MHz shall not exceed the limits specified in table K1 based on measurements using a 1 MHz resolution bandwidth.

Table K1: Radiated emissions for wideband devices operating in the band 5925-7250 MHz

Frequency (MHz)	e.i.r.p. (dBm)
960-1610	-75.3
1610-1990	-63.3
1990-3100	-61.3
3100-5925	-51.3
5925-7250	-41.3

7250-10600	-51.3
Above 10600	-61.3

b. In addition to the radiated emission limits specified in table K1, the transmitter's average e.i.r.p. shall not exceed the limits specified in table K2 when measured using a resolution bandwidth of at least 1 kHz.

Table K2: Additional e.i.r.p. limits for wideband devices operating in the band 5925-7250 MHz

Frequency (MHz)	**e.i.r.p. (dBm)**
1164-1240	-85.3
1559-1610	-85.3

c. The peak e.i.r.p. level of the emissions in a 50 MHz bandwidth contained within the band 5925-7250 MHz and centred on the frequency at which the highest radiated emission level occurs shall not exceed
20 log (RBW/50) dBm, where RBW is the resolution bandwidth in MHz that is employed by the measurement instrument. The RBW shall not be lower than 1 MHz or greater than 50 MHz. The video bandwidth of the measurement instrument shall not be less than the RBW. If the RBW is greater than 3 MHz, the application for certification shall contain a detailed description of the test procedure, calibration of the test set-up, and the instrumentation employed during testing.

d. Radiated unwanted emissions at or below 960 MHz shall not exceed the emission levels in RSS-Gen.

e. Emissions from digital circuitry used to control additional functions or capabilities other than the operation of the transmitter shall not be employed in determining the 10 dB bandwidth of the fundamental emissions or the frequency at which the highest emission level occurs.

f. Emissions from digital circuitry that is used for enabling the operation of the wideband transmitter may comply with the general field strength limits specified in RSS-Gen, if it can be clearly demonstrated that those emissions are due solely to emissions from digital circuitry contained within the device, and that the emissions are not intended to be radiated from the device's antenna.

K.5 Measurement procedures

The following measurement procedures requirements shall apply:

a. Unless otherwise specified, compliance with the average emission limits specified in this annex shall be determined by measurements using a 1 MHz resolution bandwidth with a 1 ms dwell over each 1 MHz segment. The frequency span of the analyzer should equal the number of sampling bins multiplied by 1 MHz and the sweep rate of the analyzer should equal the number of sampling bins multiplied by 1 ms. The provisions specified in RSS-Gen that allow emissions to be averaged over a period of 100 ms do not apply to devices covered by this annex.

b. The video bandwidth of the measurement instrument shall not be less than the resolution bandwidth and trace averaging shall not be employed. For both peak and average measurements, the emission level shall be measured over multiple sweeps, with the analyzer set for maximum hold until the amplitude stabilizes.

c. For transmitters that employ frequency hopping, stepped frequency or similar modulation types, the peak emission level measurement, the average emission level measurement and the determination of the frequency at which the highest level emission occurs shall be performed with the frequency hop or step function active. Gated signals may be measured with the gating active. For transmitters that employ swept frequency modulation, measurements shall be made with the frequency sweep stopped at the measurement frequencies chosen according to the provisions of RSS-Gen.

d. The 10 dB bandwidth is determined by comparing the power in a 1 MHz resolution bandwidth with the maximum in-band power in 1 MHz using a peak detector and a video bandwidth greater than or equal to the resolution bandwidth.

Date modified:
2021-04-28