Government of Canada
Department of Communications

Gouvernement du Canada
Ministère des Communications

POLICY MANUAL

PM - 1
RADIO LICENSING

PART 7

1. EXPERIMENTAL SERVICE

2. SYSTEMS EXEMPT FROM LICENSING

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TELECOMMUNICATION REGULATORY SERVICE

Notice to Users

This edition of the manuals, has been produced on a computer in preparation for possible future on-line access and to take advantage of computer text editing utilities. The structure has been altered to facilitate computer generation of paragraph numbers, titles and illustration numbers. Computer generated alphabetic and frequency indexes have also been introduced.

There were no amendments made to the contents of this edition except the elimination of outdated sections. Subsequent revisions will contain appropriate amendments. In addition, subject to the availability of resources, we will be undertaking a project to revise the content of the various sections of the Manuals. Consequently, if you have any suggested revisions or if you detect errors, please report these to DOS-P via the proper channels.

TABLE OF CONTENTS

Section Page

1. EXPERIMENTAL SERVICE

1.1. Definition

A service provided by land or mobile stations operated for

1) experimental, demonstration or educational purposes, with a view to the development of science or technique; or

2) in connection with the test or development of communication equipment or of radiocommunication circuits.

(Ref. General Radio Regulations, Part II, section 2.)

1.2. Eligibility

Licences for stations in the Experimental Service may be issued to individuals or companies eligible in accordance with General Radio Regulations, Part I, Section 5.

1.3. Scope of Service

Types of operations which may be authorized under land and mobile station licences performing an Experimental Service include radio facilities employed for the following purposes:

1) test and demonstration of radio equipment;

2) servicing and maintenance of equipment;

3) technical development of equipment or circuits;

4) path loss measurement tests; and

5) educational purposes.

1.3.1. Exclusions

Stations transmitting broadcasting and the continued operation of installations involving the safety of life are excluded from licensing in the Experimental Service.

1.3.2. On-Air Testing

Normally, experimental stations including those established for radio equipment maintenance and servicing and for educational purposes, shall be .II Antenna, non radiating authorized for operation with non-radiating antennae. On-the-air tests may be authorized subject to clearance by the respective District Office.

1.3.3. Site Development

On the air transmissions may be made for site selection and path loss measurement tests, for example, development of microwave systems. Such operations are limited to the use of frequencies assigned for tests essential to the development of a system.

1.3.4. System Development

Frequencies may also be employed for the technical development of equipment and circuits. In such cases, on the air operations would be permitted employing frequencies specifically assigned for such purposes only.

1.4. Frequencies Available

Discrete frequencies are available for the following purposes:

1) Test and demonstration (brief on the air tests)

30.58 MHz	
42.42 MHz	
49.94 MHz	
154.49 MHz	
460.95 MHz	Paired in accordance with
465.9625 MHz	UHF plan - SRSP501, and
815.7375 MHz	(mobile tx)
860.7375 MHz	(Base tx)

2) Demonstration of private paging systems

27.045 MHz	at 5 watts
27.265 MHz	at 30 watts
30.580 MHz	at 30 watts

1.4.1. Private Paging Demonstrations

The use of the frequencies 27.045 and 27.265 MHz for demonstration purposes shall be on a secondary basis to private paging and other services involved and subject to clearance by the respective District Office.

The test and demonstration frequencies listed above 1.4 have not been co-ordinated on a Canada wide basis. If other than short periods of testing are involved in the use of these frequencies, coordination with the United States would be required where applicable.

1.5. Examples of Licensing

In addition to the types of operations which may be authorized under land and mobile station licences (Experimental Service) referred to above, the following related information is provided for clarification purposes:

(i) Stations operated solely for demonstration purposes or normally operated for commercial purposes and occasionally used for demonstrations employing "common carrier" frequencies only, may be granted land or mobile station licences (Private Commercial Service Category).

Example:

A mobile station (licensed to an equipment sales representative) using common carrier frequencies for test and demonstration purposes and for normal communications through common carrier terminals would be licensed as a mobile station (Private Commercial Service).

(ii) Stations employing both "common carrier" frequencies and the test and demonstration frequencies listed above would be granted land or mobile station licences (Private Commercial and Experimental Service Category) to cover the common carrier frequencies and the test and demonstration frequencies employed.

Example:

A mobile station (licensed to an equipment sales representative) using common carrier frequencies for normal communication through common carrier terminals and test and demonstration frequencies for test and demonstration purposes would be licensed as a mobile station. The licence would cover Private Commercial and Experimental Service Categories and the fee applicable to each category would be required.

1.6. Technical Requirements

Unless otherwise authorized, radio equipment installed at stations providing an Experimental Service for demonstration or technical education purposes shall meet the provisions of applicable departmental technical standards. See PM-1-4 para. 1.4.15 for guidance.

1.7. Test and Sales Demonstrations

Radio manufacturers, dealers and maintenance personnel who are eligible in accordance with the provisions of Section 5 of the General Radio Regulations, Part I, may be granted licences to authorize the installation and operation of radio equipment at base stations or in vehicles for test and sales demonstration purposes.

. . The experimental station licence issued should be endorsed "For test and demonstration purposes only, at (geographical location) 'or' in (vehicle)".

1.7.1. Eligibility Aircraft stations

Aircraft dealers and radio manufacturers who are eligible in accordance with the provisions of Section 5 of the General Radio Regulations, Part I, may be granted licences to authorize the installation and operation of radio equipment in aircraft for sales, test and demonstration purposes.

1.7.2. Parameters

In instances where an aircraft dealer has a number of aircraft on hand for demonstration and sale, or radio manufacturers have a requirement for the testing of radio equipment, an "Experimental" station licence, endorsed "In aircraft for test and demonstration purposes only" may be issued. Such a licence shall contain a provision that before any radio equipment is installed in an aircraft for sale, test or demonstration purposes, the local radio and civil aviation inspectors be advised in order that the temporary installation may be examined. These temporary installations may be placed in operation only upon the written permission of a radio inspector. An experimental call sign shall be issued.

2. SYSTEMS EXEMPTED FROM LICENSING

2.1. Introduction

Subsection 6(1) of the General Radio Regulations, Part II provides for the exemption from licensing of certain radio apparatus. This apparatus is required to meet the appropriate Departmental RII or RSS specification.

Devices not presently provided for under RII or RSS specifications may be exempted on a case-by-case basis upon approval by headquarters.

2.2. Exempted Devices - Type Approval Required

There are radio devices which are exempt from licensing but are required to be type approved under the appropriate R.I.I. or R.S.S.

2.2.1. Alarm Signal Device - Definition

An alarm signal device is a radio employed for the remote operation of alarm signals in connection with the protection of life and property.

2.2.1.1. Frequencies

The equipment shall operate on a frequency below 15 kHz, or between 28 kHz and 32 kHz, or in one of the industrial, scientific and medical bands. The emission must be confined within the limits shown:

Centre Frequency	Emission Limits
13.56 MHz	± 7 kHz
27.12 MHz	± 163 kHz
40.68 MHz	± 20 kHz
915.00 MHz	± 13 MHz
2450.00 MHz	± 50 MHz
5800.00 MHz	± 75 MHz
24125.00 MHz	±125 MHz

2.2.1.2. Technical Requirements

In order to qualify for exemption from licensing, an alarm signal device shall not be capable of emitting Hertzian waves of a field strength greater than one volt per meter at ten meters, and shall be certified as meeting the technical requirements of RII Specification 206.

2.2.1.3. Example

An example of an alarm signal device is an Electronic Truncheon; this is a policeman's wooden night stick which contains a miniature transmitter of very low power (.2 watts output) operating on 30 kHz. In case of an attack or other emergency, help may be summoned by pressing the transmitter button.

2.2.1.4. Operation

The electronic truncheon normally operates in an area enclosed by a pick up loop connected to a receiver and alarm apparatus. Upon activation the truncheon emits a single radio signal of momentary duration, activating an alarm signal.

2.2.2. Audio Loop Paging Systems - Definition

The term "Audio Loop Paging Systems" is generally applied to radio paging stations operating on frequencies below 50 kHz.

2.2.2.1. Operation

In systems of this type, voice or tone signals on frequencies below 50 kHz are fed into a large loop antenna surrounding the area to be served. Small individual personal receivers, carried anywhere within the electromagnetic field of the loop antenna, are activated by the transmitted signals. A typical installation may be used to provide a paging service within a building.

2.2.2.2. Technical Requirements

Apparatus employed for audio loop paging systems is required to meet the following specifications:

Transmitters - RII Specification 205.

Receivers - RSS 201.

Paragraph (b) of subsection 6(1) of the General Radio Regulations, Part II, contains further information pertaining to audio loop paging systems.

2.2.3. Automatic Sorting Equipment Actuator - Definition

An automatic sorting equipment actuator is a device designed to actuate switches for routing articles to various destinations.

2.2.3.1. Operation

The signals from miniature transmitters attached to articles travelling in an industrial conveyor system control the operation of diversionary switches to route the articles to different destinations.

2.2.3.2. Technical Requirements

This type of equipment shall not be capable of emitting Hertzian waves of a field strength greater than 40 microvolts per metre at 3 meters.

2.2.4. Garage Door Openers - Definition

A garage door opener is a device used to control, from within a motor vehicle, the opening and closing of garage doors or similar doors or gates.

2.2.4.1. Frequencies

The equipment shall operate on a frequency between 10 kHz and 30 kHz or on frequencies allocated for industrial, scientific and medical purposes as indicated in para. 2.2.1.1.

2.2.4.2. Operation

A miniature transmitter located in the motor vehicle activates a receiver and associated apparatus, causing a door or gate to open or close by remote means.

2.2.4.3. Technical Requirements

This device shall comply with the latest issue of RII Specification 200.

2.2.5. Mine Hoist Safety Device - Definition

A mine hoist safety device is a method designed to provide communications between the underground cage of a mine shaft hoist and mine shaft head frame.

2.2.5.1. Frequencies

The mine hoist safety device operates on a frequency between 100 kHz and 200 kHz or on frequencies in the industrial, scientific and medical bands as indicated in para. 2.2.1.1.

2.2.5.2. Operation

The wire hoisting cable is used as a coupling medium between a very-low powered transmitter in the cage and a radio receiver at the head frame.

2.2.5.3. Technical Requirement

Approval under the latest issue of RII Specification 203 is required to permit the use of a mine hoist safety device.

2.2.6. Movement Detection Device

A movement detection device is a device to give warning of intrusion by actuating an alarm signal.

2.2.6.1. Frequencies

The movement detection device shall operate on the frequency 422 MHz or on frequencies in the industrial, scientific and medical bands 915 MHz and higher.

2.2.6.2. Operation

This device is used primarily as a burglar alarm and utilizes certain radar principles. An electro-magnetic field is set up around an antenna and any movement of solid objects within this field is detected and the resultant signal is used to activate an alarm.

2.2.6.3. Technical Requirements

This device shall be of a type acceptable under the latest issue of Radio Standards Specification 202.

2.2.7. Remote Control - Private Receiving Station

A private receiving remote control device is a device employed for the remote operation of radio and television broadcast receivers.

2.2.7.1. Frequencies

The equipment shall operate on the frequency 27.195 MHz and the emission shall be confined within the limits of the band 27.180 to 27.210 MHz at all times.

2.2.7.2. Operation

An example of such a device is one in which push button control of a miniature hand held transmitter located at a convenient distance from a television receiver and operated in conjunction with a special receiver installed in the television set will switch the latter on and off, raise and lower the volume, and select different channels.

2.2.7.3. Technical Requirements

This equipment shall comply with RII Specification 207.

2.2.8. Wireless Microphones in the ISM band

A wireless microphone is a device in which eliminates the cable ordinarily required to connect a microphone to the audio input of a radio transmitter or public address system.

2.2.8.1. Frequencies

The equipment shall operate on frequencies in the industrial, scientific and medical bands as indicated in para. 2.2.1.1.

2.2.8.2. Operation

This device shall be operated in conjunction with a licensed station or public address system. It normally consists of a tiny lapel microphone connected to a miniature transmitter carried on the person of the announcer. A very sensitive receiver, which may be located several hundred feet from the announcer, picks up the signals from the wireless microphone transmitter and feeds them into the audio input of a radio station transmitter or public address system.

2.2.8.3. Technical Requirements

The wireless microphones must be of a type certified as meeting the requirements of the latest issue of RII Specification 204.

2.2.9. Paging Receivers

Paging receivers are radio receivers intended for the reception of paging signals.

2.2.9.1. Frequencies

The frequencies available for paging use are those specified for audio loop systems as indicated in para. 2.2.2 and those available for public commercial and private commercial paging systems as indicated in the respective parts of this Manual.

2.2.9.2. Technical Requirements

A paging receiver must meet the technical specifications outlined in the latest issue of RSS 201.

2.2.10. One Way Speech Communication Systems

A one-way speech communication system includes facilities employed for auditory training or the delivery of addresses, lectures and similar talks, including simultaneous translation.

2.2.10.1. Frequencies

The equipment shall operate on frequencies below 400 kHz.

2.2.10.2. Technical Requirements

This equipment must comply with the Requirements latest issue of Radio Standards Specification 208.

2.2.11. Wireless Microphones and Telemetering in the FM Band

Subsection (1) of section 6 of the General Radio Regulations, Part II, has been amended to permit the use of telemetry devices and wireless microphones for one-way communication in the FM broadcast band.

2.2.11.1. Frequencies

Emissions shall be confined within a band 200 kHz wide, centred on the operating frequency, wholly within the 88-108 MHz band.

2.2.11.2. Operation

These devices shall not be capable of emitting electromagnetic waves of a field strength greater than

a) 50 microvolts per metre within the 200 kHz band referred to in 2.2.11.1 at a distance of 50 feet from the radio apparatus; and

b) 40 microvolts per metre on any frequency outside the 200 kHz band referred to in 2.2.11.1 at a distance of 10 feet from the radio apparatus.

2.2.11.3. Technical Requirements

Low-power wireless microphones and telemetering devices must meet the technical requirements of RSS214.

2.2.12. Education of the Deaf (Phonic Ear)

As an aid in the training of persons the Deaf handicapped by defective hearing, wireless (Phonic Ear) microphone units have been developed for operation in the88-92 MHz bands. Such units are exempt from licensing provided they meet the power restrictions set forth in Section 6 of the General Radio Regulations, Part II.

NOTE: Refer to para. 1.4.5.4 of PM-1-4 for those units operating in the 72-76 MHz bands requiring licensing.

2.2.13. Drive In Theatres

"Cinemaradio" is a system operating in the frequency bands 535-1605 kHz or 88-108 MHz to provide the sound track of a film to drive-in theatre patrons. The signal is received by the car radio thus eliminating the need for an "in-car" speaker, together with its holding post.

2.2.13.1. Technical Requirements/AM Cinemaradio

The AM systems operating in the band 535-1605 kHz may be exempt from licensing in accordance with section 6(1)(m) of the General Radio Regulations, Part II. Installations shall meet the following requirements to be exempt:

a) the emitted field strength is not greater than 15 uv/m, measured, beyond the theatre property boundary, at a distance in metres obtained by dividing 48 000 by the transmitting frequency expressed in kilohertz.

b) the transmitter is listed in the Radio Equipment List as technically acceptable under RSP100 using RSS158 as a guide.

c) an unused AM channel within the 530-1605 kHz band is selected for the transmitter operation.

d) the owner/operator shall take immediate remedial action if interference is caused to the reception of a licensed station.

2.2.13.2. Technical Requirements/FM Cinemaradio

"FM Cinemaradio" installations operating in the band 88-108 MHz are considered exempt from licensing under 6(1)(k) of the General Radio Regulations, Part II. Such installations must meet the following requirements:

a) the FM transmitter is listed in the Radio Equipment list as technically acceptable under RSP100 using TRC-54 as a guide.

b) an unused FM channel within the 88-108 MHz band is selected for the transmitter operation.

c) the field strength measured at 10 meters beyond the theatre property boundary for any frequency in the band 88-108 MHz shall not exceed 50 uV/m.

d) if interference is caused to the reception of licensed FM broadcasting stations, immediate remedial action shall be taken by the theatre operator/owner.

2.3. Radio Receivers Exempt from Licencing

Paragraph 3.(3) of the Radio Act states "Any radio station or radio apparatus that is capable only of receiving radiocommunications and is not a broadcasting receiving undertaking is exempt from the requirements of subsection (1) if it is intended only for the reception of, a) broadcasting; or b) broadcasting and any class of radiocommunication, other than broadcasting, prescribed by the Minister."

2.3.1. Limitation

Such broadcast receivers may receive transmissions from any source provided they are not used to monitor radiocommunications transmitted by a station performing a public correspondence service.

The exemption from licensing thus provided for, does not remove the responsibility imposed by section 9.(2) of the Radio Act which prohibits the divulging or making use of radiocommunications except as provided by section 32 of the General Radio Regulations, Part II.

2.4. Exempted One-Way and Two-way Radio Apparatus

Basis of Exemption - Pursuant to subsection (4) of section 6 of the General Radio Regulations, Part II, low power, radio apparatus that operate in the 26.97-27.27 MHz frequency band and/or on the frequencies 49.830 MHz, 49.845 MHz, 49.860 MHz, 49.875 MHz and 49.890 MHz are exempt from licensing. Listing of such apparatus in the REL is not required. Typical examples of such devices are radio controlled toy cars and low power GRS walkie talkies.

2.4.1. Technical Requirements

Paragraphs (a), (b), (c), (d) and (e) of section 6.(4) of the General Radio Regulations, Part II, establish the frequency band, type of communication and technical requirements for exemption from licensing.

2.4.2. Identification

It is the users responsibility to ensure that the equipment complies with the technical requirements specified in the Regulations. While no formal approval is required to verify that equipment complies with the requirements to qualify for exemption from licensing, it is anticipated that the manufacturer will indicate by a tag, or in a brochure, on the equipment, that it does so comply before making it available to the public.

2.4.3. Operation in General Radio Service

Where a radio station, as described in section 2.4 is used for communication with a station performing a General Radio Service, it must be operated as if it were a licensed station in compliance with Sections 66 - 74 of the General Radio Regulations, Part II.

2.5. GUIDAR

GUIDAR (a trade name standing for Guided Intrusion Detection and Ranging) has been developed by Computing Devices Company for installation around the perimeters of institutions to detect intrusions or escapes.

2.5.1. Operation

This device uses two leaky co-axial cable sensors (maximum length - 3.2 kilometres) buried 76 millimetres underneath the ground and spaced 1.5 metres apart. One cable carries the RF pulse which travels the length of the system and the other cable acts as a receiving antenna and detects changes in the RF field caused by an intruder or escapee between the cables. The position of the unauthorized person is observed on an indoor mounted display system.

2.5.1.1. Technical Requirements

Frequency	57.5 MHz
Pulse Width	400 Nano seconds
Half power bandwith	2.5 MHz
Measured field strength	15 uv/m at 3-4.5 metres

2.5.2. Conditions

This device may be operated without a radio licence provided the following requirements are adhered to:

a) the applicant advises the nearest district office by letter of the location and operating frequency of the Guidar system during its installation;

b) the operation of the system shall be restricted to an unused television channel within the low band channels of 2 to 6;

c) radiation shall not exceed 20 uv/m at a distance of 3 metres from the cable;

d) The system shall not interfere with broadcast reception or with licensed radio communication systems; and

e) no protection will be provided to the system from television broadcasting stations or other licensed radio services.

I N D E X