
Spectrum Management

Spectrum Utilization Policy

Spectrum Allocation and Utilization in Certain Bands in the Range 30.01-896 MHz (Part I)

1. Intent

The purpose of this document is to specify the spectrum policy for the use of certain bands of frequency spectrum in the range 30.01-896 MHz. The frequency bands which have been included in this document are detailed in Annex 1.

2. Introduction

In 1987, the Department issued a discussion document dealing with a comprehensive review of the spectrum in the range 30.01-890 (896) MHz. The document highlighted several "theme" areas on which the Department requested comment in addition to reviewing the use of the bands in this frequency range. Subsequently, in October 1988, the Department issued a document proposing the retention or modification to the allocation and spectrum utilization of specific bands contained within the overall range 30.01-890 (896) MHz. This document entitled *A Proposals Paper on Spectrum Allocations in Certain Bands in the Range 30.01-890 MHz - Part I*¹, dealt primarily with bands for which, because of their standardized international use, minimal or no changes were proposed. In addition, the document dealt with currently unused frequency bands which require urgent policy attention to meet new or expanding applications. A Part II of this 30.01-896 MHz spectrum review dealing with the remaining frequency bands will be released for public comment in the near future.

3. Announcement of Policy as a Result of the Review of Spectrum Allocation in Certain Bands in the Range 30.01-896 MHz

The following policies are hereby notified:

a) 73-74.6 MHz – RADIOASTRONOMY

Domestic Allocation

The domestic allocation, as specified in the *Canadian Table of Frequency Allocations*² for this band, is unchanged.

Spectrum Utilization Policy

Pending a decision about the continued operation of the Algonquin Park, Ontario radioastronomy observatory, the existing constraints within the "quiet" and "restricted zones" will remain in force. Low power applications of other radio services may be co-ordinated outside of these quiet areas. Assignments in proximity to the Penticton, British Columbia radioastronomy observatory will be assessed on a case-by-case basis.

1 During the course of this Review, it was decided to extend the upper limit from 890 to 896 MHz. This amended upper frequency limit will be used in the titles of all documentation, effective immediately.

2 The *Canadian Table of Frequency Allocations* was last reissued in 1986. A further reissue of the Table will be made in 1990.

**b) 74.6-74.8 MHz – FIXED
MOBILE**

Domestic Allocations

The domestic allocations, as specified in the *Canadian Table of Frequency Allocations* for this band, are unchanged.

Spectrum Utilization Policy

Assignments will continue to be made in this band with due regard, and protection accorded, to the adjacent Aeronautical Radionavigation Service band.

c) 74.8-75.2 MHz – AERONAUTICAL RADIONAVIGATION

Domestic Allocation

The domestic allocation, as specified in the *Canadian Table of Frequency Allocations* for this band, is unchanged.

Spectrum Utilization Policy

Current assignment practices and criteria for allocations in this band will continue with due regard to the need to protect the Aeronautical Radionavigation Service from interference from adjacent bands.

**d) 75.2-76 MHz – FIXED
MOBILE**

Domestic Allocations

The domestic allocations, as specified in the *Canadian Table of Frequency Allocations* for this band, are unchanged.

Spectrum Utilization Policy

Assignments will continue to be made in this band with due regard, and protection accorded, to the adjacent Aeronautical Radionavigation Service band.

e) 88-108 MHz – BROADCASTING

Domestic Allocation

The domestic allocation, as specified in the *Canadian Table of Frequency Allocations* for this band, is unchanged.

Spectrum Utilization Policy

The use of this band for FM Broadcasting will remain unchanged.

f) 108-117.975 MHz – AERONAUTICAL RADIONAVIGATION

Domestic Allocation

The domestic allocation, as specified in the *Canadian Table of Frequency Allocations* for this band, is unchanged.

Spectrum Utilization Policy

The band will continue to be used for:

Airport Instrument Landing Systems	108	-	112 MHz
High Power VHF Omni-Range Systems	112	-	117.975 MHz

g) 117.975-137 MHz – AERONAUTICAL MOBILE (R)

Domestic Allocation

The domestic allocation, as detailed in the *Canadian Table of Frequency Allocations* for this band, is unchanged.

Spectrum Utilization Policy

The band will continue to be used for Air Traffic Control Services (ATCS), General Aviation Communications (GAC) and Aeronautical Operational Control Communications (AOCC). Implementation of the band 136-137 MHz for aeronautical mobile services is currently under public review by Canada Gazette Notice SMRR-003-89, issued December 9, 1989.

Aeronautical Mobile Service

ATCS	GAC	AOCC
117.975 - 121.9625 MHz		
123.5875 - 128.8125 MHz	121.9625 - 123.5875 MHz	128.8125 - 132.0125 MHz
132.0125 - 136.0 MHz		
136.0 - 137.0 MHz ³		

- 3 a) Non-aeronautical mobile services ceased to be assigned in the band 136-137 MHz after January 1, 1989.
- b) Aeronautical mobile services are afforded full interference protection from non-aeronautical mobile services still operating in this band.
- c) On January 1, 1990 the international allocations for the Space Operation, Meteorological Satellite and Space Research Services were changed from a primary basis to a secondary basis.

**h) 137-138 MHz – SPACE OPERATION (space-to-Earth)
METEOROLOGICAL-SATELLITE (space-to-Earth)
SPACE RESEARCH (space-to-Earth)**

Domestic Allocations

The domestic allocations, as specified in the *Canadian Table of Frequency Allocations* for this band, are unchanged.

Spectrum Utilization Policy

The band is available for the use of the allocated radio services.

i) 149.9-150.05 MHz – RADIONAVIGATION-SATELLITE

Domestic Allocations

The domestic allocations, as specified in the *Canadian Table of Frequency Allocations* for this band, are unchanged with regard to the service occupying it. However, the following Canadian Footnote is hereby added:

C19 The operation of low-power mobile or fixed communications equipment is permitted in the band but this equipment must not cause interference to the Radionavigation-Satellite Service.

Spectrum Utilization Policy

Systems introduced into this band under the provision of new Canadian Footnote C19 are subject to licensing and operational conditions to ensure the protection from interference of the Radionavigation-Satellite Service.

j) 156.7625-156.8375 MHz – MARITIME MOBILE (distress and calling)

Domestic Allocation

The domestic allocation, as specified in the *Canadian Table of Frequency Allocations* for this band, is unchanged.

Spectrum Utilization Policy

The use of this band will continue to be limited to maritime distress signals from, and calling by, stations in the Maritime Mobile Service. Canadian land stations authorized to use 156.8 MHz will continue to be those operated by the Canadian Coast Guard. In exceptional circumstances and on a case-by-case basis only, the use of the frequency 156.8 MHz by land stations other than those operated by the Government of Canada, will be considered by the Department of Communications.

**k) 225-328.6 MHz – FIXED
MOBILE**

Domestic Allocations

The domestic allocations, as specified in the *Canadian Table of Frequency Allocations* for this band, are unchanged.

Spectrum Utilization Policy

The use of this band for Government of Canada operations will continue.

l) 328.6-335.4 MHz – AERONAUTICAL RADIONAVIGATION

Domestic Allocation

The domestic allocation, as specified in the *Canadian Table of Frequency Allocations* for this band, is unchanged.

Spectrum Utilization Policy

This band will continue to be used for Airport Instrument Landing Systems.

**m) 335.4-399.9 MHz – FIXED
MOBILE**

Domestic Allocations

The domestic allocations, as specified in the *Canadian Table of Frequency Allocations* for this band, are unchanged.

Spectrum Utilization Policy

The use of this band for Government of Canada operations will continue.

n) 399.9-400.05 MHz – RADIONAVIGATION-SATELLITE

Domestic Allocation

The domestic allocation as specified in the *Canadian Table of Frequency Allocations* for this band, will remain unchanged with regard to the service occupying it. However, the following Canadian Footnote is hereby added:

C19 The operation of low-power mobile or fixed communications equipment is permitted in the band but this equipment must not cause interference to the Radionavigation-Satellite Service.

Spectrum Utilization Policy

Systems introduced into this band under the provisions of new Canadian Footnote C19 are to be subject to licensing and operational conditions to ensure the protection from interference of the Radionavigation-Satellite Service.

**o) 400.05-400.15 MHz – STANDARD FREQUENCY AND TIME
SIGNAL-SATELLITE (400.1 MHz)**

Domestic Allocations

The domestic allocations, as specified in the *Canadian Table of Frequency Allocations* for this band, are unchanged.

Spectrum Utilization

The use of this band for Standard Frequency and Time Signal-Satellite will continue.

**p) 400.15-401 MHz – METEOROLOGICAL AIDS
METEOROLOGICAL-SATELLITE (space-to-Earth)
SPACE RESEARCH (space-to-Earth)
Space Operation (space-to-Earth)**

Domestic Allocations

The domestic allocations, as specified in the *Canadian Table of Frequency Allocations* for this band, are unchanged.

Spectrum Utilization Policy

The spectrum utilization for this band will continue unchanged thus affording protection to operations of the Canadian Atmospheric Environment Service's weather reporting and forecasting systems.

**q) 401-402 MHz – METEOROLOGICAL AIDS
SPACE OPERATION (space-to-Earth)
Earth Exploration Satellite (Earth-to-space)
Fixed
Mobile except aeronautical mobile**

Domestic Allocations

The domestic allocations, as specified in the *Canadian Table of Frequency Allocations* for this band, are unchanged.

Spectrum Utilization Policy

The spectrum utilization for this band will continue unchanged thus affording protection to operations of the Canadian Atmospheric Environment Service's weather reporting and forecasting systems.

r) 406-406.1 MHz – MOBILE-SATELLITE (Earth-to-space)

Domestic Allocations

The domestic allocations, as specified in the *Canadian Table of Frequency Allocations* for this band, are unchanged.

Spectrum Utilization Policy

This band will continue to be used exclusively for the Emergency Position Indicator Beacons (EPIRBs) operating on 406.025 MHz.

s) 608-614 MHz – RADIO ASTRONOMY Mobile-Satellite except aeronautical mobile-satellite (Earth-to-space)

Domestic Allocations

The domestic allocations, as specified in the *Canadian Table of Frequency Allocations* for this band, are unchanged.

Spectrum Utilization Policy

This band will continue to be available for radioastronomy observations.

t) 806-890 MHz – MOBILE Fixed

890-896 MHz – FIXED MOBILE except aeronautical mobile Radiolocation

Domestic Allocations

The domestic allocations, as specified in the *Canadian Table of Frequency Allocations* for this band, are unchanged. At an appropriate future time, the status of the Fixed Service, in the band 890-896 MHz, will be modified to secondary.

Discussion Regarding the Band 890-896 MHz

This band is a portion of the larger band 890-960 MHz which has been used for point-to-point relay systems in Canada under the channelling arrangement of SRSP 310 (cancelled by Gazette Notice SMEP-005-89, May, 1989). The release of the Spectrum

Utilization Policy (SP 300.89)⁴ in July, 1986 announced the use of this frequency spectrum for different radio services to meet new and emerging requirements. Fixed Radio Systems not meeting the requirements of this policy became non-standard (i.e. systems which do not conform with the most recent issue of the spectrum utilization policy) as of July 1, 1986. This policy put in place a protection period of five years for such existing systems until July 1, 1991.

However, it should be noted that fixed services using frequency diversity⁵ in the band 890-960 MHz became non-standard as a result of the release of the *Policy for the Utilization of the 0.890-10.68 GHz Radio Spectrum by the Fixed Services in December 1982*.

Fixed services using frequency diversity were granted a five-year period of grace which ceased on December 31, 1987. Since that date non-standard frequency diversity systems cannot cause interference to standard systems. In addition, non-standard systems are required to tolerate interference from standard systems or make the necessary modifications to avoid interference.

However, the document, *General Information Related to Spectrum Utilization and Radio Systems Policies* (SP-GEN) requires that licensees of a non-standard system receive up to two years' prior notification of the licensing of standard systems that could affect the operation of the non-standard system.

Spectrum Utilization Policy

The following policies are detailed in relation to:

a) Spectrum for Public Safety

The bands **821-824 and 866-869 MHz** are designated for use by government safety services. In the specific context of this policy, the Department considers government safety services to be those provided by federal, provincial and municipal governments and their affiliated agents (e.g. private ambulance services) which are exclusively related to the preservation of life and protection of property.

However, if a government, or its affiliated agent, plans to install a trunked mobile system, that system would be considered for licensing in the 821-824 and 866-869 MHz bands, provided that the primary use is for the preservation of life and protection of property.

In recognition of the need to share the designated bands with the United States in the Canada/United States frequency coordination zone, Canadian users will have access to less than the 6 MHz of spectrum in the bands 821-824 MHz and 866-869 MHz, depending on

4 The Spectrum Utilization Policy (SP 300.89) was reissued in February 1990 as SP 896 for the band 896-960 MHz.

5 Frequency diversity is defined in *General Information Related to Spectrum Utilization and Radio Systems Policies*, also known as SP-GEN, which was released in June 1987.

their geographical location (i.e. Canada will have access to approximately one-half of the identified bands), the remaining portion being designated for use in the United States.

The following five channels will be designated for authorized inter-agency communications in Canada, and between Canada and the United States, as necessary:

1. 821.0125 MHz (Mobile) Public Safety Common Channel⁶
866.0125 MHz (Base)
2. 821.5125 MHz (Mobile) Tactical Channel⁷
866.5125 MHz (Base)
3. 822.0125 MHz (Mobile) Tactical Channel
867.0125 MHz (Base)
4. 822.5125 MHz (Mobile) Tactical Channel
867.5125 MHz (Base)
5. 823.0125 MHz (Mobile) Tactical Channel
868.0125 MHz (Base)

Applicants seeking access to the bands 821-824 and 866-869 MHz will be required, in consultation with the Department, to develop and justify implementation and growth plans, and provide such other information deemed necessary by the Department to enable the orderly and efficient exploitation of these bands. If existing systems are being replaced, applicants will be expected to identify frequencies in lower bands which may be offered up in exchange for frequencies in the 821-824 and 866-869 MHz bands.

Applicants are encouraged to select spectrum efficient system designs in developing applications for licensing. The use of trunked systems is particularly recommended when operational conditions permit.

The Department will act as arbitrator in disputes involving competing requests for access to spectrum in the 821-824 and 866-869 MHz bands, in consultation with the agencies involved in public safety activities. The Department will retain the sole responsibility for overall spectrum management decisions in relation to the use of these frequencies.

b) Cellular Radio Systems

Cellular radio in Canada and in other parts of the world, is currently enjoying singular success in terms of public acceptance and growth. Bearing in mind that the cellular service is highly competitive and that it is in the best interests of providers and subscribers to operate in an environment as free of restrictions as possible, the Department releases all of

6 The Public Safety Common Channel will be used by safety agencies for calling and day-to-day coordination.

7 Tactical Channels will be used by safety agencies for coordination and response communications in times of emergency.

the radio frequency spectrum earmarked for cellular radio expansion, without geographic restriction. It is understood that this expanded spectrum can provide temporary service relief through expansion of the analogue systems but that a conversion to digital systems is necessary to meet the foreseen service growth.

To this end, it is to be noted that the cellular radio industry in Canada and the United States has placed a considerable effort on the development of a North American industry standard for digital cellular radio. The Department endorses this initiative as it will greatly increase the traffic capacity relative to the existing cellular systems.

It is unlikely that additional spectrum for cellular systems can be made available in the near future and even longer depending on the outcome of activities such as the World Administrative Radio Conference in 1992 and domestic considerations that could necessitate the displacement of some existing radio systems of other services. Consequently, it is most important that the cellular service providers plan carefully to meet the expected large demands for cellular service within this allocated spectrum for the time frame mentioned.

Accordingly, the sub-bands identified in the table in Annex 2 will be available for the cellular radio service, effective immediately subject to compliance with the normal licensing process.

As in the previous allocation of spectrum for cellular radio, the spectrum is divided equally between the Local Telephone Cellular Service Provider and the Other Cellular Service Provider. The technical requirements applicable to the use of the cellular bands are specified in the *Standard Radio System Plan 503: Technical Requirements for Cellular Radiotelephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz*.

c) Air to Ground Public Correspondence Service

The bands 849-851 and 894-896 MHz are designated for Air to Ground Public Correspondence Service in Canada. This service enables the use of communication systems from aircraft to ground to provide public radiotelephone service to aircraft passengers.

The Department's consideration of this service has always been based on the premise that service should be interoperable in Canada and in the United States due to the significant number of trans-border flights and to ease frequency coordination aspects. Moreover, such consideration has recognized the desirability of competition which allows consumers to have their choice of provider. The Department has closely monitored developments in this new service. At this time, there are spectrum, administrative and technical considerations which require resolution as a result of the recent decision by the Federal Communications Commission regarding the use of this service in the United States. It is the intention of the Department to announce in a separate Gazette Notice in the near future the process for implementation of this competitive service in Canada.

d) Conventional and Trunked

The bands 806-821 and 851-866 MHz are designated for trunked and conventional systems. The detailed plans and technical requirements are specified in *Standard Radio System Plan 502: Technical Requirements for Land Mobile and Fixed Radio Services Operating in the Bands 806-821 MHz and 851-866 MHz*.

4. Supplementary Information

4.1 Related Documents

Canadian Table of Frequency Allocations - March, 1986
(Reissue planned for 1990)

General Information Related to Spectrum Utilization and Radio Systems Policies - (SP-GEN) June, 1987 (Reissue planned for 1990)

Spectrum Utilization Policy for the Fixed, Mobile, Radiolocation and Amateur Services in the Band 896-960 MHz - (SP-896 MHz) February, 1990

Standard Radio System Plan 502: Technical Requirements for Land Mobile and Fixed Radio Services Operating in the Bands 806-821 MHz and 851-866 MHz - February, 1990

Standard Radio System Plan 503: Technical Requirements for Cellular Radiotelephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz - (planned for issue in May, 1990)

Policy for the Utilization of the 0.890-10.68 GHz Radio Spectrum by Fixed Services - December, 1982

5. Implementation

Applicants should contact one of the Department's Regional Offices regarding the status of radio licensing in the bands discussed in this policy paper.

Issued under the authority of the
Minister of Communications

K.T. Hepburn
Senior Assistant Deputy Minister

Annex 1

Bands Included in This Document

Mhz	Domestic Frequency Allocations
73-74.6	RADIOASTRONOMY
74.6-74.8	FIXED, MOBILE
74.8-75.2	AERONAUTICAL RADIONAVIGATION
75.2-76	FIXED, MOBILE
88-108	BROADCASTING
108-117.975	AERONAUTICAL RADIONAVIGATION
117.975-137	AERONAUTICAL MOBILE (R)
137-138	SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth)
149.9-150.05	RADIONAVIGATION-SATELLITE
156.7625-156.8375	MARITIME MOBILE (distress and safety)
225-328.6	FIXED, MOBILE
328.6-335.4	AERONAUTICAL RADIONAVIGATION
335.4-399.9	FIXED, MOBILE
399.9-400.05	RADIONAVIGATION-SATELLITE
400.05-400.15	STANDARD FREQUENCY AND TIME SIGNAL SATELLITE (400.1 MHz)
400.15-401	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Space Operation (space-to-Earth)

MHz	Domestic Frequency Allocations
401-402	METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile
406-406.1	MOBILE SATELLITE (Earth-to-space)
608-614	Radio ASTRONOMY Mobile satellite except aeronautical mobile satellite (Earth-to-space)
806-890	MOBILE, Fixed
890-896	FIXED, MOBILE except aeronautical mobile Radiolocatio

Annex 2

**Spectrum Utilization Policy
Frequency Band 806-896 MHz**

	MHz
-----	896
Air/Ground Public Correspondence (New)	-----
-----	894
Local Telephone Cellular Service (New)*	-----
-----	891.5
Other Cellular Service (New)	-----
-----	890
Local Telephone Cellular Service (Existing)	-----
-----	880
Other Cellular Service (Existing)	-----
-----	870
Other Cellular Service (New)	-----
-----	869
Public Safety (New)	-----
-----	866
Conventional & Trunked Mobile (Existing)	-----
-----	851
Air/Ground Public Correspondence (New)	-----
-----	849
Local Telephone Cellular Service (New)	-----
-----	846.5
Other Cellular Service (New)	-----
-----	845
Local Telephone Cellular Service (Existing)	-----
-----	835
Other Cellular Service (Existing)	-----
-----	825
Other Cellular Service (New)	-----
-----	824
Public Safety (New)	-----
-----	821
Conventional & Trunked Mobile (Existing)	-----
-----	806

*(New or Existing Spectrum Utilization Policy)