Policy on the Use of Low Power Radiocommunication Devices in Barbados

1 Introduction

Barbados intends to harmonise its policy on the use of Low Power Radiocommunication Devices in line with other members of the Comisión Interamericana de Telecomunicaciones (CITEL). This Policy sets out common technical and non-technical parameters for the use and management of low power radiocommunication devices in Barbados.

This policy is subject to periodic review as the design and use of Low Power Radiocommunication Devices continue to evolve in a constantly changing radio environment.

Low power radiocommunication devices operate on a variety of frequencies. They must share these frequencies with other applications and are generally prohibited from causing harmful interference to those applications. If a low power radiocommunication device does cause interference to authorized radiocommunications, even if the device complies with all of the technical standards and equipment authorisation requirements, then its operator will be required to cease operation until the interference problem is solved.

2 Definition of low power radiocommunication devices

In this Policy the term "low power radiocommunication devices" is intended to cover radio transmitters which have low capability of causing interference to other radio equipment**.**

Dealers in low power radiocommunication device must possess a valid telecomm dealers licence issued by the Telecommunications Unit.

3 Applications

Due to the many different applications provided by these devices, no description can be exhaustive, however, the following categories are amongst those regarded as low power radiocommunication devices:

• **Alarms**

The use of radiocommunication for indicating an alarm condition at a distant location.

• **Equipment for Detecting Movement and Equipment for Alert**

Equipment for detecting movement and equipment for alert are low power radar systems for radiodetermination purposes. Radiodetermination means the determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of radio waves.

• **Inductive Applications**

Inductive loop systems are communication systems based on magnetic fields generally at low RF frequencies.

The regulations for inductive systems are different in various countries. In some countries this equipment is not considered as radio equipment, and neither type approval nor limits for the magnetic field are set. In other countries inductive equipment is considered as radio equipment and there are various national or international type approval standards.

Inductive applications include for example car immobilizers, car access systems or car detectors, animal identification, alarm systems, item management and logistic systems, cable detection, waste management, personal identification, wireless voice links, access control, proximity sensors, anti-theft systems including RF anti-theft induction systems, data transfer to handheld devices, automatic article identification, wireless control systems and automatic road tolling.

• **Model Control**

"Model Control" covers the application of radio model control equipment, which is solely for the purpose of controlling the movement of the model (toy), in the air, on land or over or under the water surface. **See Radio Controlled Models – Use in Barbados.**

• **Radio Microphones**

Radio microphones (also referred to as wireless microphones or cordless microphones) are small, unidirectional transmitters designed to be worn on the body, or hand held, for the transmission of sound over short distances for personal use. The receivers are more tailored to specific uses and may range in size from small hand units to rack mounted modules as part of a multi-channel system.

• Automatic Vehicle Identification (AVI)

The Automatic Vehicle Identification system uses data transmission between a transponder located on a vehicle and a fixed interrogator positioned on the track to provide for the automatic and unambiguous identification of a passing vehicle. The system also enables any other stored data to be read and provides for the bidirectional exchange of variable data.

• RF Identification (RFID) Systems

The object of any RFID system is to carry data in suitable transponders, generally known as tags, and to retrieve data, by hand- or machine–readable means, at a suitable time and place to satisfy particular application needs. Data within a tag may provide identification of an item in manufacture, goods in transit, a location, the identity of persons and/or their belongings, a vehicle or assets, an animal or other types of information. By including additional data the prospect is provided for supporting applications through item specific information or instructions immediately available on reading the tag. Read-write tags are often used as a decentralized database for tracking or managing goods in the absence of a host link.

A system requires, in addition to tags, a means of reading or interrogating the tags and some means of communicating the data to a host computer or information management system. A system will also include means for entering or programming data into the tags, if this is not undertaken at the source by the manufacturer.
Quite often an antenna is distinguished as if it were a separate part of an RFID system. While its importance justifies this attention it should been seen as a feature that is present in both readers and tags, essential for the communication between the two. While the antenna of tags is an integral part of the device, the reader or interrogator can have either an integral or separate antenna in which case it shall be defined as an indispensable part of the system (see also section 6: "Antenna requirements").

• RF (Radar) Level Gauges

RF Level Gauges have been used in many industries for many years to measure the amount of various materials, primarily stored in an enclosed container or tank. The industries in which they are used are mostly concerned with Process Control. These low power radiocommunication devices are used in facilities such as Refineries, Chemical Plants, Pharmaceutical Plants, Pulp and Paper Mills, Food and Beverage Plants, and Power Plants among others.

All of these industries have storage tanks throughout their facilities where intermediate or final products are stored, and which require level measurement gauges.

Radar level gauges may also be used to measure the level of water of a river (e.g. when fixed under a bridge) for information or alarm purposes.

Level gauges using an RF electromagnetic signal are insensitive to pressure, temperature, dust, vapours, changing dielectric constant and changing density.
The types of technology used in RF level gauge products include:

– pulsed radiating; and
– Frequency Modulated Continuous Wave (FMCW).

• Road Transport and Traffic Telematics (RTTT)

(Also referred to as dedicated low power radiocommunications for transport information and control systems (TICS).)

RTTT systems are defined as systems providing data communication between two or more road vehicles and between road vehicles and the road infrastructure for various information-based travel and transport applications, including automatic toll-collection, route and parking guidance, collision avoidance and similar applications.

• Telecommand

The use of radiocommunication for the transmission of signals to initiate, modify or terminate functions of equipment at a distance.

• Telemetry

The use of radiocommunication for indicating or recording data at a distance.

• Ultra Low Power Active Medical Implant Communication Systems (MICS)

Ultra Low Power Active Medical Implants are part of a MICS for use with implanted medical devices, like pacemakers, implantable defibrillators, nerve stimulators, and other types of implanted devices. The MICS uses UHF transceiver modules for radiofrequency communication between an external device referred to as a programmer/controller and a medical implant placed within a human body.

These communication systems are used in many ways, for example: device parameter adjustment (e.g. modification of the pacing parameters), transmission of stored information (e.g. electrocardiograms stored over time or recorded during medical event), and the real time transmission of monitored vital life signs for short periods.

MICS equipment is used only under the direction of a physician or other duly authorized medical professional. The duration of these links is limited to the short periods of time necessary for data retrieval and reprogramming of the medical implant related to patient welfare.

• Voice and Video

In connection with low power radiocommunication devices "voice" covers applications like walkie-talkie, baby monitoring and similar use. Citizen band (CB) and private mobile radio (PMR) equipment is excluded.

With "Video" - applications non-professional cordless cameras are meant mainly to be used for controlling or monitoring purposes.

• Wireless Audio Applications

Applications for wireless audio systems include the following: cordless loudspeakers, cordless headphones, cordless headphones for portable use, i.e. portable compact disc players, cassette decks or radio receivers carried on a person, cordless headphones for use in a vehicle, for example for use with a radio or mobile telephone etc., in-ear monitoring, for use in concerts or other stage productions.

Systems should be designed in such a way that in the absence of an audio input no RF carrier transmission shall occur.

4 Frequency Ranges

The frequency bands below are commonly used worldwide for low power radiocommunication.

Low power radiocommunication devices operating within the frequency bands designated for industrial, scientific and medical (ISM) applications must accept harmful interference which may be caused by these applications. Low power radiocommunication devices operate on non-interference, no protection from interference basis. **See Policy on the use of Licence-Exempt frequencies In Barbados**

Table 1: Commonly used frequency ranges

ISM within bands under RR S5.138 and S5.150	
6 765-6 795 kHz 13 553-13 567 kHz 26 957-27 283 kHz 40.66-40.70 MHz 902-928 MHz 2 400-2 483.5 MHz 5 725-5 875 MHz 24-24.25 GHz 61-61.5 GHz 122-123 GHz 244-246 GHz	
Other Commonly used frequency ranges	
9-135 kHz	Commonly used for inductive low power radiocommunication applications
402-405 MHz	Ultra Low Power Active Medical Implants, Recommendation ITU-R SA.1346
5 795-5 805 MHz	Transport Information and Control Systems Recommendation ITU-R M.1453
5 805-5 815 MHz	Transport Information and Control Systems Recommendation ITU-R M.1453
76-77 GHz	Transport Information and Control System (Radar) Recommendation ITU-R M.1452

Low power radiocommunication devices are not permitted to use bands allocated to the radioastronomy, aeronautical mobile services and safety of life services including radionavigation.

Low power radiocommunication devices are not permitted to operate in the following bands.

Table 2: Restricted Bands - Spurious Emissions Only with Limited Exceptions (not indicated)

MHz	MHz	MHz	GHz
0.090-0.110 2.1735-2.1905 4.125-4.128 4.17725-4.17775 4.20725-4.20775 6.215-6.218 6.26775-6.26825 6.31175-6.31225 8.291-8.294 8.362-8.366 8.37625-8.38675 8.41425-8.41475 12.29-12.293 12.51975-12.52025 12.57675-12.57725 13.36-13.41	16.42-16.423 16.69475-16.69525 16.80425-16.80475 25.5-25.67 37.5-38.25 73-74.6 74.8-75.2 108-121.94 123-138 156.52475-156.52525 156.7-156.9 242.95-243 322-335.4 399.9-410 608-614 960-1 215	1 300-1 427 1 435-1 626.5 1 645.5-1 646.5 1 660-1 710 1 718.8-1 722.2 2 200-2 300 2 655-2 900 3 260-3 267 3 332-3 339 3 345.8-3 352.5 4200-4 400 4800-5150 5350-5460 8025-8500 9000-9200	9.3-9.5 10.6-11.7 12.2-12.7 13.25-13.4 14.47-14.5 15.35-16.2 20.2-21.26 22.01-23.12 23.6-24.0 31.2-31.8 36.43-36.5 38.6-46.7 46.9-59.0 64.0-76.0 Above 77 GHz

Other restricted bands are listed in the Attachments.

5 Radiated Power or Magnetic or Electric Field Strength

The electric field strength limits shown in the tables below are the required values to allow satisfactory operation of low power radiocommunication devices. The levels are dependent on the frequency range, the specific application chosen and the services and systems already used or planned in these bands.

Table 3: General Limits

Frequency (MHz)	Electric Field Strength (microvolts/metre)	Measurement Distance (metres)
0.009-0.490	2 400/F(kHz)	300
0.490-1.705	24 000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

The following table contains exceptions or exclusions (indicated) to the general limits, otherwise the general limits can still be used. The emission limit for each type of operation, and the type of detector used to measure emissions (average with a peak limit, "A", or quasi-peak, "Q") is specified. When a transmitter power limit is specified instead of an emission limit, no emission detector is specified.

Table 4: Exception or Exclusions from the General Limits

Frequency Band	Type of Use	Emission Limit	Detector A-Average Q-Quasi-peak
9-45 kHz	Cable locating equipment	10 Watts peak output power	
45-490 kHz	Cable locating equipment	1 Watt peak output power	
26.96-27.28 MHz	Any	10 000 µV/m @ 3 m	A
43.71-44.49 MHz	Cordless Telephones	10 000 µV/m @ 3 m	A
46.6-46.98 MHz	Cordless Telephones	10 000 µV/m @ 3 m	A
48.75-49.51 MHz	Cordless Telephones	10 000 µV/m @ 3 m	A
49.66-49.82 MHz	Cordless Telephones	10 000 µV/m @ 3 m	A
49.82-49.9 MHz	Any	10 000 µV/m @ 3 m	A
	Cordless Telephones	10 000 µV/m @ 3 m	A
49.9-50 MHz	Cordless Telephones	10 000 µV/m @ 3 m	A
72-73 MHz	Auditory Assistance Devices	80 000 µV/m @ 3 m	A
74.6-74.8 MHz	Auditory Assistance Devices	80 000 µV/m @ 3 m	A
75.2-76 MHz	Auditory Assistance Devices	80 000 µV/m @ 3 m	A
174-216 MHz	Or Biomedical Telemetry Devices	1 500 µV/m @ 3 m	A
902-928 MHz	Spread Spectrum Transmitters	1 Watt Output Power	
	Field Disturbance Sensors	500 000 µV/m @ 3 m	A
	Any	50 000 µV/m @ 3 m	Q
2.4-2.435 GHz	Spread Spectrum Transmitters	1 Watt Output Power	
	Any	50 000 µV/m @ 3 m	A
2.435-2.465 GHz	Spread Spectrum Transmitters	1 Watt Output Power	
	Field Disturbance Sensors	500 000 µV/m @ 3 m	A

	Any	50 000 µV/m @ 3 m	A
2.465-2.4835 GHz	Spread Spectrum Transmitters	1 Watt Output Power	
	Any 15.249	50 000 µV/m @ 3 m	A
2.9-3.26 GHz	Automatic Vehicle Identification Systems	3 000 µV/m per MHz of bandwidth @ 3 m	A
3.267-3.332 GHz	Automatic Vehicle Identification Systems	3 000 µV/m per MHz of bandwidth @ 3 m	A
3.339-3.3458 GHz	Automatic Vehicle Identification Systems	3 000 µV/m per MHz of bandwidth @ 3 m	A
3.358-3.6 GHz	Automatic Vehicle Identification Systems	3 000 µV/m per MHz of bandwidth @ 3 m	A
5.725-5.785 GHz	Spread Spectrum Transmitters	1 Watt Output Power	
	Any	50 000 µV/m @ 3 m	A
5.785-5.815 GHz	Spread Spectrum Transmitters	1 Watt Output Power	
	Field Disturbance Sensors	500 000 µV/m @ 3 m	A
	Any	50 000 µV/m @ 3 m	A
5.815-5.85 GHz	Spread Spectrum Transmitters	1 Watt Output Power	
	Any	50 000 µV/m @ 3 m	A
5.85-5.875 GHz	Any	50 000 µV/m @ 3 m	A
10.5-10.55 GHz	Field Disturbance Sensors	2 500 000 µV/m @ 3 m	A
24-24.075 GHz	Any	250 000 µV/m @ 3 m	A
24.075-24.175 GHz	Field Disturbance Sensors	2 500 000 µV/m @ 3 m	A
	Any	250 000 µV/m @ 3 m	A
24.175-24.25 GHz	Any	250 000 µV/m @ 3 m	A

Other additional specific exceptions or exclusions to the general limits are listed in the attachments.

6 Antenna Requirements

Basically three types of transmitter antennas are used for low power radiocommunication transmitters: Integral (no external antenna socket); Dedicated (type approved with the equipment); and, External (equipment type approved without antenna).

In most cases low power radiocommunication transmitters are equipped with either integral or dedicated antennas, because changing the antenna on a transmitter can significantly increase, or decrease, the strength of the signal that is ultimately transmitted. Except for some special applications, the RF requirements are not based solely on output power but also take into account the antenna characteristics. Thus, a low power radiocommunication transmitter that complies with the technical standards with a particular antenna attached could exceed the power limits given if a different antenna is attached. Should this happen a serious interference problem to authorized radio communications such as emergency, broadcast and air-traffic control communications could occur.

In order to prevent such interference problems, low power radiocommunication transmitters shall be designed to ensure that no type of antenna can be used other than one which has been designed and type approved by the manufacturer to show conformity with the appropriate emission level. This means that normally low power radiocommunication transmitters must have permanently attached, or detachable antennas with a unique connector. A "unique connector" is one that is not of a standard type found in electronic supply stores or not normally used for RF connection purposes. National administrations may define the term "unique connector" differently.

7 Mutual Recognition Agreements (MRA)

Administrations have in many cases found it is beneficial and efficient to establish mutual agreements between countries providing for the recognition by one country of the conformity test results of a recognized/accredited test laboratory in the other country/region.

These MRAs enable manufacturers to have the conformity of their products assessed in accordance with the regulatory requirements of the relevant third country by appropriately designated laboratories, inspection bodies and Conformity Assessment Bodies (CABs) in their own countries, hence reducing the costs of such assessments and the time needed to access markets.

The agreements comprise a "framework" agreement which establishes the mutual recognition principles and procedures, and a series of sectoral annexes which detail, for each sector, the scope in terms of products and operations, the respective legislation, and any specific procedures.

Barbados has not signed any MRA’s at this time, but will accept test results carried out in

- U S A
- Canada
- European Union
- Australia
- Singapore
- Japan

ATTACHMENT

Some Specific Exceptions

1. The bands listed below are also considered restricted for operation of low power radicommunication devices in Barbados:

Table 1: Restricted Bands

MHz	MHz
0.495-0.505	2483.5-2500
149.9-150.5	3352.5-3358
162.0125-167.17	3600-4200
167.72-173.2	4500-4800
240-242.95	7250-7750
243-285	11700-12200
1215-1240	17700-20200
2310-2390	21260-21400

2. Besides those listed in the Annex, the following table contains other exceptions or exclusions to the general limits.

Table 2: Exception or Exclusions from the General Limits

Frequency Band	Type of Use	Emission Limit	Detector A-Average Q-Quasi-peak
101.4 kHz	Telephone company electronic marker detectors	23.7 µV/m @ 300 m	A
160-190 kHz	Any	1 Watt input to final RF stage	
510-525 kHz	Any	100 mW input to final RF stage	
525-1 705 kHz	Any	100 mW input to final RF stage	
	Transmitters on grounds of educational institutions	24 000/f(kHz) µV/m @ 30 m outside of campus boundary	Q
	Carrier current and leaky coax systems	15 µV/m @ 47 715/f(kHz) m from cable	Q

1.705-10 MHz	Any, when 6 dB bandwidth ≥10% of centre frequency	100 µV/m @ 30 m	A
	Any, when 6 dB bandwidth < 10% of centre frequency	15 µV/m @ 30 m or bandwidth in (kHz)/f(MHz)	A
13.553-13.567 MHz	Any	10 000 µV/m @ 30 m	Q
40.66-40.7 MHz	Intermittent Control Signals	2 250 µV/m @ 3 m	A or Q
	Periodic Transmissions	1 000 µV/m @ 3 m	A or Q
	Any	1 000 µV/m @ 3 m	Q
	Perimeter Protection Systems	500 µV/m @ 3 m	A
54-70 MHz	Exclusively Non-Residential Perimeter Protection Systems	100 µV/m @ 3 m	Q
70-72 MHz	Exclusively either Intermittent Control Signals	1 250 µV/m @ 3 m	A or Q
	Or Periodic Transmissions	500 µV/m @ 3 m	A or Q
	Or Non-Residential Perimeter Protection Systems	100 µV/m @ 3 m	Q
72-73 MHz	Intermittent Control Signals	1 250 µV/m @ 3 m	A or Q
	Periodic Transmissions	500 µV/m @ 3 m	A or Q
74.6-74.8 MHz	Intermittent Control Signals	1 250 µV/m @ 3 m	A or Q
	Periodic Transmissions	500 µV/m @ 3 m	A or Q
75.2-76 MHz	Intermittent Control Signals	1 250 µV/m @ 3 m	A or Q
	Periodic Transmissions	500 µV/m @ 3 m	A or Q
76-88 MHz	Exclusively either Intermittent Control Signals	1 250 µV/m @ 3 m	A or Q
	Or Periodic Transmissions	500 µV/m @ 3 m	A or Q
	Or Non-Residential Perimeter Protection Systems	100 µV/m @ 3 m	Q

88-108 MHz	Any (≤ 200 kHz bandwidth)	250 μV/m @ 3 m	A
121.94-123 MHz	Intermittent Control Signals	1 250 μV/m @ 3 m	A or Q
	Periodic Transmissions	500 μV/m @ 3 m	A or Q
138-149.9 MHz	Intermittent Control Signals	(625/11) × f(MHz) - (67500/11) μV/m @ 3 m	A or Q
	Periodic Transmissions	(250/11) × f(MHz) - (27000/11) μV/m @ 3 m	A or Q
150.05-156.52475 MHz	Intermittent Control Signals	(625/11) × f(MHz) - (67500/11) μV/m @ 3 m	A or Q
	Periodic Transmissions	(250/11) × f(MHz) - (27000/11) μV/m @ 3 m	A or Q
156.52525-156.7 MHz	Intermittent Control Signals	(625/11) × f(MHz) - (67500/11) μV/m @ 3 m	A or Q
	Periodic Transmissions	(250/11) × f(MHz) - (27000/11) μV/m @ 3 m	A or Q
156.9-162.0125 MHz	Intermittent Control Signals	(625/11) × f(MHz) - (67500/11) μV/m @ 3 m	A or Q
	Periodic Transmissions	(250/11) × f(MHz) - (27000/11) μV/m @ 3 m	A or Q
167.17-167.72 MHz	Intermittent Control Signals	(625/11) × f(MHz) - (67500/11) μV/m @ 3 m	A or Q
	Periodic Transmissions	(250/11) × f(MHz) - (27000/11) μV/m @ 3 m	A or Q
173.2-174 MHz	Intermittent Control Signals	(625/11) × f(MHz) - (67500/11) μV/m @ 3 m	A or Q
	Periodic Transmissions	(250/11) × f(MHz) - (27000/11) μV/m @ 3 m	A or Q
174-216 MHz	Exclusively either Intermittent Control Signals	3 750 μV/m @ 3 m	A or Q
	Or Periodic Transmissions	1 500 μV/m @ 3 m	A or Q
216-240 MHz	Periodic Transmissions	1 500 μV/m @ 3 m	A or Q
	Intermittent Control Signals	3 750 μV/m @ 3 m	A or Q
285-322 MHz	Intermittent Control Signals	(125/3) × f(MHz) - (21250/3) μV/m @ 3 m	A or Q
	Periodic Transmissions	(50/3) × f(MHz) -	A or Q

		(8500/3) μV/m @ 3 m	
335.4-399.9 MHz	Intermittent Control Signals	(125/3) × f(MHz) - (21250/3) μV/m @ 3 m	A or Q
	Periodic Transmissions	(50/3) × f(MHz) - (8500/3) μV/m @ 3 m	A or Q
410-470 MHz	Intermittent Control Signals	(125/3) × f(MHz) - (21250/3) μV/m @ 3 m	A or Q
	Periodic Transmissions	(50/3) × f(MHz) - (8500/3) μV/m @ 3 m	A or Q
470-512 MHz	Exclusively either Intermittent Control Signals	12 500 μV/m @ 3 m	A or Q
	Or Periodic Transmissions	5 000 μV/m @ 3 m	A or Q
512-566 MHz	Exclusively either Intermittent Control Signals	12 500 μV/m @ 3 m	A or Q
	Or Periodic Transmissions	5 000 μV/m @ 3 m	A or Q
	Or Biomedical Telemetry Devices for Hospitals	200 μV/m @ 3 m	Q
566-608 MHz	Exclusively either Intermittent Control Signals	12 500 μV/m @ 3 m	A or Q
	Or Periodic Transmissions	5 000 μV/m @ 3 m	A or Q
614-806 MHz	Exclusively either Intermittent Control Signals	12 500 μV/m @ 3 m	A or Q
	Or Periodic Transmissions	5 000 μV/m @ 3 m	A or Q
806-890 MHz	Intermittent Control Signals	12 500 μV/m @ 3 m	A or Q
	Periodic Transmissions	5 000 μV/m @ 3 m	A or Q
890-902 MHz	Intermittent Control Signals	12 500 μV/m @ 3 m	A or Q
	Periodic Transmissions	5 000 μV/m @ 3 m	A or Q
	Signals Used to Measure the Characteristics of a Material	500 μV/m @ 30 m	A
902-928 MHz	Signals Used to Measure	500 μV/m @ 30 m	A

	the Characteristics of a Material		
	Intermittent Control Signals	12 500 µV/m @ 3 m	A or Q
	Periodic Transmissions	5 000 µV/m @ 3 m	A or Q
928-940 MHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A or Q
	Periodic Transmissions	5 000 µV/m @ 3 m	A or Q
	Signals Used to Measure the Characteristics of a Material	500 µV/m @ 30 m	A
940-960 MHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A or Q
	Periodic Transmissions	5 000 µV/m @ 3 m	A or Q
1.24-1.3 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
1.427-1.435 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
1.6265-1.6455 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
1.6465-1.66 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
1.71-1.7188 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
1.7222-2.2 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
1.91-1.92 GHz	Asyncronous Personal Communications Service devices	Varies	
1.92-1.93 GHz	Isocronous PCS devices	Varies	
2.3-2.31 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A

2.39-2.4 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Asyncronous PCS devices	Varies	
	Periodic Transmissions	5 000 µV/m @ 3 m	A
2.5-2.655 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
2.9-3.26 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
3.267-3.332 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
3.339-3.3458 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
3.358-3.6 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
4.4-4.5 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
5.15-5.25 GHz	National Information Infrastructure devices	Varies	
5.25-5.35 GHz	National Information Infrastructure devices	Varies	
	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
5.46-5.725 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
5.725-5.825 GHz	National Information Infrastructure devices	Varies	
5.875-7.25 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A

7.75-8.025 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
8.5-9 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
9.2-9.3 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
9.5-10.5 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
10.5-10.55 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
10.55-10.6 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
12.7-13.25 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
13.4-14.47 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
14.5-15.35 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
16.2-17.7 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
21.4-22.01 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
23.12-23.6 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
24.25-31.2 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A

	Periodic Transmissions	5 000 µV/m @ 3 m	A
31.8-36.43 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
36.5-38.6 GHz	Intermittent Control Signals	12 500 µV/m @ 3 m	A
	Periodic Transmissions	5 000 µV/m @ 3 m	A
46.7-46.9 GHz	Vehicle mounted field disturbance sensors	Varies	
59-64 GHz	Not aircraft, not satellite, not field disturbance sensors (with a qualified fixed exception)	Varies	
76-77 GHz	Vehicle mounted field disturbance sensors	Varies	