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DGTP-004-01

Spectrum Management and Telecommunications Policy

# **Proposal to Introduce the Mobile Service on a Co-primary Basis with the Broadcasting Service in the Frequency Band 746-806 MHz**

# INDUSTRY CANADA

## RADIOCOMMUNICATION ACT

*Notice No. DGTP-004-01 — Proposal to Introduce the Mobile Service on a Co-primary Basis with the Broadcasting Service in the Frequency Band 746-806 MHz*

### Introduction

The purpose of this Notice is to initiate public consultation through the release of the above-mentioned spectrum policy proposal document that seeks to introduce the mobile service in the frequency band 746-806 MHz (Television Broadcasting Channels 60-69). It is proposed to allow the mobile service to operate in the above band with the broadcasting service on co-primary basis. Through a spectrum policy consultation, the Department would subsequently seek to identify, where possible, a modest amount of spectrum in the above band for public safety and possibly for commercial mobile services taking into account the DTV transition.

The Department has established a Digital Television (DTV) Transition Allotment Plan which will enable most Canadian Broadcasters to implement DTV in television channels 2-59. Although there are currently some DTV allotments in channels 60-69, the Department believes that a modest amount of spectrum may still be made available to meet the pressing spectrum needs of public safety and possibly commercial mobile services.

A document entitled *Proposal to Introduce the Mobile Service on a Co-primary Basis with the Broadcasting Service in the Frequency Band 746-806 MHz* is available for public comment. These comments will provide the basis for making domestic spectrum allocation changes and to assist in the development of a future consultation paper to identify spectrum for the mobile service.

### Invitation to Comment

Industry Canada invites interested parties to provide their views and comments on the above referenced proposed spectrum policy document.

This document is available electronically as follows:

#### **World Wide Web (WWW)**

<http://strategis.gc.ca/spectrum>

or can be obtained in hard copy, for a fee, from: **Tyrell Press Ltd.**, 2714 Fenton Road, Gloucester, Ontario K1T 3T7, email: [sales1@tyrellpress.ca](mailto:sales1@tyrellpress.ca), 1-800-267-4862 (Canada toll-free telephone), 1-800-574-0137 (United States toll-free telephone), (613) 822-0740 (Worldwide telephone), (613) 822-1089 (Facsimile); and **DLS, St. Joseph Print Group**, 45 Sacré-Coeur Boulevard, Hull, Quebec K1A 0S7, 1-888-562-5561 (Canada toll-free telephone), 1-800-565-7757 (Canada toll-free facsimile), (819) 779-4335 (Worldwide telephone), (819) 779-2833 (Worldwide facsimile).

Respondents are strongly encouraged to provide their comments in electronic format (WordPerfect, Microsoft Word, Adobe PDF or ASCII TXT) to facilitate posting on the Department's Web site. Documents submitted should be sent with a note specifying the software, version number and operating system used at this e-mail address: **DGTP/DSRS@ic.gc.ca**. All submissions must cite the Canada Gazette Notice reference number DGTP-004-01.

Written submissions should be addressed to the Director General, Telecommunications Policy Branch, Industry Canada, 300 Slater Street, Ottawa, Ontario, K1A 0C8 and must be received on or before September 24, 2001 to receive full consideration. All representations must cite the *Canada Gazette* Part I Notice publication date, title, and the Notice reference number (DGTP-004-01).

All comments received in response to this Notice will be made available for viewing on the Department's Web site at <http://strategis.gc.ca/spectrum>.

June 8, 2001

Michael Helm  
Director General  
Telecommunications Policy Branch

## 1. Introduction

The purpose of this policy paper, announced in Gazette Notice DGTP-004-01, is to initiate public consultation and invite comments on proposals to introduce the mobile service to operate on co-primary basis with the broadcasting service in the frequency band 746-806 MHz (Television Channels 60-69). The proposals outlined in this spectrum policy paper seek to make changes to the *Canadian Table of Frequency Allocations* that will accommodate the identification of a modest amount of spectrum in the aforementioned frequency bands for public safety and possibly for commercial mobile services taking into account the DTV transition.

The Department invites interested parties to comment on these proposals in accordance with the time line outlined in Gazette Notice DGTP-004-01.

## 2. Background

The work of the Task Force on the Implementation of Digital Television (DTV)<sup>1</sup> culminated on October 21, 1997 with the release of a series of recommendations in the document entitled, *Canadian Television in the Digital Era*. This report detailed how Canada should make the transition to digital television with industry and government working together. Since the release of the DTV Task Force recommendations, Industry Canada has moved quickly to address the spectrum-related technical recommendations to implement DTV in Canada through the:

- negotiation and adoption of North American technical standards for DTV;
- development and release of the DTV Transition Allotment Plan;
- demonstration and testing, in association with Canadian Digital Television Inc. (CDTV Inc.), of various DTV encoding and broadcasting technologies through the establishment of the experimental DTV transmitter site in Manotick, Ontario; and
- negotiation of a Canada/US frequency coordination agreement and the development and release of DTV-related Broadcasting Procedures.

The DTV Transition Allotment Plan has set aside one digital channel for every existing regular analogue television station until the end of the transition to digital television. Regular power stations were given priority over low power stations in the development of the Transition Allotment Plan. In 1988, Canadian broadcasters, for marketing and business reasons, decided to adopt a “fast-follow” strategy allowing them to follow the US rollout by about 2 years. This strategy was chosen to enable sufficient time for broadcasting facilities to gradually ramp-up to full implementation of digital broadcasting. A gradual ramp-up would permit broadcasters to implement DTV in primary broadcasting markets in cities across Canada as the market demand

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<sup>1</sup> A government advisory body established by the federal government to make policy and technical recommendations sanctioned by the broadcasting industry on the rollout of DTV in Canada.

and the DTV penetration rate increased. It also recognized the requirement for substantial capital expenditures with no immediate new sources of revenue, to convert television production and transmission facilities to digital broadcasting during a period of analogue and digital simulcasting.

However, there are emerging pressures that may require broadcasters to develop a business plan that accelerates the conversion to digital broadcasting. This may be due, in part, to increasing competition to over-the-air broadcasting from satellite and cable delivery of digital broadcasting programming and the complementary multimedia role of the Internet. In addition, the US is already moving at an aggressive pace to rollout DTV and phase out analogue broadcasting by 2006. This US schedule will result in release of spectrum in channels 60-69 (also referred to as the 700 MHz band) for new wireless services. Europe is also implementing DTV at a rapid pace.

The US DTV reassignment plan for the 700 MHz band is already well underway and Canada is facing increasing pressure to designate certain portions of this spectrum for mobile services. Pressing spectrum demand is coming from the public safety community on both sides of the Canada/US border to accommodate advanced law enforcement and safety services. Accommodating such spectrum demand would result in the delivery of more effective public safety services for the well-being of all Canadians.

The shortage of mobile spectrum below 1 GHz in large urban centres like Toronto, Montreal and Vancouver has reached critical levels. Spectrum managers, in some cases, have had to reclaim commercial mobile frequency assignments to temporarily meet the spectrum demand for public safety services and public utilities. In many instances, new requests for spectrum by commercial entities have had to be denied due to the resulting spectrum shortage. Moreover, a number of events of international scope are being contemplated in Toronto, such as the Youth Congress in 2002 and the bid to host the 2008 Olympics. Both these events will require extraordinary measures to secure sufficient mobile spectrum. There is also an increase in the spectrum demand for commercial mobile services that connects Canadians to the knowledge-based economy via the Internet.

A near term goal for initiating this consultation is to eventually propose the identification of a modest portion of spectrum, in channels 60-69, to accommodate public safety and commercial mobile requirements while meeting the needs of broadcasters in their rollout of DTV. The Department believes it is possible to accomplish this goal with a relatively minimal impact on the rollout of DTV in Canada. For example, broadcasters who want to quickly move to broadcast DTV programming and whose channels are temporarily allotted in channel 60-69 (until being moved below channel 60) are encouraged to seek a DTV channel below channel 60. This would benefit broadcasters who quickly move to DTV by providing them earlier access to a permanent channel below channel 60. This would alleviate the costs of moving twice to different DTV channels. At the same time, this will free up spectrum above channel 60 to accommodate mobile services.

It may be too early yet to determine how over-the-air DTV broadcasting will eventually rollout, i.e. whether the rollout will be gradual or in phases for certain population centres or right across the country. There are expectations that consortiums of broadcasters will initially form business partnerships to share common facilities to reduce the costs of DTV rollout and maximize the market opportunities. In this regard, on January 4, 2001, Industry Canada authorized CDTV Inc. to operate an experimental transmitter site in Toronto, on a trial basis, to test DTV technologies and services.

The Department believes that this is an opportune time to begin consultation on the reassignment of some of this spectrum.

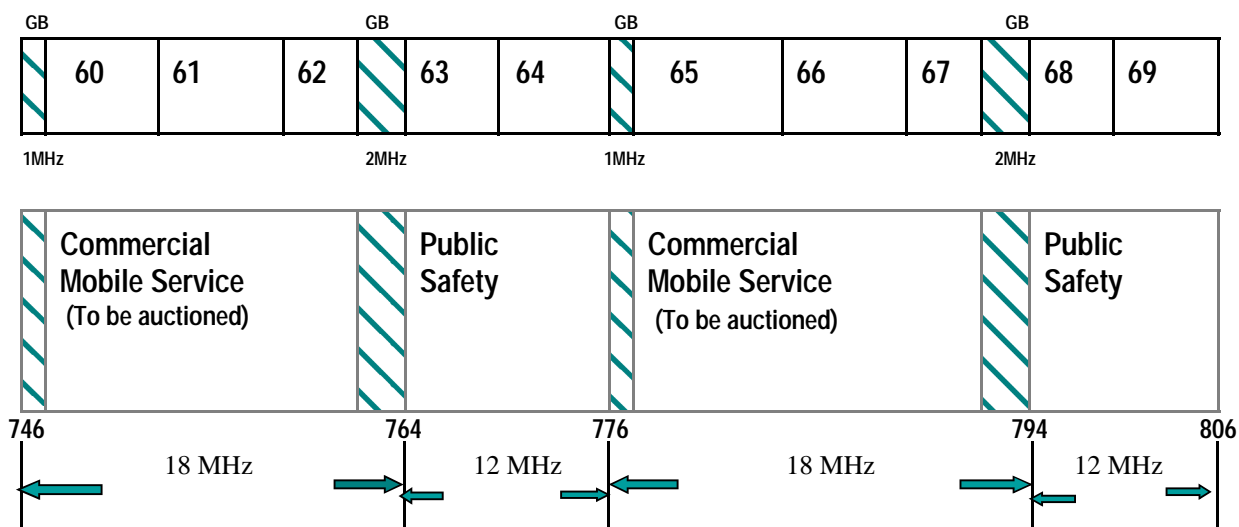
## **2.1 Canadian DTV Transition Allotment Plan**

In April of 1999, Industry Canada released the DTV Transition Allotment Plan which provided all broadcasters operating an analogue channel access to an equivalent DTV channel for analogue and digital simulcasting for a period of time. The Allotment Plan envisaged that the core spectrum for DTV broadcasting would eventually reside in channels 2-59. Some allotments were assigned in channels 60-69 during the transition period to accommodate simulcasting.

While the DTV Transition Allotment Plan was able to accommodate most broadcasters below channel 60, other planning constraints such as sharing spectrum along the Canada/US and certain technical requirements precluded accommodating all regular power broadcasting facilities below channel 60. As a result, there are a certain number of digital allotments made for an interim period between channels 60-69, particularly in some major urban centres.

The US developed a DTV Transition Allotment Plan with relatively few allotments in channels 60-69. As previously outlined, the FCC has established a schedule for DTV implementation and designated spectrum in channels 60-69 for wireless services. The following chart highlights the Federal Communications Commission's (FCC) plan for the reallocation of spectrum in the frequency range 746-806 MHz.

### FCC Plan for the Use of the 700 MHz UHF Spectrum



(Refer to Annex 1 for more details of the FCC Plan)

## 2.2 The Canada/US Spectrum Sharing Environment

The US requirement for spectrum coordination in the 700 MHz band, for public safety and other commercial mobile services along the Canada/US border, is significant. In order for both countries to use their domestic spectrum for broadcasting and/or mobile services, sharing arrangements must be negotiated to ensure that radio service in one country does not interfere with radio service in the other. This poses some unique issues when the allocations are different. In this case, the US has set aside 24 MHz for public safety and 36 MHz for commercial wireless services. In the frequency range 746-806 MHz, some 6 MHz of commercial mobile spectrum (guard band) has been auctioned and the remaining 30 MHz is scheduled to be auctioned this year. There are practical reasons for Canada and the US to harmonize their spectrum allocations, whenever possible, in order to respond to the public interest and to realize economic benefits. A compelling reason for Canada to seek common spectrum with the US for public safety use in this frequency range is to ensure that our law enforcement and safety agencies develop compatible networks and effective services with US public safety agencies.

Industry Canada will participate in a frequency coordination process with the US government that recognizes the eventuality of some mobile spectrum becoming available for use in the Canada/US border area on a shared basis in accordance with well-established sharing principles.

### 3. Revision to the Canadian Table of Frequency Allocations

At the June 2000 World Radiocommunication Conference (WRC-2000), held under the auspices of the International Telecommunication Union (ITU) in Istanbul, Turkey, Canada proposed and was successful in having its name added to international in-country footnote **S5.293**. This footnote allocates certain broadcasting bands on a co-primary basis with the fixed and mobile services. In preparation for WRC-2000, Industry Canada and the wireless industry recognized that many countries in the Americas, including the US and Mexico, had international allocations to implement fixed and mobile in parts of the UHF television bands. It was decided that Canada should add its name to this Region 2 ITU footnote. This international allocation would provide flexibility for Canada to consider a domestic allocation change to implement mobile and fixed services in parts of the UHF television bands. Of course this would be subject to full public consultation and a subsequent spectrum policy. This would also enable the development of spectrum sharing arrangements with the US on an equal basis for mobile services.

#### 3.1 Proposed Domestic Allocation Modifications

Industry Canada believes that it is timely to modify the *Canadian Table of Frequency Allocations* to incorporate international footnote **S5.293** and to permit some mobile service use in the frequency band 746-806 MHz based on a future spectrum policy. The Department proposes modifications to the *Canadian Table of Frequency Allocations* as follows:

#### Proposal

|             |  |
|-------------|--|
| 746-806 MHz | BROADCASTING<br><b><u>MOBILE CWW CZZ</u></b><br><br><b><u>S5.293</u></b> |
|-------------|--|

MOD S5.293 (WRC-2000) *Different category of service:* in Canada, Chile, Colombia, Cuba, the United States, Guyana, Honduras, Jamaica, Mexico and Panama and Peru, the allocation of the bands 470-512 MHz and 614-806 MHz to the fixed and mobile services is on a primary basis (see No. **S5.33**), subject to agreement obtained under No. **S9.21**. In Argentina, and Ecuador, the allocation of the band 470-512 MHz to the fixed and mobile services is on a primary basis (see No. **S5.33**), subject to agreement obtained under No. **S9.21**.

ADD CWW The use of part of the frequency band 746-806 MHz for the mobile service, as television broadcasting evolves to digital transmission, will be subject to a spectrum utilization policy developed through public consultation.

**ADD CZZ** The international in-country footnote **S5.293** has allocated the bands 470-512 MHz and 614-746 MHz for fixed and mobile services on a co-primary basis with the broadcasting service. The *Canadian Table of Frequency Allocations* will not bring the provisions of **S5.293** into force, at this time, in the frequency bands 470-512 MHz and 614-746 MHz, as this is core broadcasting spectrum for digital television.

## Legend

|                    |   |
|--------------------|---|
| <u>Underlining</u> | When used in the Table, underlining proposes the addition of a radio service or footnote. It is also used in the text of Canadian footnotes to identify proposed additional text. |
| S5.xxx             | This is the form of the designation of international footnotes.   |
| CXX                | This identifies a Canadian footnote.  |
| MOD                | This indicates an international footnote modified at a WRC or a Canadian footnote proposed for modification. These appear in both the Table and in the lists of footnotes.        |
| ADD                | This is used in a list of footnotes to indicate an international footnote created at WRC-97 or a proposed new Canadian footnote.  |

## Discussion

This proposed allocation change would provide flexibility to implement the mobile service in parts of the UHF television bands and enable the development of spectrum sharing arrangements with the US on an equal basis for the mobile service. In addition, the intent of proposed Canadian footnote CWW is to indicate a future consultation process to identify a modest amount of spectrum for release to mobile services. The intent of Canadian footnote CZZ is to ensure that core DTV broadcasting spectrum, in the frequency bands 470-512 MHz and 614-746 MHz, is preserved. The potential implementation of mobile service is predicated on the development of a spectrum utilization policy, for the gradual release of spectrum for the mobile service, within a public consultation process that also recognizes the needs of the broadcasting service.

Comments are invited on these proposed allocation changes to the *Canadian Table of Frequency Allocations*.

## **4.0 Consideration to Identify Some Spectrum for Mobile Service**

### **4.1 Situation**

The US broadcasting industry is moving to fully implement digital television under a tight schedule by year 2006. Currently, there are 187 DTV stations in operation with at least one digital television signal accessible in 64 markets representing some 68 % of US households. In Canada, the commercial rollout of DTV has not begun. However, the Canadian Association of Broadcasters (CAB) and CDTV Inc. have adopted a plan to rollout DTV using common broadcasting facilities as previously explained in section 2. Also, the Canadian Radio-television and Telecommunications Commission (CRTC) is expected to hold a proceeding in 2001, to establish the regulatory framework for the implementation of digital television broadcasting. So far, the Canadian approach has not adopted a specific schedule for the transition to DTV. The broadcasting distribution industry which includes cable operators, direct-to-home (DTH) operators and Multi-point Distribution Service (MDS) operators, are very much involved in delivering digital broadcasting programming. There are over one million Canadian subscribers to DTH services, over half a million subscribers to digital cable television and over 60,000 MDS subscribers, all of whom have access to digital broadcasting programs.

At this time, it is hard to forecast how quickly over-the-air digital television broadcasting will be implemented in Canada. The Department will try to accommodate most regular power television stations within broadcasting channels 2-59 as the transition takes place.

The Department has indicated to the CRTC with regards to the *Call for Comments on a Licensing Framework for Low-power Community Television Undertakings in Urban Areas, and in other Markets Not Covered by Existing Policy* (Public Notice CRTC 2000-127), that unless there are extraordinary circumstances, it will not issue broadcasting certificates for low power TV stations in channels 60-69. Moreover, broadcasting certificates for low power stations below channel 60 will carry a cautionary note that these licensees may have to move to other channels in the future if the DTV transition so requires. This position was taken due to the need to provide flexibility to regular power stations to implement DTV in the future and accommodate the spectrum requirement for mobile services in the 700 MHz band.

Against this backdrop, the Department is of the view that a modest amount of broadcasting spectrum in the frequency band 746-806 MHz (TV channels 60-69) can be identified for public safety and possibly for commercial mobile services taking into account the DTV transition. A number of large Canadian cities have critical need for land mobile spectrum to accommodate public safety and commercial mobile services. Despite the implementation of narrow-band technology in the bands 150 MHz and 450 MHz and the growth of highly efficient public networks at 800/900 MHz, there remains a critical shortage of mobile spectrum.

#### 4.2 Spectrum Policy Considerations

In a future public consultation process, the Department will identify potential spectrum for mobile services (public safety and commercial) in television channels 60-69. Although the DTV Transition Allotment Plan is well-occupied, there is potential spectrum in certain areas of the country to be considered for coordination and sharing with the US.

A number of issues need to be addressed:

- (a) a sharing arrangement for the mobile service along the Canada/US border for the frequency band 746-806 MHz;
- (b) the availability of equipment for mobile services, and
- (c) the benefit of harmonizing the spectrum band plan with the US.

The Department invites views on aforementioned issues and the following related questions:

- (a) For public safety in the 700 MHz band, should Canada harmonize and have the same band plan as adopted in the US, including reserving some channels?**
- (b) Should Canada foster a common technical system standard for public safety?**
- (c) Should Canada harmonize its band plan with the US band plan and if so, should simplex and duplex requirements be defined for the band plan?**

Issued under the authority of the *Radiocommunication Act*

June 8, 2001

Michael Helm  
Director General  
Telecommunications Policy Branch

## **Annex 1**

### **The FCC Plan for the Use of the 700 MHz by Mobile Services**

In the 700 MHz band, the US has defined a national band plan (see section 2.1) which is described in greater detail in the following sections.

#### **Commercial Mobile Bands 746-764 MHz and 776-794 MHz**

For commercial mobile use, the US has allocated a total of 36 MHz: one pair of 5+5 MHz and one pair of 10+10 MHz and a total of 6 MHz of guard band spectrum. The US objective is to address the increasing demand for wireless access capacity. To ensure that public safety will be protected from interference from commercial mobile service and broadcast service use, a total of 6 MHz (one pair of 1+1MHz and one pair of 2+2 MHz) of guard band spectrum was defined with specific criteria for its use, i.e. cellular system architecture is not allowed, and out of band emissions must meet the same criteria as those required for public safety.

#### **Public Safety Bands 764-776 MHz/794-806**

In the US, a total of 24 MHz is designated for public safety use. This 24 MHz block of spectrum is separated in two blocks of 12+12 MHz. These blocks of 12+12 MHz are further sub-divided into 3 sub-blocks: two sub-blocks of 3+3 MHz and one sub-block of 6+6 MHz. Different groups of channels are designated for specific uses such as general use, low power, secondary trunked, interoperability, state license and reserve. There are specific rules for interoperability channels.

The Association of Public Safety Communications Officials (APCO) and their APCO Project 25 Phase 1 data standard is adopted as the voice standard for communication. The Project 25 data standard is adopted for narrow-band data communication and encryption is permitted on these channels except on 2 calling channels.

Canada has decided in the past to harmonize the bands 821-824 MHz and 866-869 MHz with the US for public safety mutual aid channel use. In addition, Canada has traditionally adopted a technology neutral approach in order to provide maximum flexibility for operators to choose the best system to meet their market requirements.