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2001 Edition
December 2001

Spectrum Management and Telecommunications Policy

Radio Systems Policy

Guidelines on the Licensing Process and Spectrum Release Plan (2001 Edition)

Amended by:

DGTP-011-01 Update of Guidelines on the Licensing Process and Spectrum Release Plan (2001 Edition)
(December 2001)

INDUSTRY CANADA

RADIOCOMMUNICATION ACT

Notice No. DGTP-011-01 — Update of Guidelines on the Licensing Process and Spectrum Release Plan (2001 Edition)

The purpose of this notice is to announce a new edition, known as the 2001 Edition, of the above referred policy document to update the first edition published in October 1999. At the time of its initial publication, Industry Canada indicated that the spectrum release plan would be updated regularly to provide more certainty as to which spectrum resources were being considered for licensing. In addition, as proposed in the *Framework for Spectrum Auctions in Canada*, the Department indicated it would issue an updated forecast of certain types of spectrum to be released and the timing of future competitive licensing processes.

One of the highlights of the new Edition is a forecast on the release of additional spectrum for advanced mobile services including 3G. The Department wishes to use this policy paper to outline the steps in a work plan which will lead to the licensing of new spectrum.

The policy document also serves to update the spectrum resources (frequency bands and satellite orbital positions) for which first-come, first-served licensing will continue to be used and the spectrum resources for which the competitive licensing process will likely be used. The policy paper reflects the various spectrum policy and licensing decisions taken by the Department since the Spectrum Release Plan was issued in 1999. A competitive licensing process will typically be considered in situations where there is, or is likely to be, more demand for a particular spectrum resource than there is supply. The policy document provides a best estimate of certain types of spectrum to be released and the timing for initiating competitive licensing.

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December 14, 2001

Michael Helm
Director General
Telecommunications Policy Branch

1.0 Foreword

In December 1997, Industry Canada carried out a public consultation to establish policy guidelines to clarify the licensing process used for traditional frequency bands for fixed, mobile, and satellite services. The Department believed it was timely to define spectrum resources and situations that would continue to use a first-come, first-served (FCFS) licensing process and those that would use a competitive licensing process (comparative selection or auction). It was stated that a competitive process would be considered in situations where there is, or is likely to be, more spectrum demand than resources available. The consultation also addressed situations in which the licensing approach may have to be altered from a FCFS to a competitive process due to excess demand or due to particular public interest objectives to be pursued.

In addition, as part of the *Framework for Spectrum Auctions in Canada* released in August 1998, Industry Canada proposed to develop a Spectrum Release Plan. The objective of this plan is to inform the Canadian industry and spectrum users, of new frequency resources that may be opened for competitive licensing in the near future.

In October 1999, as a result of these public consultations, Industry Canada announced in the Canada Gazette, Notice DGTP-004-99, the release of the first edition of the *Guidelines for Licensing Process and Spectrum Release Plan* which set out the spectrum resources, i.e., frequency bands and satellite orbital positions, and indicate the licensing process that would generally be used. This document provides a forecast of certain types of spectrum resources to be released, as well as the anticipated timing for initiating competitive licensing processes over a two to three year period. The Department has indicated that such a plan can only be a “best effort” forecast of spectrum to be licensed, and must be sufficiently flexible to adjust to spectrum demand, public interest, international and commercial developments, as well as other unforeseen factors that may arise. This list of spectrum resources will be updated regularly to reflect changes in spectrum policies, demand for certain bands, and particular directions to advance competition and the public interest.

The Department is hereby providing an update of the policy document to be referred to as 2001 Edition. The Department also wishes to use this document to outline the steps of a work plan with milestones which will lead to the licensing of additional spectrum for advanced mobile services including third generation (3G).

2.0 Background

The traditional licensing approach used by Industry Canada has been to deal with most applications for fixed and mobile radio facilities and assign frequencies on a FCFS basis. This process is accomplished using an integrated spectrum management system that is comprised of existing spectrum allocation and utilization policies, licensing policies, radiocommunication regulations, and technical and radio system standards. It is this integrated spectrum management system that makes the coordination of spectrum users, their systems and frequency assignments possible. The end result is that a large number of users can be accommodated with an efficient use of limited spectrum. The FCFS approach is used in instances where there is sufficient spectrum to meet the demand in a given frequency band and where there is no additional measure required to advance particular telecommunications policy objectives. Industry

Canada endeavours to deal expeditiously with several thousand radio applications each year, using the FCFS process. It should be noted that most industrialized countries also use the FCFS process for licensing the majority of their radiocommunication facilities, and rely on some form of competitive licensing process for licensing where demand exceeds spectrum availability.

As outlined in existing policies¹, the Department may choose to initiate a competitive licensing process in situations where there is, or is likely to be, more demand for radio frequency spectrum than the supply of spectrum available for use in a given frequency band or, where there is a need to pursue certain telecommunications policy objectives. A competitive licensing process would typically be supported by public consultation specific to that particular spectrum.

Since the mid-1980s, the Department has used competitive licensing in a number of cases, i.e., cellular radio, Personal Communications Services (PCS), Local Multipoint Communications Service (LMCS), broadband wireless at 24/38 GHz, 2.5 GHz Multipoint Communications Service (MCS), satellite orbital positions and where there were indications that there would be more demand than spectrum available. The Department has been experiencing a greater number of such cases where spectrum demand has exceeded supply. Factors contributing to this include new entrants wanting to provide local services, the increased desire to establish national systems, and some parties wishing to “stake a claim” for spectrum. For example, the opening of local competition in telecommunications and broadcasting distribution, and the availability of new spectrum and improved technology, have created significant interest in the deployment of local radio facilities.

3.0 Policy Guidelines on Use of Licensing Process

The Department continues to affirm the policy principle that the FCFS licensing process is not automatic and that in certain situations it may be necessary to suspend licensing on a FCFS basis and initiate a competitive licensing process. In order to clarify the licensing process for various spectrum resources and situations, Industry Canada has established the following licensing policy guidelines².

3.1 Majority of Cases for Continuing with the FCFS Licensing Process

The use of the FCFS licensing process will continue where Industry Canada believes spectrum supply is adequate to meet demand or a reasonable accommodation of all applications can be managed. This will generally apply to most point-to-point microwave systems and conventional land mobile systems where a modest amount of spectrum is required; individual land mobile frequency assignments; some point-to-multipoint applications; and to all satellite earth stations. These situations and frequency bands that will continue to be licensed on a FCFS basis are listed in Annex 1, which will be updated from time to time, as required, based on such factors as changes to spectrum policies and spectrum demand. It should be noted that Industry Canada reserves the right, and will give advance notice to interested

¹ *A Spectrum Policy Framework for Canada*, September 1992 and *Framework for Spectrum Auctions in Canada*, August 1998.

² Notwithstanding the licensing process guidelines indicated in section 3, the Department may change the mentioned licensing process at any time with appropriate notice to affected parties, including the licensing process indicated for the frequency bands and spectrum resources mentioned in Annexes 1 and 2.

parties, to change from one licensing process to another, if conditions change and for reasons affecting the orderly development of radiocommunication.

The utilization statuses of various frequency bands are set out in a series of Spectrum Utilization Policy documents and in some cases frequency bands may be under review through a public consultation process. The Department may rearrange a frequency band and introduce a moratorium on its future use in order to reassign the spectrum for other radio applications or initiate competitive licensing. For example, to advance rural telecommunications, the Department may first initiate licensing in rural areas on a FCFS basis, prior to opening the spectrum for competitive licensing in urban areas.

There may be situations where there is substantial interest for certain spectrum and a competitive process is necessary, for example, the licensing of New Party Cellular to provide service in unserved or underserved areas. Section 3.3 of this document discusses the situations in general where the FCFS process may be suspended and a competitive process may be initiated.

It should be noted that the FCFS licensing process is not automatic. There may be situations in licensing radio systems that, due to substantial spectrum demand, Industry Canada may suspend licensing on a FCFS and initiate a competitive licensing process.

3.2 Cases for Using a Competitive Licensing Process (Comparative or Auction)

Industry Canada will continue to identify, to the extent possible, the frequency bands or situations where there is, or could be, excess spectrum demand relative to supply or where there is a need to pursue certain telecommunications policy objectives. In these cases, a competitive licensing process using either a comparative selection or auction licensing approach, would be initiated according to the situation. In certain cases, it could be determined during the initial phase of a competitive process that sufficient spectrum is available to reasonably meet the needs of all applicants and that the licensing could therefore proceed on a FCFS basis. The Department would normally consult to establish the framework for a competitive radio licensing process.

In establishing the framework for a competitive radio licensing process, the Department may give regard to the objectives of the *Telecommunications Act* such as furthering competition in the provision of telecommunications or advancing service to all regions of Canada. As such, the Department may consider the use of policy provisions such as spectrum aggregation limits (spectrum caps), eligibility, spectrum set aside for new entrants and implementation milestones.

As a general rule, the frequency bands or situations where the Department foresees using a competitive licensing process (where there is, or could be, excess spectrum demand relative to supply), would include the following spectrum resources: most frequency bands for Multipoint Communications Systems (MCS) in urban areas; spectrum for public mobile telephone service; spectrum for broadband wireless access applications; fixed-satellite orbital positions; and other cases as they emerge. The specific bands and situations identified for using a competitive licensing process are listed in Annex 2. This list will be updated from time to time as required.

The Department is open to receiving expressions of interest for spectrum resources identified for competitive licensing in order to gauge the public interest in these frequency bands and to ascertain the

availability of radio equipment. In some cases, the Department may solicit the level of interest in a given frequency band by inviting public comments through a notice in the Canada Gazette.

Where a band is used for both point-to-point communications and MCS, the Department may declare a moratorium on any further frequency assignments for point-to-point applications in order to determine the amount of spectrum to be designated solely for MCS applications.

3.3 Other Cases

Industry Canada will monitor FCFS licensing activities to determine where licensing activities could trigger excess demand for a frequency band. In such cases, Industry Canada would notify the industry that the traditional FCFS licensing process needs to be altered or will no longer be used for certain situations and Industry Canada may consider the use of a competitive process.

The Department continues to believe that the factors or trigger points identified in the 1999 edition of RP-020 (new technology with compelling service opportunities; a band nearing exhaustion (75% full); or a request for significant spectrum (25% of a band)), may represent only some of several criteria that could be used by spectrum managers to make a decision on whether to initiate a new licensing process. In addition, it is believed that certain situations may have varying criteria that would be required for the measurement of potential spectrum exhaustion. Therefore, the methods of measuring spectrum consumption, the level of spectrum resource exhaustion or potential exhaustion, will be kept flexible and under the oversight of the spectrum managers who can best assess the evolving spectrum environment. In certain cases, a competitive process may be triggered during the expression of interest phase of licensing, i.e., certain fixed-satellite service orbital positions or new party cellular licensing.

The FCFS licensing process has been used effectively to deal with cases of high demand for frequencies in spectrum-congested situations, such as is now being experienced in urban areas for land mobile service in the 150 MHz, 450 MHz and 800/900 MHz frequency ranges. The Department has actively managed assignments in these and other bands in order to accommodate as many users as possible. The licensing process must provide a means to reassign underutilized spectrum for immediate use and the Department intends to be very active in reclaiming this spectrum. In addition, it may be in the public interest to limit the number of frequency assignments for each licensee in a given band and area in order to accommodate a greater diversity of users.

4.0 Spectrum Release Plan - A Forecast of Resources to be Opened for Competitive Licensing

The spectrum release plan is to apprise the Canadian industry and spectrum users of new frequency resources that may be opened for competitive licensing in the near future. Industry Canada is of the view that the spectrum release plan is beneficial to spectrum users with the understanding that it is a best effort forecast of the Department. The spectrum plan must provide the Department sufficient flexibility to adjust the timing and the specific frequency bands to be licensed in order to take into account changes in market conditions. This is consistent with the Department's responsibility to oversee the orderly and efficient development of Canadian radiocommunication.

This section will provide Industry Canada's best views on the release of certain types of spectrum and the timing for initiating competitive licensing over the next two to three years. A competitive licensing process would typically be accompanied by public consultation specific to that particular spectrum.

There are a number of factors that come into consideration before spectrum resources are opened for competitive licensing, and it is often difficult to forecast the precise timing and priorities. Wireless communication technologies are evolving at a fast pace brought about by business opportunities to compete in all segments of the telecommunications market and, in particular, in local distribution networks, satellite communications and mobile communications. The Department recognizes the important role of radiocommunication in supporting the Canadian connectedness objective and fostering affordable access facilities, capable of a wide range of digital services to Canadians in all regions of Canada.

Against this backdrop, Industry Canada believes that in a number of areas, it would be more useful to forecast the release of "certain types of spectrum" to try and meet a broad variety of needs. At this time, the spectrum envisaged for competitive licensing in the next two to three years can be described by the following broad categories:

- additional spectrum for narrowband/wideband wireless access service³;
- additional spectrum for broadband wireless access⁴;
- satellite orbital positions and associated spectrum; and
- additional spectrum for advanced mobile services.

4.1 Additional Spectrum for Narrowband/Wideband Wireless Access

Additional spectrum for wireless access will facilitate the development of local distribution networks and promote the introduction of new wireless access services for consumers such as high-speed Internet, small office/home office applications.

In December 1997, the Department initiated public consultation on Multipoint Communications Systems (MCS) in the 2500 MHz Range. Although the MCS band had been available for many years, in 1996 and 1997 the Department received a large number of applications for the development of MCS. These requests far exceeded the spectrum that was remaining in the band. A competitive licensing process was held, and in March 2000, the Minister of Industry announced the award of licences for the MCS band (2500-2596 MHz and 2150-2160 MHz). In September 2001, the U.S. administration announced that it was adding a mobile allocation in the 2500 MHz band, that it was not relocating the existing licensees and that it would rely on market forces to establish the best use of this band. The Department announced in November 2001, its intentions to add fixed and mobile allocations throughout

³ Narrowband/Wideband wireless access services in this document is intended to characterize services in the frequency bands generally below 10 GHz. In the lower frequency bands, the available spectral bandwidth is typically less and radio signal propagation is greater for a given power level which yields a relatively lower density in terms of Mbps per user per square kilometre.

⁴ Broadband wireless access in this document is intended to characterize spectrum in the higher frequency bands generally above 10 GHz where the available bandwidth is typically greater and propagation is less which yields a higher density in terms of Mbps per user per square kilometre.

the band, to not relocate incumbent-fixed and broadcasting licensees and to initiate a consultation process to seek views on licensing considerations arising from the change in allocation.

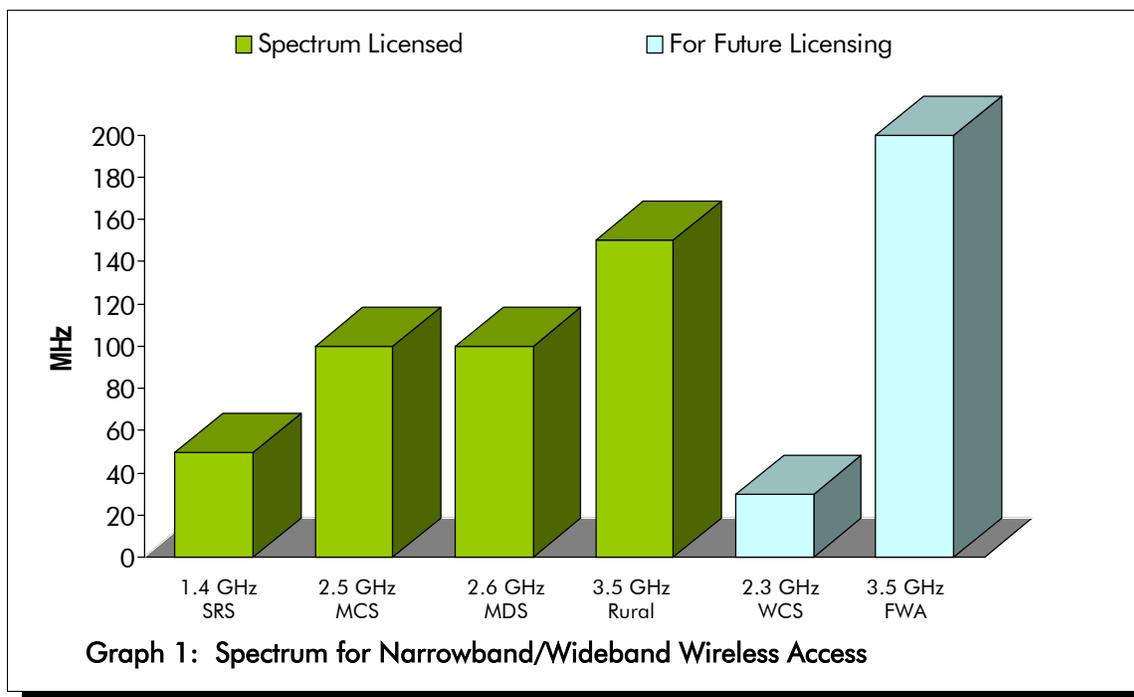
In August 1998, a total of 300 MHz in the band 3400-3700 MHz was designated for Fixed Wireless Access (FWA). Based on a managed FCFS licensing process, the band 3400-3550 MHz (150 MHz) was opened immediately in rural areas and small communities of less than 4000 households. The intent was to support new wireless technology in the provisioning of affordable single-party telephone lines and Internet access in high-cost serving areas. In the past year, more wireless access technologies have become available in this band and there has been a renewed interest by several applicants to establish FWA systems in rural communities. The Department also notes a number of countries have initiated licensing action for FWA systems. Industry Canada recently stated its intention to begin licensing this band in urban areas with the objective to provide additional spectrum below 10 GHz to implement new wireless access systems to support a range of advanced services, including high-speed Internet access.

In a related development, the Department initiated consultation on changes to the spectrum utilization policies in the 2285-2483.5 MHz range in March 2000. One proposal was to open the paired bands 2305-2320 MHz and 2345-2360 MHz for multipoint Wireless Communication Service (WCS) in a similar fashion to the United States. The public comments received encouraged Industry Canada to open this spectrum for WCS in the near future. In June 2001, the Department issued revisions to the spectrum policy in the 2285-2483.5 MHz range (DGTP-003-01) in which the bands 2305-2320 MHz and 2345-2360 MHz were designated for WCS implementation based on a competitive process.

On August 3, 2001, the Department initiated public consultation on the auction of spectrum licences for WCS in the 2300 MHz band and FWA in the 3500 MHz band. The similarities between WCS and FWA indicate that dealing with both bands within a single licensing process is necessary and efficient. The proposal is to licence the 15 + 15 MHz paired blocks in the 2300 MHz band and up to 200 MHz of spectrum in the 3500 MHz band in blocks of 25 MHz (for details see [*Consultation on the Auction of Spectrum Licences for Wireless Communication Services in the 2300 MHz Band and Fixed Wireless Access in the 3500 MHz Band*](#) as released August 3, 2001). The plan is to initiate a spectrum auction following the release of a policy framework and auction rules in 2002.

Beyond the spectrum to be auctioned in the current licensing process for WCS and FWA, the Department does not, at this time, have plans for additional spectrum for fixed wireless below 10 GHz. The Department's future activities will be influenced by what actions best satisfy the public interest following the current licensing process.

Graph 1 illustrates which spectrum is currently licensed and which spectrum is forecast to be opened for narrowband/wideband wireless access⁵. The types of services identified include Subscriber Radio Service (SRS), Multipoint Communication Service (MCS), Multipoint Distribution Service (MDS), Fixed Wireless Access (FWA) and Wireless Communication Service (WCS).



4.2 Additional Spectrum for Broadband Wireless Access

In 1996, Industry Canada issued spectrum licences for Local Multipoint Communications Systems (LMCS) at 28 GHz (1000 MHz) in major market areas and a number of smaller markets across Canada. In June 1998, when it announced its plans to licence spectrum in the 24 GHz and 38 GHz bands for broadband services, the Department indicated that the licensing of additional LMCS spectrum at 25 GHz (25.35 to 27.35 GHz) would be postponed for at least 18 months.

Following public consultation, the Department launched the licensing process to auction spectrum in the 24 GHz and 38 GHz bands on May 28, 1999. A simultaneous multiple-round auction was held and a total of 260 spectrum licences were issued out of the 354 that were available. The unsold licences were essentially outside the urban centres. In the document *Policy and Licensing Procedures for the Auction of the 24 and 38 GHz Frequency Bands*, it was indicated that licences which were unsold would be

⁵ In the graphs throughout this document the Department has identified where possible the relative amounts of spectrum resources:

- *Licensed Spectrum* denotes resources which are available for licensing on a FCFS basis or have been licensed through a competitive process;
- *Future Licensing* denotes resources which are allocated in the Canadian Table of Frequency Allocations and designated for a type of use in Canada according to a Spectrum Utilization Policy; and
- *Allocation/Designation* denotes resources which have been the subject of international developments or the subject of ITU Allocations and a candidate for future consultation for use in Canada.

offered in a re-auction or that other assignment processes would be considered⁶. With the recent auction of some 1200 MHz of spectrum at 24 GHz and 38 GHz and the 1000 MHz of spectrum at 28 GHz, a total of 2200 MHz of spectrum has been licensed for broadband wireless services. It should be noted that the 24 and 38 GHz spectrum awarded through the auction process is available to others under secondary market trading. That is to say that licensees may transfer their licences not only in whole but also in part, in either bandwidth or geographic dimensions, with minimal restrictions.

The Department continues to believe that Canadians will be well served if there is a diversity of service providers and service offerings. The Department notes that new local facilities-based telecommunication carriers have been relatively slow to capture a significant market share in Canada. It is important, however, to ensure that sufficient spectrum resources are available, in a variety of bands to support facility-based access services. Since customer premise equipment costs are greatly affected by economies of scale, it is also important to harmonize spectrum resources as much as possible with our major trading partners such as the United States.

There remains a number of frequency bands available above 10 GHz for broadband wireless access. These bands include the reserved LMCS spectrum at 25 GHz (2000 MHz), a Multipoint Communications Systems (MCS) band at 23 GHz (800 MHz) and very high-capacity microwave (VHCM) bands at 18 GHz (440 MHz) which are listed in Annex 2. These bands are either not available or do not appear to have widespread usage in the United States for wireless access. Consequently, there is very little low cost equipment readily available.

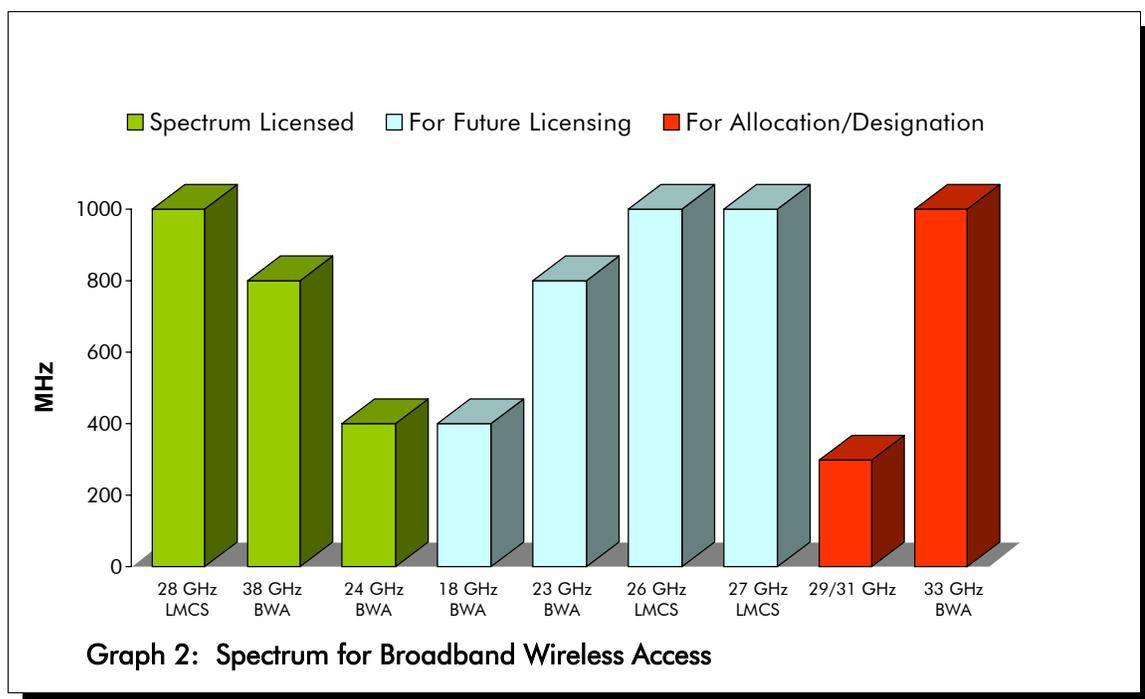
The 29 GHz and 31 GHz bands were assigned in the U.S. for Local Multipoint Distribution Service (LMDS). The 33 GHz band was allocated for high density fixed service or broadband wireless access (BWA) at the World Radio Conference (WRC-2000). The Department will initiate a public review of certain bands in the 3-50 GHz range in 2002 and as a result additional spectrum could be designated for broadband wireless access.

Due to the delay in implementation of a number of wireless broadband systems and the downturn in the telecom industry, Industry Canada believes there is no immediate need to release for licensing additional broadband spectrum at this time. It is also premature at this time to postulate which particular band(s) will be first opened for licensing. Important considerations are the interest for additional spectrum and the availability of equipment to support broadband access services.

At this time, the Department believes there is sufficient spectrum available to meet demand and has no plans to licence additional broadband wireless access (BWA) spectrum. Industry Canada will continue to monitor spectrum demand and the roll-out of licensed spectrum at 28 GHz for LMCS and at 24 GHz and 38 GHz for BWA.

⁶ Other assignment processes such as FCFS may be considered for 24 and 38 GHz spectrum in certain areas, e.g. remote and rural areas of Canada, if there are no competing demands for spectrum properties unassigned at the close of the auction in December 1999.

Graph 2 illustrates which spectrum is currently licensed and which spectrum may be made available for use by broadband wireless access.



4.3 Additional Satellite Orbital Positions and Associated Spectrum

Fixed-Satellite Orbital Positions and Associated Spectrum Resources in the C and Ku Frequency Bands

In 1997, the Department authorized Telesat Canada to replace its two aging Anik E satellites located in the 111.1°W and 107.3°W orbital positions with the new Anik F series of satellites. Anik F1 was placed into orbit at 107.3°W in 2001 and operates in the conventional C band (3700-4200/5925-6425 MHz) and conventional Ku band (13.75-14.5/11.45-12.2 GHz). Anik F2, currently under construction, will be placed in orbit at 111.1°W in 2002. Anik F2, in addition to operating in the C and Ku bands, is authorized to provide multimedia services in the Ka band (29/19 GHz).

In December 1998, Industry Canada published the *Policy Framework for the Provision of Fixed-satellite Service (RP-008)* which announced the opening of the Canadian market for fixed-satellite service to competition consistent with Canada's commitments under the World Trade Organization (WTO) agreement on basic telecommunications. This document established the licensing policy guidelines which would be used to award licences for Canada's two remaining fixed-satellite service orbital positions at 114.9°W and 118.7°W. The Department indicated that it would initiate the licensing of either of these orbital slots based upon the receipt of an expression of interest to develop a satellite for these positions. If the Department determined that there were other eligible entities which were also interested in developing a satellite system for these positions, it would initiate a competitive licensing process to select the successful applicant.

In September 1999, Industry Canada received an application to develop a satellite system in the 118.7°W orbital position. Through a call for expressions of interest, it was determined that there were competing interests for this orbital position and a competitive comparative licensing process was initiated in December 2000. On June 21, 2001, the Minister announced that Telesat Canada had been awarded a licence for a C and Ku band satellite to be operated in the 118.7°W orbital position.

There remains one fixed-satellite service orbital position at 114.9°W for the conventional C and Ku bands. Should an eligible entity submit an expression of interest for this orbital position, Industry Canada will initiate a competitive licensing process to assign this orbital position.

Upon receipt of an application for developing fixed-satellite service in the remaining orbital position at 114.9°W for the conventional C/Ku bands, Industry Canada will initiate a competitive licensing process.

In addition, Canada has access to the geostationary orbits at 107.3°W⁷, 111.1°W and 114.9°W in the upper 6/4 GHz (4.5-4.8 GHz/6.725-7.025 GHz) and 13/11 GHz bands (10.7-10.95 GHz, 11.2-11.45 GHz and 12.75-13.25 GHz) through the Appendix 30B allotment plan (known as the allotment plan bands). While Appendix 30B defines these orbit locations for serving particular regions of Canada, it may be possible that these spectrum resources could be implemented to serve all parts of Canada. (refer to [RP-002 Policy for the Use of Geostationary Satellite Orbit by Canadian Satellite Networks](#)). The Department may include the allotment plan bands in conjunction with other licensing processes for satellite resources or, based on interest, in a stand alone licensing process.

To promote the use of the Appendix 30B Allotment Plan bands for the fixed-satellite service, the Department may include the allotment plan bands in conjunction with other licensing processes for satellite resources or, based on interest, in a stand alone licensing process.

Fixed-Satellite Orbital Positions and Associated Spectrum Resources in the Ka Frequency Bands

Canada has filed with the International Telecommunications Union (ITU) to develop four geostationary orbital positions for the Ka band (29/19 GHz) at 91°W, 107.3°W, 111.1°W and 118.7°W. As indicated above, the licence for this band at the 111.1°W orbital position has been awarded to Telesat Canada for the utilization of a fixed-satellite service for multimedia applications on the Anik F2 satellite. In November 2000, Bell ExpressVu and Star Choice were authorized to use Ka band satellites at orbital positions 91°W and 107.3°W, respectively. These authorizations were issued to allow the Canadian Direct-to-Home (DTH) service providers to develop and operate Ka band satellites which are co-located with their existing broadcasting satellite facilities. However, recently one of the DTH service providers has decided not to build its satellite and has returned to the Department the authorization for the orbital position at 107.3° W. As Canadian access to this orbital resource is time limited, by the first-come, first-served nature of the ITU satellite filing process, on September 20, 2001, Industry Canada launched an expedited licensing process to assign this resource.

⁷ Part of the Ku band allotment plan spectrum is presently in use to provide mobile satellite feeder links to Canada's MSAT satellite. (Reference RP-002 section 4.1)

The remaining Ka band orbital position at 118.7°W was part of the competitive licensing process initiated in December 2000 and was not awarded. This orbital position is also available for assignment.

The orbital positions 118.7° W and 107.3° W for the Ka band frequencies are available for assignment. The Department has initiated a licensing process for the 107.3°W orbital position in the Ka band and a call for proposals has been issued.

Broadcasting-Satellite Orbital Positions and Associated Spectrum Resources

Canada currently has a Direct Broadcasting Satellite (DBS) at 91°W in the Ku broadcasting band (12/17 GHz) called Nimiq and licensed to Telesat Canada. In November 2000, Telesat was given an authorization to develop and operate a second DBS satellite to be located at 82°W. This DBS satellite is to provide backup or restoral facility for the DBS satellite at 91°W and additional capacity for Canadian DTH service providers and broadcasters.

Canada has three remaining DBS orbital positions available for licensing, located at 72.5°W, 129°W and 138°W. Should an eligible entity submit an expression of interest for an orbital position to develop a DBS satellite to serve the Canadian market, the Department would initiate a competitive licensing process to assign the orbital position. Should there be no competing interests for the orbital position, noting that there are three remaining orbital positions, then licensing could proceed on a FCFS basis.

The Department will initiate a licensing process for any of the remaining DBS orbital positions upon receiving an application from an eligible entity.

Graph 3 illustrates the orbital positions and associated bands that have been licensed and those that are available.

ORBIT	72.5°	82°	91°	107.3°	111.1°	114.9°	118.7°	129°	138°
FSS C/Ku Conventional				Anik F1	Anik F2	Available	Anik F3*		
C/Ku Allotment Plan				Available ***	Available	Available			
FSS Ka			Nimiq2 Ka**	Available	Anik F2**		Available		
DBS	Available	Nimiq1	Nimiq2					Available	Available

 **Spectrum/orbital slot licensed**

 **For future licensing**

* Ku band satellite - broadband access
 ** Ka band satellite - broadband access
 *** Note existing system use by MSAT at 106.5°

4.4 Additional Spectrum for Advanced Mobile Services Including 3G

In 1986, the Department licensed 40 MHz of spectrum in the 800 MHz band to the cellular operators for the development of nationwide mobile radiotelephony service. Another 10 MHz was assigned to the cellular operators in 1991, for a total of 50 MHz. In 1995, the Department awarded four PCS licenses using a comparative licensing process for second-generation services, for a total of 80 MHz in the 2 GHz band (1850-1990 MHz).

Since the October 1999 publication of the Spectrum Release Plan, the following policy decisions and licensing activities have taken place:

- In December 1999, the Department released a consultation paper which resulted in a policy framework and the launch of an auction for 40 MHz of the remaining PCS spectrum in the frequency range 1850-1990 MHz. A simultaneous multiple-round auction was held in January 2001 and, of the 62 licences for auction, 52 were assigned. The licences that were not assigned may be re-auctioned at a later date. Other assignment processes such as FCFS may be considered in rural or remote areas of Canada if there are no competing demands for the spectrum. In addition, the auctioned spectrum will be available on the secondary market.
- As part of their input to the ITU for the World Radiocommunication Conference (WRC-2000), the mobile community identified a need for 160 MHz of additional spectrum by the year 2010 for the provision of advanced mobile services, including 3G. As part of its preparations for WRC-2000, Canada, together with 11 other countries of the Americas, submitted a proposal which identified the 1710-1850 MHz band as the preferred band for additional spectrum for International Mobile Telecommunications-2000 known as IMT-2000, the global term for 3G.
- In June 2000, WRC-2000 identified a number of bands in the International Table of Frequency Allocations as spectrum for use by administrations wishing to implement IMT-2000. The prime bands identified are 806-960 MHz, 1710-1885 MHz and 2500-2690 MHz in addition to previously identified bands 1885-2025 MHz and 2110-2200 MHz, which includes mobile satellite components. The decision taken at WRC-2000 provides for full flexibility in the domestic implementation of these services.
- In the June 2000, *Policy Framework for Auctioning PCS Spectrum* and in the October 2000, *Amendments and Supplements and Clarification Questions to the Policy and Licensing Procedures for the Auction of Additional Spectrum in the 2 GHz Frequency Range*⁸, the Department stated the following projection as to when additional spectrum was anticipated to be released:

“It is expected that it will take until the 2002/2003 time frame before all the necessary domestic and international arrangements can be completed in order to initiate further licensing processes of additional PCS spectrum outside the band 1850-1990 MHz. The Department intends to consult in the near future on modifying the Canadian Table of Frequency Allocations to include the band 1710-1850 MHz for mobile services and designation for PCS services, in addition to the existing band 2110-2150 MHz allocated in 1994. It is anticipated that as a result of public consultations and

⁸ Please refer to question 57 in *Amendments and Supplements and Clarification Questions to the Policy and Licensing Procedures for the Auction of Additional Spectrum in the 2 GHz Frequency Range*.

related activities in the Americas to designate future PCS spectrum, that more than 80 MHz of paired spectrum could be licensed by the Department in 2002/2003.”

- In discussions at the June 2001 CITELE meeting held in Ottawa, strong support was restated by most countries in the Americas for the use of the 1710-1850 and 2110-2150 MHz bands for advanced mobile services, including 3G. In addition, the ITU-R has drafted band plans to utilize the entire band 1710-1850 MHz with a view to provide maximum global harmonization of the band plans and consider existing uses of the spectrum.
- The United States announced on October 5, 2001 that it is examining the potential use of the 1710-1770 and 2110-2170 MHz bands and hopes to complete its assessment by late spring 2002. The FCC on August 9, 2001, also requested public comments on reallocating some spectrum in the bands 1910-1930 MHz, 1990-2025 MHz, 2150-2160 MHz 2165-2200 MHz and 2390-2400 MHz for new advanced wireless services. Although a deadline for auctioning additional spectrum had previously been set for September 30, 2002, the U.S. administration has proposed legislation to postpone this deadline until September 30, 2004 to provide sufficient time to fully consider all aspects and quantify the requirements for 3G.

Work Plan to Release Additional Spectrum

A number of issues need to be addressed to support the licensing of additional spectrum. The Canadian wireless industry has highlighted the importance of harmonization of mobile spectrum worldwide and especially with the United States. Industry Canada intends to proceed in step with the U.S. administration and has developed the following work plan leading to the release of additional spectrum.

Work Plan for Releasing Additional Spectrum for Advanced Mobile Services Including 3G

Due to the integrated nature of the North American mobile infrastructure, the Department is of the view that decisions on the amount and the timing of the release of additional spectrum will best be taken once the allocations are finalized in the U.S.

First Major Activity (after the U.S. spectrum allocation decision): Public consultation on spectrum allocations, spectrum policy, band plan, a general review of the spectrum cap and technical considerations.

Publish a paper on general proposals for spectrum allocations, spectrum utilization policy, a band plan, review of the spectrum cap and technical considerations.

Announce allocation and spectrum policy, band plan, decision on spectrum cap and technical requirements and standards.

Second Major Activity (after the U.S. rule making proceeding for the U.S. auction): Consult on the policy framework and competitive licensing process.

Publish a consultation paper on the policy framework and competitive licensing process.

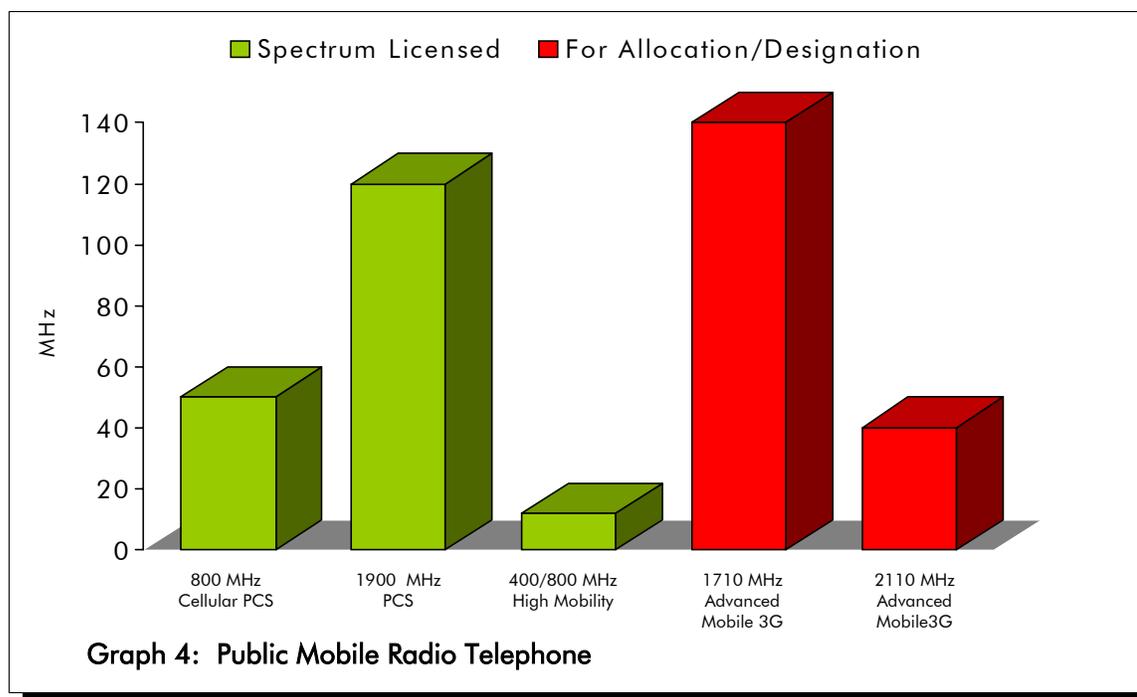
Post comments, allow time for reply comments and finalize the licensing policy.

Publish the policy framework and licensing process; then, as a final step, proceed with competitive licensing of new spectrum and awarding of licenses.

The above schedule will allow sufficient time to consult and to develop frequency allocations, spectrum policies and band plans harmonized with the U.S. and other countries in the Americas. The release of new spectrum should be timely for the anticipated availability of technology that will enable a wide range of network and service capabilities in the North American market and beyond.

Industry Canada has outlined a work plan that will lead to the licensing of additional spectrum for advanced mobile service, including 3G, which will proceed in parallel with the 3G activities in the U.S. It is anticipated that as a result of public consultations and related activities, more than 80 MHz of spectrum will be licensed.

Graph 4 illustrates the amount of spectrum currently available for mobile radiotelephone systems and the spectrum resources which are candidates for future consultation for use in Canada.



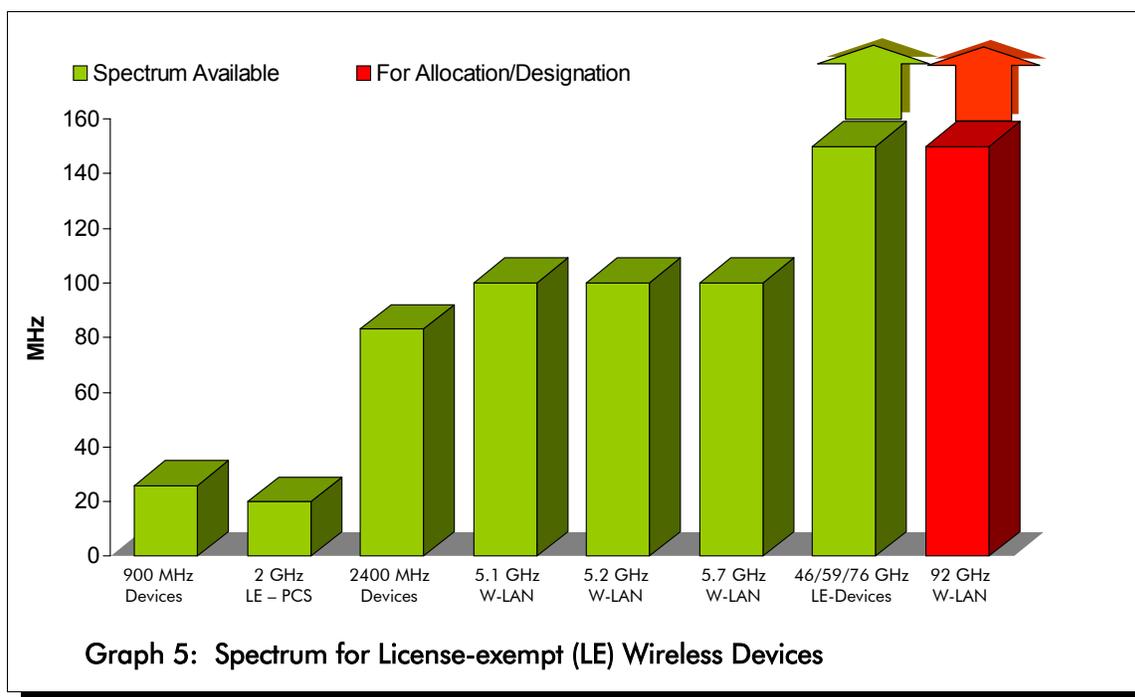
5.0 Licence-exempt Spectrum

There are a number of frequency bands designated, or being considered, as spectrum for licence-exempt (LE) devices or systems which may be of interest to potential users and service providers. The following are some of the main licence-exempt frequency bands:

- 902-928 MHz see SP-896 MHz
- 1910-1930 MHz (LE-PCS) see SP-1910 MHz
- 2400-2483.5 MHz- Changes provide for more flexibility for devices see SP-2285 MHz
- 5150-5250 MHz, 5250-5350 MHz and 5725-5825 MHz—Wireless LANs see SP-5150 MHz
- 59-64 GHz - For use by broadband access facilities see SP-47 GHz
- 46.7-46.9 GHz and 76-77 GHz - For use by vehicular radiolocation (radar) applications see SP-47 GHz

Some wireless technology developers are considering the 92 GHz range for access technologies including gigabit ethernet-based systems that can connect buildings and extend metropolitan area networks. The Department will consult on the potential designation of additional licence-exempt spectrum.

Graph 5 illustrates the licence-exempt spectrum which has been made available and spectrum where there may be some future developments.



6.0 Implementation

This policy document clarifies the type of licensing process intended to be used for various frequency bands, satellite orbital positions and other situations.

Section 4 provides the Department's views on the prospect of releasing additional spectrum resources in several areas and the timing for the next steps leading to competitive licensing (auction or comparative selection). This document will continue to be updated regularly as a "rolling" spectrum release plan in light of available information from new spectrum policies, evolving technology and service demand and new information on spectrum release forecasts and timing.

We welcome views, at any time, about the frequency bands identified in the spectrum release plan, any other bands which may be considered in the future for competitive licensing, or any other matters relevant to future updating of this policy document.

The comments, which will be posted on Industry Canada's Web site, can be sent, preferably by electronic mail, to:

Spectrum.plan@ic.gc.ca

or to:

Director
Spectrum Policy and Radio Services
Industry Canada
300 Slater Street
Ottawa, Ontario
K1A 0C8

Issued under the authority of the *Radiocommunication Act*

Michael Helm
Director General
Telecommunications Policy Branch

Annex 1

List of frequency bands and radio applications where the first-come, first-served (FCFS) licensing process applies

1. FCFS licensing for most **point-to-point microwave** bands (urban and rural areas)

Band	Range	Status
900 MHz (STL)	953-960 MHz	Ongoing licensing
900 MHz	(bands outlined in SP-896)	" "
Lower 2 GHz	1700-1850 MHz	Restricted licensing ⁹
Upper 2 GHz	2025-2110/2200-2285 MHz	Ongoing licensing
4 GHz	3500-3700 MHz	Restricted licensing ¹⁰
	3700-4200 MHz	Ongoing licensing
	4545-4705/4735 - 4895 MHz	Restricted licensing ¹¹
Lower 6 GHz	5850-5915 MHz	Ongoing licensing ¹²
Lower 6 GHz	5925-6425 MHz	Ongoing licensing
Upper 6 GHz	6425-6930 MHz	" "
TV-Pick-up	6930-7125 MHz	" "
7 GHz	7125-7725 MHz	" "
8 GHz	7725-8275 MHz	" "
8 GHz (video)	8275-8500 MHz	" "
10 GHz	10.5-10.68 GHz	" "
11 GHz	10.7-11.7 GHz	" "
14 GHz	14.5-15.35 GHz	" "
18 GHz	17.7-18.14/19.26-19.7 GHz	" "
	18.58-18.82/18.92-19.16 GHz	" "
23 GHz	21.8-22.4/23-23.6 GHz	" "
38 GHz	38.4-38.6 GHz	Ongoing licensing ¹³
	38.6-38.7/39.3-39.4 GHz	" "
	39.1-39.3/39.8-40.0 GHz	" "

⁹ Restricted use by fixed systems. Refer to [SP 1-3 GHz](#).

¹⁰ New assignments of channels in the band 3500-3700 MHz for existing 4 GHz microwave radio relay systems (p-to-p) or international fixed-satellite gateways will be restricted to existing installations, and new licence applications will be considered only on a case-by-case basis. Refer to [Consultation on the Auction of Spectrum Licences for Wireless Communication Services in the 2300 MHz Band and Fixed Wireless Access in the 3500 MHz Band](#) released August 3, 2001, section 4.4

¹¹ See [SP 1-20 GHz Revisions to Microwave Spectrum Utilization Policy](#) and Standard Radio Systems Plan (SRSP) for the restriction.

¹² Subject to future review for possible addition of Intelligent Transport System (ITS) requirements.

¹³ The band 38.4-38.6 GHz is designated for one-way point-to-point and multipoint systems and 600 MHz is designated for point-to-point microwave system for shared block/area licensing on a managed FCFS basis. See the [Policy and Licensing Procedures for the Auction of the 24 and 38 GHz Frequency Bands](#).

Annex 1 (cont'd)2. FCFS licensing for **certain MCS bands** in rural areas

Band	Range	Status
900 MHz (WLL)	953-960 MHz	Ongoing licensing
900 MHz	(See SP-896, also available in Urban areas)	" "
1.4 GHz (SRS)	1427-1452/1492-1518 MHz (incl. Urban)	" "
2 GHz	2025-2110/2200-2285 MHz	Ongoing licensing ¹⁴
3.4 GHz (FWA)	3400-3550 MHz (rural/high-cost serving areas)	FCFS licensing ¹⁵
10.5 GHz (MCS)	10.5-10.68 GHz (incl. urban)	Ongoing licensing

3. FCFS licensing in **conventional land mobile bands** in rural and urban areas

Band	Range	Status
50 MHz	(bands outlined in SP 30-896 MHz)	Ongoing licensing
150 MHz	138-174 MHz (refarming) ¹⁶	" "
450 MHz	406-430\450-470 MHz (refarming) ¹⁶	" "
800/900 MHz	(bands outlined in SP - 896)	" "

4. FCFS licensing for national/regional frequencies unlikely to exceed supply

Band	Range	Status
900 MHz – PCS (narrowband)	901-902/930-931/940-941 MHz	Ongoing licensing
900 MHz Paging	929-930/931-932 MHz	" "

5. All earth stations licensed in Canadian satellite bands (mobile and fixed satellites)

¹⁴ For further information on revised policy, see new SP 1-3 GHz.

¹⁵ See *Consultation on the Auction of Spectrum Licences for Wireless Communication Services in the 2300 MHz Band and Fixed Wireless Access in the 3500 MHz Band* released August 3, 2001.

¹⁶ The implementation of new land mobile systems in the 150 MHz and 450 MHz bands is subject to the spectrum efficiency requirements of the Redeployment Plan.

Annex 2

List of spectrum resources for competitive licensing process (auction or comparative)

Competitive licensing - indications are that demand will likely exceed available spectrum. Refer to section 4 of this document for more details.

1. Spectrum for narrowband/wideband wireless access service

Fixed wireless access spectrum for urban and rural areas in part of the band 3400-3700 MHz and all of the band 2305-2320 MHz and 2345-2360 MHz. For more information, see Consultation on the Auction of Spectrum Licences for Wireless Communication Services in the 2300 MHz Band and Fixed Wireless Access in the 3500 MHz Band released August 3, 2001.

2. Spectrum for broadband wireless access

Some of the bands to be considered include 18 GHz, 23 GHz, 25/26 GHz and other bands under development.

3. Satellite orbital positions and associated spectrum

The licensing of the fixed-satellite orbital position at 114.9°W in the C/Ku bands will be initiated after receiving an expression of interest. For the allotment plan bands, the Department may include these as part of another licensing process or they may be subject to a stand alone licensing process.

There are two orbital locations remaining for the fixed-satellite service in the Ka multimedia band. For the orbital positions at 107.3° W, licensing has been initiated and the licensing for the remaining orbital location at 118.7°W will be initiated after receiving an expression of interest.

The remaining DBS satellite orbital positions at 72.5 °W, 129°W and 138°W will be licensed upon receiving an application from an eligible entity. The Department will establish interest through a call for expressions of interest or call for applications.

4. Spectrum for advanced mobile services including 3G

Additional spectrum is being considered in the bands 1710-1850 MHz and 2110-2150 MHz based on the work plan described in section 4.4.

Note: These Annexes are an overview only and reference should be made to the spectrum policies, system standards and operating procedures applicable to each band. Some bands are being reviewed through public consultation. Some information may have been inadvertently omitted. Some bands and situations may be subject to competitive licensing due to demand and other factors.