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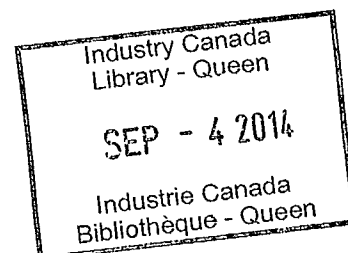
June 1999

Spectrum Management and Telecommunications Policy

## 2500 MHz Multipoint Communications Systems Policy and Licensing Procedures

**Amended by:**

DGTP-004-04 Revisions to Allocations in the Band 2500-2690 MHz and Consultation on  
Spectrum Utilization (April 2004)



Canada

**DEPARTMENT OF INDUSTRY**

**RADIOCOMMUNICATION ACT**

**NOTICE NO. DGRB-006-99**

**Multipoint Communications Systems in the 2500 MHz Range, Policy and Licensing Procedures**

This Notice releases the policy and call for applications for Multipoint Communications Systems (MCS) in the 2500-2596 MHz and related bands across Canada.

**Background**

Industry Canada has received, over a short period of time, a large number of radio applications for the development of MCS at 2500 MHz requesting varying numbers of channels and various sizes of service areas. In several large urban centres, these requests far exceeded the spectrum available in the band.

As a result, Industry Canada undertook public consultation on the appropriate spectrum and licensing policy measures for this band. The results of this consultation figured prominently in the development of the Department's finalized approach. The final policy and licensing measures including the call for applications are found in the document entitled Multipoint Communications Systems in the 2500 MHz Range, Policy and Licensing Procedures. Included in this document is a proposed spectrum licence fee for MCS on which public input is sought. This document is available electronically as follows:

**World Wide Web (WWW)**  
<http://strategis.ic.gc.ca/spectrum>

or in hard copy, for a fee, from:

Tyrell Press Ltd.  
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Toll-free no.: 1-888-562-5561  
Worldwide tel. no.: (819) 779-4335  
Fax number: (819) 779-2833

Instructions and dates for filing applications or comments on the proposed licence fees are included in the document.

June 4, 1999

Jan Skora  
Director General  
Radiocommunications and Broadcasting Regulatory Branch

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*“Through a national strategy designed to provide access to the information and knowledge infrastructure we can enable individuals, rural communities, aboriginal communities, small and large businesses to find new opportunities for learning, interacting, transacting and developing their economic and social potential.”*

*The Honourable John Manley  
Minister of Industry  
September 29, 1997*

## 1. Introduction

The purpose of this document is to set out the spectrum and licensing policy for the implementation of Multipoint Communications Systems (MCS) in the 2500-2596 MHz frequency range. Industry Canada has considered the public input received in response to the consultation document entitled *Multipoint Communications Systems (MCS) in the 2500 MHz Range* (Gazette Notice DGRB-007-97) released on December 12, 1997, (herein referred to as the *Consultation Document*), and initiates the comparative licensing process for awarding radio authorizations under the *Radiocommunication Act*.

MCS is a general term used to describe radio systems in which a main hub radio station communicates with different subscribers or response stations at many locations within a given area. Depending on equipment capability and bandwidth availability, numerous uses of MCS are possible. Many interested parties have already proposed to offer a wide variety of services, including voice, data, multimedia, and broadcasting applications directly to residential and business subscribers.

By setting out the spectrum and licensing policy and by licensing MCS systems, the Minister of Industry clearly advances his goal of making Canada the most connected country in the world. Our challenge is to facilitate the development of a high-quality, low-cost information infrastructure that will give all Canadians access to the employment, learning, training, health care, entertainment, investment and wealth-creating opportunities of the information age. Our objective is to have multiple competitive lanes serving Canadians on the Information Highway: telephone, cable, wireless, satellite, etc., and for this to be achieved, participation from all levels of government and the private sector will be crucial.

The licensing of MCS and the subsequent operation of facilities is one way to promote competition on the Information Highway and to foster innovation which in turn will lead to the development of new products and services, more consumer choice, job creation and economic growth. Since a key aim of these policy measures is to foster diversity of choice for Canadian consumers and businesses, Industry Canada plans on permitting a broad array of services in the 2500 MHz band.

An important element of the new policy measures for this band involves learning. When the Department launched the public consultation process in December 1997 to solicit input, many respondents made convincing arguments that MCS could be used efficiently to contribute to the advancement of learning for all Canadians. As learning is an essential

element of the Information Highway strategy and the Connectedness agenda, the demonstration by applicants of innovative means to promote learning will be a prominent element in the comparative licensing process being used for MCS at 2500 MHz.

## 2. Background

Although the frequency band 2500-2596 MHz had been available for MCS for many years, in late 1996 and early 1997, Industry Canada received a large number of radio applications for the development of MCS, many of which were mutually exclusive. In several large urban centres, these requests far exceeded the 16 channels that were available in the band. Radio frequency spectrum is normally assigned on a first-come, first-served basis except when the expressed demand for spectrum exceeds the amount of spectrum available. Hence, in accordance with stated policy, the Minister decided to use a comparative licensing process to select licensees.

On December 12, 1997, Industry Canada issued a consultation document entitled *Multipoint Communications Systems (MCS) in the 2500 MHz Range* (Gazette Notice DGRB-007-97). This document outlined the general telecommunications policy objectives that might be pursued during the licensing of MCS and invited comments.

Among the matters raised for public comment were:

- spectrum structure and use;
- service areas;
- licence aggregation;
- licence fees; and
- treatment of incumbent licensees.

In response to the *Consultation Document*, thirty-eight submissions were received from interested parties. Comments were received on many aspects of the consultation document, all of which are discussed in subsequent sections. However, a number of key points that emerged in the consultation process included the following:

- the requirement for larger blocks of spectrum than initially proposed;
- the importance for service providers to have flexibility of choice of service offerings; and
- the extensive use of MCS by some existing licensees for learning purposes and the potential of these bands to further fulfill learning goals across Canada.

### 3. General Policy Objectives

The Minister, in exercising his discretionary powers under the *Radiocommunication Act*, may have regard to the policy objectives set out in the *Telecommunications Act*. The *Telecommunications Act* establishes several objectives of particular relevance to wireless telecommunications services that can be provided using MCS. These objectives include:

- (i) to enhance the efficiency and competitiveness, at the national and international levels, of Canadian telecommunications;
- (ii) to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada;
- (iii) to foster increased reliance on market forces for the provision of telecommunications services and to ensure that regulation, where required, is efficient and effective; and
- (iv) to respond to the economic and social requirements of users of telecommunications services.

As well, the Department has been guided by the objectives of the government's Information Highway strategy and Connectedness agenda. One of those objectives, to make Canada the most connected nation by the year 2000, is a challenging goal that will best be fulfilled by having both the private and public sectors work hand in hand. The Honourable John Manley, Minister of Industry stated:

*"In Canada, we have acknowledged that governments will not build the Information Highway. But governments do have an obligation to work with the private sector and consumers to establish an environment that encourages private-sector innovation and investment."*<sup>1</sup>

It is clear that the telecommunications industry plays a key role in advancing the goal of making Canada the most connected country in the world. However, while connecting Canadians in itself serves many purposes, it is the opportunities that connectedness brings that are of prime importance to Canada's future. One such opportunity is the advancement of learning. Lifelong learning is a government priority, as it is believed to be a critical factor of success in the new knowledge-based economy. As such, it is recognized that "connectedness can help meet the challenge of making lifelong learning a reality for all Canadians"<sup>2</sup>. On a general note, the Department also recognizes that telecommunication carriers in Canada have always been encouraged to support high-priority public services which further public policy objectives and that many telecommunication carriers actively advance a wide range of socio-economic objectives in education, research and innovation, health care and other public imperatives.

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<sup>1</sup> OECD Conference, September 29, 1998.

<sup>2</sup> The Honourable John Manley, Minister of Industry, CATA Conference, June 3, 1998.

**As a result, for MCS at 2500 MHz, our objective is to license companies with strong commercially viable prospects to operate as radiocommunication carriers while also supporting local learning needs.**

To this end, applicants will be required to submit Learning Plans that respond to local learning needs as part of their applications. In order to ensure that these needs are identified and met, applicants will be expected to liaise with Learning Authorities in the preparation of their Learning Plans<sup>3</sup>. Parties should note that corporate training will not be considered as part of the Learning Plans.

The Minister's authority to issue spectrum licences<sup>4</sup> for MCS arises under the provisions of the *Radiocommunication Act*. Furthermore, the provision of services by licensees to the public would be within the oversight of the Canadian Radio-television and Telecommunications Commission (CRTC) under the *Telecommunications Act*, and may be subject to the provisions of the *Broadcasting Act* should the services carried be determined to constitute broadcasting.

It is expected that many of the telecommunications services carried on MCS may require interconnection to public telecommunications networks. The CRTC and until June 30, 2000, the relevant provincial authority in Saskatchewan, are responsible for approving the terms and conditions of interconnection for access to the public telecommunications networks. Interconnection standards may be required to facilitate the interconnection with public switched networks and the Terminal Attachment Program Advisory Committee (TAPAC) may be asked to develop any necessary standards.

Canadians have clearly expressed in a number of fora that they value their privacy. The possible use of radiocommunications (in MCS) for communications of individual consumers with the public switched telephone networks (or other networks) has obvious ramifications for the privacy concerns of users. MCS operators should consider measures to ensure that privacy concerns are addressed. Applicants should also be aware of the proposed *Personal Information Protection and Electronic Documents Act* (Bill C-54). Details of this bill can be found on the Parliamentary Internet site at <http://www.parl.gc.ca>.

## **4. Spectrum and Licensing Policy**

### **4.1 Spectrum Structure and Usage**

As was discussed in the *Consultation Document*, although the band 2500-2596 MHz has been available for MCS applications for many years on a first-come, first-served basis, recently manifested excess demand has led the Minister to initiate public consultations leading to a comparative licensing process.

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<sup>3</sup> See section 5.2.3 on Learning, and Appendix E for the list of designated Learning Authorities.

<sup>4</sup> The use of spectrum licences is discussed in detail in section 4.5.



Within the band 2500-2596 MHz, there is 96 MHz of spectrum available for assignment. Under the existing provisions of *Revisions to Microwave Spectrum Utilization Policies in the Range of 1-20 GHz* (SP 1-20 GHz), the types of MCS systems permitted in this band include one-way and two-way video and data services (e.g., instructional TV, video conferencing, multi-media applications). The Department is now implementing changes to this spectrum and licensing policy.

#### **4.1.1 General**

Comments submitted in response to the Department's *Consultation Document* stressed that given the limited amount of spectrum available, intersystem compatibilities could become an increasing concern if there were to be multiple licensees, particularly if two-way services were to be implemented. The Department has also taken into account the equipment and technology availability, usage of spectrum in other countries including the U.S., and industry pressures to move quickly. In consideration of all these issues, Industry Canada believes its general policy objectives for MCS, outlined in section 3 above, will likely be achieved by authorizing one MCS system per defined service area.

The Department does not intend to restrict the services to be offered in this band. Permitting licensees to offer a wide range of services, subject to technical limitations, will give licensees flexibility to react to market conditions and technical advances as they occur. However, in consideration of comments received on the use of MCS for learning purposes and given the direct linkages to Government policy, the Department will require that licensees accommodate local learning needs, as outlined in section 5.2.3. As well, to permit two-way operations, the Department is designating two additional bands, 2150-2160 MHz and 2686-2690 MHz, as is discussed in more detail below.

#### **4.1.2 The Band 2500-2596 MHz**

This band will be assigned as described below:

- (i) a single block of 96 MHz (16 x 6 MHz channels) will be licensed in the band 2500-2596 MHz.
- (ii) one-way and two-way MCS operation will be permitted within the band 2500-2596 MHz.

#### **4.1.3 Designation of the Band 2150-2160 MHz for Use by MCS and MDS Systems**

Public comment was solicited in the *Consultation Document* on the specific requirement for spectrum outside the band 2500-2596 MHz to accommodate return traffic for MCS systems. Respondents supporting the designation of such spectrum particularly stressed the advantages of harmonizing spectrum

use with the U.S. In particular, comments received advocated the designation of the spectrum band 2150-2162 MHz for return capability for MCS. Some concerns were expressed by PCS advocates stating that no new spectrum should be designated for fixed services.

On balance, Industry Canada has concluded that there is a need for out-of-band return spectrum for new MCS and MDS<sup>5</sup> systems. This will allow MCS systems to provide a certain level of two-way interactive service and MDS operators the ability to provide interaction with programming and non-programming services. As a result, the Department is designating the band 2150-2160 MHz to provide return capability to both the MCS band (2500-2596 MHz) and the MDS band (2596-2686 MHz). MCS systems will have exclusive access to 2150-2156 MHz, and MDS systems will have access to 2156-2160 MHz. This additional spectrum provides a closer alignment with the spectrum usage in the United States and may result in economies of scale for equipment procurement.

In Canada, Mobile-Satellite Service (MSS) has been added as a primary allocation to the band 2160-2200 MHz, with a footnote restricting access to the band 2160-2170 MHz until after January 1, 2000. As a result, spectrum between 2160-2162 MHz will not be available for terrestrial MCS and MDS services. Further, use of the spectrum within the band 2150-2160 MHz by MCS and MDS operators will have to take into account incumbent systems presently licensed in the band. (See section 4.6.3. on the treatment of these existing licensees.)

MDS licensees wishing to gain access to the band 2156-2160 MHz should make application to their local Industry Canada office.

#### **4.1.4 Designation of the Band 2686-2690 MHz for Use by MCS and MDS Systems**

In addition to the spectrum noted in previous sections, spectrum in the band 2686-2690 MHz will also be designated on an equitable and proportional basis for MCS and MDS systems in Canada. For the purpose of facilitating the division of spectrum between MCS and MDS licensees as well as coordination, spectrum is divided into 31 narrowband channels of 125 kHz.

The lower portion of the band, 2686-2688 MHz, will be designated for MCS and the upper portion of the band 2688-2690 MHz will be available for MDS, as is detailed in Table 1, below. Licensees will not have to follow this channelization plan but will be subject to the technical parameters described in

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<sup>5</sup> Multipoint Distribution Systems operate in the 2596-2680 MHz band as broadcast distribution undertakings under the terms and conditions of broadcast licences issued by the CRTC.

section 4.2. MDS licensees should apply to their local Industry Canada office to gain access to this band.

**Table 1: MCS and MDS Channel Designations**

MCS Channel Frequencies		MDS Channel Frequencies	
Channel No	Frequency (MHz)	Channel No	Frequency (MHz)
1	2686.0625	17	2688.0625
2	2686.1875	18	2688.1875
...	...	...	...
15	2687.8125	30	2689.6875
16	2687.9375	31	2689.8125

Use of the spectrum 2686-2690 MHz must take into account incumbent fixed system operators currently licensed in the band as is discussed in section 4.6.4.

## 4.2 Technical Considerations

### 4.2.1 The Band 2500-2596 MHz

The following section specifies the technical requirements for the authorization of MCS operating in the 2500-2596 MHz band. The Department encourages, but will not mandate digital technology, in keeping with comments received from industry.

#### 4.2.1.1 Co-existence

Whenever two or more radio stations in the same general vicinity share spectrum, there is the potential for radio interference from transmitters to receivers. Coordination processes for this band are therefore required.

In the *Consultation Document*, the Department requested input on preferred mechanisms for domestic coexistence and appropriate technical parameters. Specifically, the Department sought views as to whether the traditional site-to-site coordination mechanism should be retained, or if a service area boundary condition could be utilized. In response to these questions, interested parties clearly indicated a preference for boundary conditions, and suggested boundary field levels for the Department's consideration. The Department concurs with the proposals for co-existence and sets the following general technical parameters:

- (i) The development of sharing arrangements<sup>6</sup> between operators in adjacent service areas is required for MCS facilities that exceed the power flux density (pfd) of  $-80\text{dBW}/\text{m}^2/6\text{MHz}$  at the service area boundary, in an adjacent service area. If systems on both sides of the service area border utilize analog modulation, the level of  $-70\text{dBW}/\text{m}^2/6\text{MHz}$  may be used.

The pfd shall be calculated on all channels and shall be based on free-space calculation.

- (ii) Out-of-band emissions of the system shall comply with the following spectral mask which is imposed on **the highest and lowest channels only**. For digital modulation, power spectral density across the occupied bandwidth of the signal shall be uniform.

For a hub or repeater station with an EIRP larger than  $-9\text{ dBW}$  ( $126\text{ mW}$ ), with NTSC modulation, the power spectral mask shall have an attenuation of  $38\text{ dB}$  at the channel edge, increasing linearly to  $60\text{ dB}$  at  $1\text{ MHz}$  below the lower edge/at  $500\text{ kHz}$  above upper edge, using the peak visual carrier as reference.

For a hub or repeater station with an EIRP larger than  $-9\text{ dBW}$  using digital modulation, the power spectral mask shall have an attenuation of  $25\text{ dB}$  at channel edge, increasing linearly to  $40\text{ dB}$  at  $250\text{ kHz}$  above/below edge, then following a linear slope to  $60\text{ dB}$  at  $3\text{ MHz}$  above/below edge, using the average  $6\text{ MHz}$  power level as a reference.

This requirement will not apply to the MCS at the high channel edge, if it is sharing the same facilities or co-sited with an MDS system using the same type of equipment, power and antenna.

- (iii) The maximum EIRP of a single station shall not exceed  $32\text{ dBW}$  ( $1585\text{ W}$ ) in any direction, using any polarization, for each  $6\text{ MHz}$  channel. Hub-to-hub interconnection using spectrum in the  $2500\text{-}2596\text{ MHz}$  band will be considered on a case-by-case basis.
- (iv) The frequency tolerance for the hub or repeater station with an EIRP larger than  $-9\text{dBW}$  should be  $+ \text{ or } - 1\text{ kHz}$  or better.

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<sup>6</sup> These sharing arrangements could include technical and/or commercial solutions and should permit reasonable service availability to subscribers along the service area boundaries.

- (v) The antenna shall use linear polarization. Either horizontal or vertical polarization may be used subject to any coordination constraints in the international coordination zone with the U.S.
- (vi) All radio equipment shall be certified. The Department intends to issue a Radio Standards Specification at a later date. The Department also intends to revise Standard Radio System Plan 302.5 (SRSP-302.5), *Technical Requirements for Stations in the Fixed Services Operating in the 2,500 to 2,686 MHz Band*, Issue 1, July 27, 1985 at a later date. Some technical parameters in this section may be revised at the time of the issuance of these documents.
- (vii) Transmitting stations at subscriber's premise communicating with a hub station which shall be located within the authorized service area may use any sub-channelized band and must also abide by the co-existence criteria above.

#### **Additional Considerations**

##### **Multipoint Distribution Systems (MDS)**

The Department expects MCS licensees to ensure mutual co-existence with all existing MDS undertakings in the band 2596-2686 MHz serving the same and adjacent areas and vice versa. The technical characteristics of the broadcasting service in the band 2596-2686 MHz are outlined in the Broadcast Procedures and Rules, Part VI (BPR, Part VI) *Application Procedures and Rules for Multipoint Distribution Television Broadcasting Undertakings (MDS-TV)* which is available on the Industry Canada Internet site.

##### **Mobile-Satellite Service (MSS)**

At the 1992 World Radiocommunication Conference, Canada supported the international allocation of the band 2483.5-2500 MHz to Mobile-Satellite Service. In the 1994 revision to the *Canadian Table of Frequency Allocations*, the band 2483.5-2500 MHz was domestically allocated to MSS on a primary basis for the space-to-Earth direction. Following this, an MSS system was authorized and is expected to be operational in mid-1999. This system will utilize the allocation for satellite-to-user link. This band is adjacent to the MCS band and will have to be respected.

The Department expects MCS and MSS licensees to take into consideration the technical characteristics and the area of operation of the MCS and MSS systems, and work together to minimize the interference between the systems.

#### 4.2.1.2 International Coordination

Both Canada and the United States use the band 2500-2596 MHz for multipoint systems under the terms of an arrangement which provides for frequency sharing in the border area. This arrangement has recently been updated to take into account the deployment of digital systems and may need to be reviewed in the near future to take into account two-way applications and use of the bands 2150-2160 MHz and 2686-2690 MHz.

The operation of MCS systems that are within 80 km of the Canada/USA border shall comply with both domestic technical sharing criteria and the terms of the understanding between Industry Canada and the Federal Communications Commission (FCC) in the United States. This understanding, which came into force on December 5, 1997, is entitled *General FCC/Industry Canada Understanding Concerning the Coordination of the 2500-2686 MHz Band within 80 km (50 miles) of the USA/Canada Border*. The *Understanding* defines the specific technical sharing parameters for the noted frequency band. It provides access to all channels by both administrations subject to each administration utilizing its designated antenna polarization.

While international coordination is not normally required under the provision of the *Understanding*, each administration is required to notify the other of the operating parameters for each MCS hub station within the border area. These parameters, listed in Annex B to the *Understanding*, must be submitted to Industry Canada within 60 days following the implementation of a new or modified MCS station assignment in order to allow for their notification to the FCC. Industry Canada will identify the appropriate format and means of submission at a later date with the licensees.

#### 4.2.2 The Bands 2150-2156 MHz and 2686-2688 MHz

The following section specifies the technical requirements for the authorization of spectrum in the bands 2150-2156 MHz and 2686-2688 MHz.

Transmitting stations at subscriber's premise shall communicate with a hub station located within the authorized service area. Additionally, these transmitting stations are to be operated on a "non-interference" basis and may be required to take corrective action or to cease transmission in the event that they are found to cause harmful interference.

#### 4.2.2.1 Co-existence

The Department sets the following general technical parameters for the operation of radio apparatus in the bands 2150-2156 MHz and 2686-2688 MHz:

- (i) The development of sharing arrangements<sup>7</sup> between operators in adjacent service areas is required for MCS facilities where the combined signals of all simultaneously operating transmitting stations at subscriber's premises toward a hub station exceeds a pfd of  $-80\text{dBW/m}^2/6\text{MHz}$  (or the pro rata power spectral density equivalent based on the bandwidth actually employed) at the service area boundary. If systems on both sides of the service area border utilize analog modulation, the level of  $-70\text{dBW/m}^2/6\text{MHz}$  may be used.

The pfd shall be calculated on all channels and shall be based on free-space calculation.

- (ii) Out-of-band emissions of the system shall comply with the following spectral mask which is imposed on the **highest and lowest channels only**. For digital modulation, power spectral density across the occupied bandwidth of the signal shall be uniform.

For transmitting stations at the subscriber's premises using analog modulation within the 125 kHz channels, the channel shall be centered at the assigned frequency as described in section 4.1.4. If amplitude modulation is used, the carrier shall not be modulated in excess of 100%. If frequency modulation is used, the deviation shall not exceed  $\pm 25$  kHz. Any emissions outside the channel shall be attenuated at the channel edges at least 35 dB below peak output power, and any emission more than 125 kHz from the channel edge, including harmonics, shall be attenuated at least 60 dB below peak output power.

For response stations using digital modulation within the 125 kHz channels, the power spectral mask must have an attenuation of 35 dB at the channel edge, increasing linearly to 60 dB at all frequencies that are more than 125 kHz above and/or below the channel edge, using the average power level over the 125 kHz band as a reference.

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<sup>7</sup> These sharing arrangements could include technical and/or commercial solutions and should permit reasonable service availability to subscribers along the service area boundaries.

This requirement will not apply to the MCS at the channel edge adjacent to an MDS system, if it is sharing the same facilities with MDS (using the same type of equipment, power and antenna).

- (iii) The maximum EIRP of a single station shall not exceed 15 dBW (33 W), using any polarization, for a 125 kHz channel. Hub-to-hub interconnection will be considered on a case-by-case basis.
- (iv) The antenna shall be directional and shall use linear polarization.
- (v) All radio equipment shall be certified. The technical parameters in this section may be revised when the Department issues a Radio Standards Specification.

#### **Additional Considerations**

All existing incumbent fixed systems presently licensed in accordance with the Standard Radio System Plan 301.9 (SRSP-301.9) entitled *Technical Requirements for Line-of-Sight Radio Systems Operating in the Fixed Service in the Band 1,900-2,290 MHz* must be taken account.

Existing systems are protected under the general principles described in sections 4.6.3 and 4.6.4 of this document.

#### **4.2.2.2 International Coordination**

The use of the bands 2150-2160 MHz and 2686-2690 MHz are currently covered by **Arrangement A**<sup>8</sup>. The governments of Canada and the United States expect to review the terms of the *Understanding* regarding coordination in the band to take into account two-way applications in the bands 2150-2160 MHz and 2686-2690 MHz. Licensees will be required to comply to any future Canada-United States sharing arrangements for the use of these bands.

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<sup>8</sup> An arrangement between Industry Canada (formerly reached by the Department of Transport) and the Federal Communications Commission for the exchange of frequency assignment information and engineering comments on proposed assignments along the Canada-United States borders in certain bands above 30 MHz.



### 4.3 Service Areas

In the *Consultation Document*, it was proposed that Canada be divided into 17 contiguous service areas along census subdivision lines, varying from relatively small to very large areas. Comments received on this proposal were generally favourable with the exception that many supported the amalgamation of three metropolitan centres (Vancouver, Montreal, Toronto) with adjoining areas due to severe technical coordination constraints. Furthermore, as a result of the learning aspect in the application process whereby provincial learning authorities will coordinate the input of the learning communities and assist MCS applicants in the preparation of their Learning Plans, it was deemed necessary to have service areas that would provide the closest possible alignment with provincial boundaries. As a result, Industry Canada has redefined the divisions so as to set one service area per province and territory, with a total of fourteen (14) services areas with the Eastern Ontario and Outaouais service area being a standalone area for economic, technical and interference reasons (See map below).

A list of these areas with their corresponding authorization fee is provided in Appendix A. A map for the Eastern Ontario and Outaouais service area as well as the list of census divisions comprised in that service area are provided in Appendix B. All other services areas conform exactly to provincial and territorial boundaries, except for the portions of Ontario and Quebec included in the standalone Eastern Ontario and Outaouais service area.



#### 4.4 Eligibility

It is Industry Canada's view that a broad range of service providers should be permitted to participate in the licensing process. Comments received were generally supportive of this direction. Consequently, the Department does not propose to institute any additional eligibility criteria except those required by law. Notably, as it is envisaged that the band will be used by companies operating as radiocommunication carriers, the provisions contained in section 10 of the *Radiocommunication Regulations* concerning Canadian ownership and control will apply.

#### 4.5 Spectrum Licences

Spectrum licences, also referred to as block area licences, provide for the utilization by licensees of specified radio frequencies within a defined geographic area. Since site-specific radio station licences are not required, this type of licence benefits both the Department and licensees by reducing the administrative burden associated with licensing each radio apparatus. Respondents generally supported this approach.

Successful applicants are reminded that they must still obtain all other appropriate approvals associated with individual sites, as well as abide by relevant Industry Canada policies such as shared use of advantageous antenna sites. The licensees will also have the responsibility to ensure that their networks are properly planned and will be required to abide by the geography and frequency privileges attributed to the licence.

#### 4.5.1 Fees

In the *Consultation Document*, the Department proposed an annual authorization fee for MCS at 2500 MHz of \$0.008 per household in each service area, per 6 MHz of spectrum; comments received supported this proposal. As the spectrum will be licensed in one 96 MHz parcel, it is proposed to set the fee equivalently but on a 1 MHz basis per 1000 households, rounded off to the nearest 500 households. This results in a fee of \$1.30/MHz/1000 households. For the two additional bands (2150-2156 MHz and 2686-2688 MHz), it is proposed to use the same fee (per 1000 households/MHz) as that used for the main band.

Fees will be calculated for the entire licensed area and band, regardless of the portion actually in use. The applicable fees per service area include all spectrum designated for MCS (2500-2596 MHz, 2150-2156 MHz and 2686-2688 MHz).

A table showing the respective licence fees for the proposed service areas is included in Appendix A. Applicants should note that these licence fees are pro-rated for the fiscal year (April 1 to March 31) based on the proportion of the fiscal year which remains at the time of initial licence issuance. Annual fees are due before March 31 for the subsequent year commencing on April 1. These fees may be revised from time to time as more recent census data becomes available.

Incumbent MCS licensees will be subject to the existing radio station licence fees in accordance with the *Radiocommunication Regulations*. As outlined in section 4.6, should an incumbent licensee be successful in the comparative licensing process, a new spectrum licence will be issued, and the existing radio licences within the service area will be revoked. In these situations, carry-over of licence fees from the radio licence to the new spectrum licence is not permitted.

On a related matter, as it is the policy of Industry Canada to permit the use of Digital Radio Broadcasting (DRB) installations to provide non-broadcasting services in accordance with an authorization issued under the *Radiocommunication Act*, the Department is instituting a similar approach for MDS. As a result, where MDS licensees operating in the band 2596-2686 MHz wish to use portions of their licensed broadcasting spectrum to provide radiocommunication (non-broadcasting) services, Industry Canada may issue spectrum licences to eligible operators using the licence fees applicable to these types of radiocommunication services. Spectrum licences will also be issued for MDS licensees wishing to gain access to the new designated spectrum at 2156-2160 MHz and 2688-2690 MHz. Fees for such spectrum licences will be calculated in accordance with those proposed for MCS systems in this policy based on the authorized MDS service areas and the

total amount of spectrum used for non-broadcasting services, rounded to the highest MHz.

*Comments are sought on these proposals for the bands 2150-2160 MHz, 2686-2690 MHz and for non -broadcasting services in the band 2596-2686 MHz. Comments should be received by the Department no later than July 9, 1999. The Minister will then fix fees under the authority conferred to him by the Department of Industry Act in consideration of the comments received.*

#### **4.5.2 Aggregation/Transfer of Licences**

A liberal approach to licence aggregation and licence transfer was proposed in the *Consultation Document*, and favourable comments were received. Hence, recognizing that parties may wish to offer services in more than one service area, there will be no limits imposed on the number of licences for which a given entity may apply. Applicants or their affiliates may apply for several service areas, but must submit applications for each area on a standalone basis.

Further, other parties may wish to utilize subsets of spectrum within a service area or a subset of the service area. In order to accommodate these situations, parties are encouraged to enter into partnership or franchise-like arrangements either prior to or after licensing. Licensees can also apply to the Minister requesting the transfer of a licence through partitioning or disaggregation of a licence.

Any transfer, partitioning or disaggregation of a licence will require prior Ministerial approval and will be considered according to the following guidelines:

- (i) All requests must be made jointly in writing by the original licensee(s) and the new eligible entity(ies) (see section 4.4 concerning eligibility) and must include provisions ensuring that the commitments made by the original licensee(s) will be completely adhered to or will be exceeded by the new entity(ies) commensurate with the scope of the privilege to be transferred.
- (ii) The partitioning of a licence will only be permitted along census subdivision lines so that the spectrum licence fee can be recalculated commensurate with the number of households in each resulting licensed area.
- (iii) The disaggregation of a licence will only be permitted in multiples of 1 MHz blocks.

- (iv) Potential partitioning or disaggregation proposal will result in more complex technical co-existence issues that must be addressed in the submission to the Minister. Such issues include adjacent area/co-channel coordination and international coordination.

For licence transfer, partitioning or disaggregation to take place, the original licensee will be required to return the licence to the Minister once preliminary approval has been granted in order that the Minister may revoke that licence and issue one or more new spectrum licences in its place.

#### **4.5.3 Conditions of Licence**

Elements of government policy directly applicable to MCS at 2500 MHz, as well as those applicable to spectrum licences in general, will be made conditions of licence. While most comments on the proposed conditions enumerated in the *Consultation Document* were generally favourable, Industry Canada notes the following changes.

With respect to the proposed condition regarding lawful intercept of telecommunications by law enforcement agencies, certain comments suggested that the Department forbear from the application of this condition, until such time as it is technically feasible. Further, in the Department's consultation concerning the licensing of 24 GHz and 38 GHz spectrum (DGRB-003-98) a number of respondents made comments to the effect that the "Solicitor General's Enforcement Standards for Lawful Interception of Telecommunications" were written to apply to circuit-switched voice telephony systems and as such the standards were not readily applicable to other telecommunications systems.

The Department is concerned that radiocommunications carriers transporting aggregated traffic, which may be the case with MCS, may have no ability to discern what, if any, intercept target traffic may be present in the aggregate stream. Further, we note that telecommunications networks are moving rapidly away from a circuit-switched environment to a packet-based environment using routers rather than traditional switches. Router-based networks pose a number of challenges to the provision of lawful interception capabilities in that routers may only receive a portion of a target's traffic, a target's traffic may be simultaneously routed through several routers at different points in a network, and routers permit customers to distribute traffic across several service providers.

Notwithstanding the technical complexities involved, Industry Canada recognizes that electronic interception of personal communications under lawful warrant is an indispensable technique for law enforcement. However, recognizing as well that the technical and legal requirements to support lawful intercept capabilities in new network technologies and topologies are still

undefined and under development, the Department will not incorporate compliance with the Solicitor General's current standard into a licence condition at this time. Applicants are nonetheless strongly advised to note that compliance with a requirement to provide lawful intercept capability may be imposed via licence condition or other legislative provision at any point in time in the future.

As well, in the *Consultation Document*, the Department proposed certain conditions, relating to resale and Research and Development. Some respondents questioned the applicability of these conditions for MCS. As a result of these comments and the impact of the new learning aspect included in this policy and licensing process, neither of these conditions will be mandated for MCS at 2500 MHz.

As a result, licence conditions for MCS at 2500 MHz may include requirements that licensees:

- (i) substantially adhere to the system rollout plans, Learning Plan and commitments made in their submissions;
- (ii) file a detailed annual report outlining progress made in all areas for the first five years, augmented with semi-annual interim reports indicating system implementation progress for the first two years;
- (iii) comply on an ongoing basis with the Canadian ownership and control eligibility criteria as set out in section 10 of the *Radiocommunication Regulations*, as applicable;

Licensees must notify the Minister of any change which would have a material effect on their ownership or control in fact. Such notification must be made in advance for any of the proposed transactions within the licensee's knowledge;

- (iv) ensure that radio installations are installed and operated in a manner that complies with Health Canada's limits of exposure to radio fields;
- (v) mark antenna structures, where applicable, in accordance with the recommendations of Transport Canada;
- (vi) consult with the appropriate land use authority prior to the installation of significant antenna structures;
- (vii) comply with technical sharing and international coordination standards and agreements;

- (viii) make available to the Department, upon request, required technical details of hub stations in the format prescribed by the Department;
- (ix) obtain Ministerial approval for any proposed licence transfer; and
- (x) pay the annual licence fee before March 31 of each year for the subsequent year (April 1 to March 31).

#### 4.6 Incumbent Licensees

In the responses to our *Consultation Document*, the Department received extensive comments addressing the situation of incumbent licensees. Notably, many respondents focused on the successful implementation of learning systems in Manitoba, as well as on the difficulty to adapt to what was viewed as too short of a protection period.

Industry Canada concurs with many of the views of the respondents concerning the treatment of incumbent licensees, and is instituting the policy measures below for the 2500-2596 MHz band, with special provisions for the province of Manitoba being described in section 4.6.2. Treatment of incumbents in the bands 2150-2160 MHz and 2686-2690 MHz is described in sections 4.6.3 and 4.6.4. In general, where applicable and feasible, private arrangements are encouraged between incumbent licensees and the successful service provider(s).

##### 4.6.1 General Principles for the Band 2500-2596 MHz

Given the measures contained in this policy for new MCS systems to support learning, the Department believes that incumbent licensees should either vacate the band or, in the event that they wish to remain in operation in this band, should then also provide support to learning. As a result, incumbent licensees having systems whose presence precludes the establishment of specifically planned installations by the successful applicants in this licensing process must include a learning component to their systems (in the form of a Learning Plan - see section 5.2.3) to the Department's satisfaction in order to be permitted to remain in operation in the band effectively gaining grandfathered status.

Where the incumbent licensee fails to submit such plan or where the Department deems that the plan is not acceptable, incumbent licensees will be provided two years to vacate the band. Should the Department accept the plan, the licensee will then be allowed to continue to operate their system provided there is no increase in the denial area<sup>9</sup> to other licensees. Once the implementation schedules of the new licensees are known, the Department will notify incumbent licensees whose presence precludes access by the new licensees.

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<sup>9</sup> The area where RF coverage precludes effective access by others in adjacent areas.

As the Department expects that incumbent systems in Toronto and Ottawa will have an immediate impact on the plans of new MCS licensees, incumbent licensees in these areas who wish to pursue obtaining grandfathered status should submit plans to integrate a learning component to the existing MCS systems to the Department no later than October 11, 1999.

Other incumbent licensees across Canada whose systems pose no immediate impact to new MCS systems and who are not contacted by the Department may continue to operate their systems. The Department will communicate with these licensees in the future should MCS rollout potentially affect them.

Incumbent licensees are eligible to participate in the licensing process and if they are successful in the licensing process, their site specific licences within the authorized MCS service area will be revoked and replaced with a spectrum licence, subject to all licence conditions stated herein (including the learning component).

#### **4.6.2 Special Provisions for Manitoba**

In 1995, the Department conducted a public consultation<sup>10</sup> to address the growing interest witnessed in the 2500-2596 MHz frequency band in Manitoba. Based on the responses, the Department released a licensing guideline<sup>11</sup> which established a priority for Instructional Television (ITV) in rural Manitoba and equal access for educational and commercial services in Winnipeg and Brandon. The Department subsequently approved a proposal for extensive use of the 2500-2596 MHz frequency band for province-wide interactive ITV systems in rural Manitoba. This system now effectively precludes access by others in many parts of rural Manitoba, and severely limits access in the centres of Brandon and Winnipeg.

Given the fact that the existing systems in Manitoba operated by school boards already address learning needs, these systems will be permitted to continue to operate under the existing terms and conditions of their licences.

New systems will have access to this band and existing systems will be permitted to grow on a case-by-case basis. Existing licensees wishing to undertake expansion may be required to make changes to their systems to permit equitable use of the band by both other existing licensees and potential new entrants. In congested areas, licensees will be expected to utilize spectrally efficient equipment.

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<sup>10</sup> Notice No. PNWT-001-95, Multipoint Communications Services at 2.5 GHz in Manitoba

<sup>11</sup> Licensing Guideline, 2500-2596 MHz Band, Manitoba Only



New spectrum designated for MCS, as described under sections 4.1.3 and 4.1.4 will be made available for existing and new MCS systems under the conditions stated therein. However, licensees for the newly designated spectrum in Manitoba will be subject to radio licence fees in accordance with the *Radiocommunication Regulations* in a similar fashion as for the band 2500-2596 MHz. The Department is also prepared to consider a request to issue spectrum licences in Manitoba. In this event, the same licence fees would apply as is outlined in section 4.5.1. Those parties wishing to explore the potential implementation of MCS systems in Manitoba should contact the District Director at the address below. Industry Canada will make every effort to accommodate bona fide requests for access and requests will generally be handled on a first-come, served basis.

District Director  
Spectrum Management and Telecommunications  
Industry Canada  
4<sup>th</sup> Floor, 400 St. Mary Avenue  
Winnipeg, Manitoba  
R3C 4K5  
email: specwpg@ic.gc.ca

#### **4.6.3 Treatment of Incumbent Licensees in the Band 2150-2160 MHz**

In 1995, Industry Canada adopted a full revision of the microwave spectrum utilization policies in the range of 1-20 GHz with the publication of Gazette Notice DGTP-002-95. These policies include the re-arrangement of fixed microwave bands at 2 GHz to enable the implementation of Personal Communications Services (PCS). A moratorium was also placed on any further licensing of new fixed microwave stations in the bands 1990-2010 MHz and 2110-2200 MHz.

Existing fixed systems licensed in accordance with the channel plan contained in SRSP 301.9 (Issue 2) which will be affected by the introduction of MCS in the 2150-2160 MHz have a channel pairing which overlaps PCS blocks A, D, and B (1930-1965 MHz range) in the lower half of the band. Many existing fixed stations have therefore already been displaced out of this portion of the spectrum, particularly in the major urban centres, due to the introduction of PCS.

Industry Canada is of the view that the current moratorium on licensing new fixed systems in this band has been in place for a sufficient period of time that, in conjunction with an appropriate notification period, displacement will not pose undue hardship to the existing licensees. Existing fixed systems will therefore be subject to a transitional displacement process which will facilitate spectrum access by MCS and MDS systems on an "as needed" basis. Notice will be issued by the Department as outlined below, when MCS or MDS

licensees have demonstrated a requirement for the spectrum. The principles and policy guidelines for allocation of and access to the spectrum are contained in the document entitled *A Spectrum Policy Framework for Canada* (SPFC) issued in 1992.

The following provisions apply to the displacement of fixed stations to provide spectrum for licensed MCS systems (and where applicable for MDS systems):

- (a) Where necessary, notification for displacement of specific frequency assignments of fixed stations in certain geographical areas will begin to be served after MCS licences have been awarded.
- (b) The displacement of frequency assignments of fixed stations and the displacement date indicated in the notification will be based on the spectrum necessary for the implementation of return transmission capability for MCS. MCS operators must ensure that such displacements, including their dates, are critical to meet the MCS implementation plan and that reasonable frequency spectrum alternatives do not exist.
- (c) For any frequency assignment subject to displacement, a two-year notification period will be provided. Earlier displacement may be achieved through mutual agreements between the MCS operator(s) and the affected fixed station operator(s).
- (d) The fixed station operator will cease the operation of the identified frequency assignment(s) on or before the displacement date indicated in the served notification.
- (e) In the event an MCS operator identifies a need to defer a notified displacement date, an amendment to the notice of displacement should be issued at least one year prior to the displacement date in effect.
- (f) The MCS and fixed service operators are encouraged to negotiate mutually acceptable displacement dates within the provisions of section (c) above. Industry Canada will retain oversight of the displacement process and will assist, where appropriate, affected fixed operators in identifying new replacement frequency assignments.

Some MCS licensees may also be operators of fixed stations with frequency assignments in the band 2150-2160 MHz. Industry Canada may take necessary action including the incorporation of MCS licence conditions which may address the displacement of such frequency assignments, in order to foster a level playing field amongst the licensed MCS operators and to make available the necessary spectrum.

It should be noted that a significant delay in the use of released frequency spectrum by MCS licensees, after the displacement date, will be viewed by Industry Canada as a serious breach of service commitment.

Industry Canada will monitor the effectiveness of the spectrum policy provisions related to the displacement of fixed systems. Changes to these provisions may be made to ensure that spectrum for MCS services is made available.

#### **4.6.4 Treatment of Incumbent Licensees in the Band 2686-2690 MHz**

There is only one system in operation in this band in Canada, located in Calgary. As there has been no prior public consultation on the use of 2686-2690 MHz for MCS return links, this system will be provided four years protection, with a minimum notification period of two years before potential displacement. Upon request by the MCS licensee, the Department will notify this incumbent licensee where the Department concurs with the requirement to displace the incumbent system.

Where applicable and feasible, the Department strongly encourages private arrangements between incumbent(s) and the successful service provider(s).

## **5. Selection and Licensing Process**

Industry Canada has noted that due to the amount of interest expressed for access to the MCS bands, demand for this spectrum greatly exceeds that available. Consequently, and as the Department advised in the *Consultation Document*, it has been decided that a comparative selection and licensing process will be used to authorize MCS at 2500 MHz in Canada, including the newly designated spectrum at 2150-2156 MHz and 2686-2688 MHz.

The goal of the process is to ensure that the best radiocommunication facilities and services are made available for Canadians and that the facilities and services are developed and established in an orderly, timely and efficient fashion.

As discussed in section 4.6.2, the existing systems in Manitoba already utilize much of the spectrum and requests for access to this band by others will be handled apart from this licensing process.

### **5.1 General Process**

The general process and the different steps leading to the award of MCS licences are described below. The evaluation criteria and information requirements for this selection and licensing process are detailed in section 5.2.

Applicants should familiarize themselves with the policy provisions described in the preceding sections as well as with the evaluation criteria outlined in section 5.2, and should use them as a guide in the preparation of submissions to the Department. The information requested and the measures taken or to be taken – if successful in the licensing process – to conform to the policy should be clearly identified in the submissions. Submissions which are inconsistent with any element of this document will be considered; however, applicants seeking such consideration should provide supporting rationale for how such a deviation from the policy and procedures would be in the public interest.

Notwithstanding that applicants may wish to apply for more than one service area, separate submissions **must** be provided for each licensing area. Each submission will be considered individually and on a standalone basis.

Direct contact with Departmental officials concerning the merits of any submission will not be entertained during the selection and licensing process. This does not limit contact with Departmental officials concerning the process in general or for other unrelated issues.

All costs of submission including Expressions of Interest and Detailed Submissions, are and will remain the responsibility of the Applicant. The Minister accepts no liability for any or all costs and expenses incurred by Applicants in responding to this Policy and Licensing Process, or in connection with any meetings or interviews. Each Applicant who responds to this Policy and Licensing Process shall prepare and submit the required material at its own expense and with the express understanding that it cannot make any claim for reimbursement from the Government of Canada .

#### **5.1.1 Expressions of Interest**

Applicants may wish to file Expressions of Interest with the Department so that they may signal their interest to others, as well as to identify and contact those with whom they may wish to discuss or form alliances, for the purposes of making Detailed Submissions. A detailed list of all those filing Expressions of Interest will be made available to the public on the Industry Canada Internet site as soon as possible after the receipt of Expressions of Interest. Participation in this phase **is not mandatory**.

#### **5.1.2 Detailed Submissions**

Applicants are required to file stand alone Detailed Submissions for each service area with Industry Canada for evaluation based on the criteria described in section 5.2 of this document. Participation in this phase **is mandatory**.

Industry Canada reserves the right to request additional information for the clarification or resolution of issues arising from the evaluation of all

submissions. Any such requests will be made in writing to the applicants, and responses from the applicants must be in writing.

The Department will analyze and evaluate all detailed submissions based on the criteria noted in section 5.2. This evaluation will then be used to formulate advice and recommendations to the Minister concerning the quality of the submissions, the service providers to be selected and licence conditions. The Minister ultimately decides how many licences will be issued, to whom and on what conditions, based on the contents of this document, the advice and recommendations of the Department and other factors deemed relevant. The Minister's decision will then be published.

If no Detailed Submissions are received for any given licensing area<sup>12</sup> or should the Minister not select and authorize a licensee for a service area, applications will be accepted for the unassigned area on a first-come, first-served basis after the final announcement of the successful applicants by the Minister. Such applications will be required to comply with the same policy measures and the application will be reviewed against the same criteria used for the comparative licensing process.

### **5.1.3 Public Input**

For this licensing process, after all applications are received the Department will solicit public input to assist the Department in the evaluation of the Learning Plans submitted by the applicants (see section 5.2.3).

Learning plans and non-confidential detailed submissions will be posted on the Departmental Internet site in order to obtain comments from interested parties on the pertinence of the Learning Plans, and on whether the content and carriage aspects of these plans effectively meet the learning needs of the communities the applicants wish to serve. These comments will be considered by the Department in the evaluation of the learning component of the applications, as described in section 5.2.3. Comments on the Learning Plan should be received no later than November 19, 1999.

### **5.1.4 Licences**

Once successful applicants are publicly announced, Learning Plans are formalized (as described in section 5.2.3) and licence fees are paid, they will receive a spectrum licence and be authorized to deploy their systems in the area(s) in which they were successful. Licences will have a 10 year term with a high expectancy of renewal at the end of the term. That is to say, the Department intends to generally renew licences for subsequent ten-year terms

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<sup>12</sup> With the exception of Manitoba.

unless a breach of licence condition occurs, a fundamental reallocation of spectrum to a new service is required (e.g., a reallocation by the International Telecommunication Union), or an overriding policy need arises (e.g., a spectrum reallocation to address a national security issue). To provide a more stable investment climate for licensees, a consultation process will commence no later than two years prior to the end of the licence term (i.e., after year eight) if the Department foresees the possibility that it will not renew a licence or if renewal fees and/or changes to conditions of licence are contemplated.

The spectrum licences that are issued pursuant to this licensing process will continue to be subject to relevant provisions in the *Radiocommunication Act* and *Radiocommunication Regulations*. Specifically, section 40 of the *Radiocommunication Regulations* continues to apply. As well, the Minister will continue to have the power to amend the terms and conditions of the spectrum licences. Such powers would be exercised only after full consultation.

Successful applicants are reminded of the requirement to obtain the necessary approvals related to antenna structure clearance and environmental issues (including safety and land use matters) before installing any radio apparatus.

## 5.2 Information Requirements and Evaluation Criteria

Detailed Submission will be evaluated against the criteria described further below for the purpose of formulating advice and recommendations to the Minister of Industry. As well, the specific information listed directly below regarding eligibility and service areas must be clearly identified in the submissions.

- *Eligibility*

All applicants must provide a description of their ownership or that of the entity to hold the licence, and indicate that they are generally eligible to hold licences as specified in section 9 of the *Radiocommunication Regulations*. Applicants who will operate as radiocommunication carriers must provide a detailed description of their corporate ownership and control structure and an attestation that they meet or will meet the ownership and control requirements of section 10 of the *Radiocommunication Regulation*. A detailed list of required information is provided in Appendix C.

- *Service Area*

Applicants must identify the specific service area(s) for which they are applying. Appendix A provides the list of service areas, and may be used by applicants to identify the areas. Applicants must submit standalone, individually viable applications for each service area they are wishing to service.

### 5.2.1 Demonstrated Competencies

Applicants who demonstrate institutional, financial, economic and technical capabilities that would support the establishment and operation of their proposed MCS facilities will be favoured. The information should include, but not be limited to, that listed below.

#### *Experience*

- (i) Experience in the installation and operation of telecommunications systems.
- (ii) Management experience and capability.
- (iii) Existing staff, both technical and non-technical, along with their experience and expertise in support of all aspects of system implementation, marketing, sales activities, equipment availability, management, and technology.

#### *Alliances*

- (iv) Domestic and international alliances with other companies or organizations for the establishment of the proposed facilities.
- (v) Institutional, economic and/or technical arrangements with other companies or organizations in support of system implementation and operation.

#### *Financial Capabilities*

- (vi) Consolidated audited financial statements for the past three full fiscal years, if applicable.
- (vii) Current interim financial statements.
- (viii) A five-year financial plan for the applicant and the proposed system, including revenues, expenditures, and detailed financial forecasts for this period, complete with the key underlying assumptions (in sufficient detail to enable verification of plausibility).
- (ix) Sufficient evidence that necessary financing is available or obtainable on reasonable terms and conditions.

### 5.2.2 Business Plan

Industry Canada's evaluation will favour applicants who demonstrate that extensive planning has been undertaken and careful consideration has been given to clarify business opportunities as well as potential pitfalls and how they could be overcome.

Applicants should address how their business plan, supported by concrete marketing research, will ensure the success of their commercial endeavour to provide MCS services at 2500 MHz. Applicants should submit all appropriate information, and as a minimum, include information concerning the following:

- (i) Industry overview, including the assessment of actual and potential market, trends and competition
- (ii) Business strategy
- (iii) Market projections and forecasts
- (iv) Product and service offerings
- (v) Marketing Plan, sales strategy
- (vi) Human resources strategy
- (vii) Client service and support
- (viii) Supplier management
- (ix) Technology strategy and network infrastructure design
- (x) Network Capital Expenditures
- (xi) A five-year system implementation plan for each service area in which they are applying. These plans must include an annual schedule outlining the centres or areas to be served as well as an approximate number of stations that will be installed and in operation, and the percentage of the desired market to be covered for each service area such that the desired level of service is provided.

As well, applicants must indicate all major assumptions upon which the business plan relies. Assumptions may include:

- actual and future market size
- market share required for viability and profitability
- market prices



- customer growth rates
- equipment availability, pricing and amortization periods

Further, applicants must indicate to what extent the application, including the business and learning plans, remains feasible in the event that any of these assumptions prove not to hold true. Industry Canada will favour more robust plans in its evaluation.

### 5.2.3 Learning

Applicants must demonstrate how they can best meet the needs of the learning community within the operation of a viable commercial system. To this end, applicants must detail learning needs and how they are to be accommodated in the form of a Learning Plan. Applicants must demonstrate that this Learning Plan is supported by, and meets the specific needs of the local learning community. This can be achieved through the development, in collaboration with learning organizations, of a mutually acceptable Learning Plan. Learning Plans are a statement of commitments by applicants, which applicants agree to fulfil if they are granted access to MCS spectrum.

Learning Plans submitted to the Department should describe in detail how the learning needs will be accommodated and should define the offerings that will be supplied to the learning community. This may include, for example:

- (i) Specific telecom services and/or products
- (ii) Content production and/or acquisition
- (iii) Infrastructure
- (iv) Funding
- (v) Implementation timeframe
- (vi) Scope ( geographical reach, number of users served)

In addition, Learning Plans **must** provide information concerning all benefits accruing to specific learning organizations, including those accruing to the Learning Authority (see below). Learning Plans should be developed to reflect the duration of the MCS licence. Just as the technology for MCS will evolve, so will the needs of the learning community. As a result, applicants should identify in their Learning Plans a program for evolution.

It is expected that organizations involved in education and learning will need to develop, in consultation with client and user communities, a clear understanding of the learning needs of the community they represent. As a

result, Industry Canada has identified a Learning Authority in each province and territory to assist applicants and the members of the learning community to coordinate the local learning needs and interests and to discuss with potential applicants how these interests might best be served. Specifically, Learning Authorities have undertaken to liaise with each applicant in the preparation of their Learning Plan in order to match their capabilities with the needs of the learning community, with a view of maximizing both the benefits gained by the learning community and the synergies between the applicant's Learning Plan and commercial business plan. While Learning Authorities may share information amongst themselves, they have committed to safeguard the information provided to them by applicants from release to other third parties. Appendix E provides a list of designated Authorities and contacts.

Learning Plans may include an indication of support from the Learning Authority. Such support from the Learning Authority and commitments of applicants in the Learning Plan should be expressed in the form of a written endorsement, conditional agreement or contract between the applicant and the Learning Authority or direct beneficiaries. For this endorsement or agreement to be achieved, the MCS applicants are encouraged to conduct extensive consultation with the learning community via the Learning Authority and discuss all possibilities with the goal of reaching an agreement that is mutually beneficial.

Should serious issues arise in the application stage where applicants encounter unreasonable difficulties in liaising with the Learning Authorities, Industry Canada should be contacted as quickly as possible at the address outlined in section 5.5.2.

Once detailed submissions are received, applicants' non-confidential detailed submissions as well as their complete Learning Plan will be posted on the Department's Internet site in order to obtain public input on whether the proposed Learning Plan effectively meets the learning needs. These comments will be posted on the Departmental Internet site.

The Learning Plan submitted by the applicants will be reviewed by the Department with the aim of favouring those which are most complete, cohesive, innovative and realistically feasible as part of a strong commercially viable application. The extent to which the applicant has engaged the learning community and reached a written endorsement, conditional agreement or contract as noted above, preferably in direct consultation with Learning Authorities will also be considered. Further, the degree of commitment by the applicant contained within such an endorsement or agreement, if reached, will also be part of the evaluation. Public input received on the Learning Plan will be taken into account in the Department's evaluation.

Industry Canada will require that selected applicants formalize the Learning Plan arrangement prior to the issuance of licences and applicants are reminded that adherence to this plan will be a condition of licence.

### 5.3 Instructions for Filing

Instructions for filing applications are provided in the following paragraphs. Industry Canada recognizes that certain portions of the submissions may be considered confidential by an applicant. In these instances, an applicant must clearly identify the information they consider confidential and, if claiming confidentiality, must submit both a non-confidential and a confidential version of their submissions.

Applicants should be aware that information which they have identified as being confidential might still be subject to release upon request under the *Access to Information Act* and should therefore refer to this Act. However, as a guide in determining whether information could be released pursuant to such a request, a list of some of the questions used as part of any review under the *Access to Information Act* is provided in Appendix D.

Applicants are reminded that all Learning Plans will be posted in their entirety on the Department's Internet site and accordingly must be filed on a non-confidential basis.

#### 5.3.1 Format

##### *Expression of Interest*

Respondents may submit their Expression of Interest electronically or in written format.

##### *Detailed Submissions*

Applicants are required to provide one electronic version and twelve (12) paper copies of their Detailed Submissions for each service area being applied for.

Should applicants consider portions of their Detailed Submissions to be confidential, they must provide one electronic version and seven (7) paper copies of their non-confidential Detailed Submissions as well.

Although Learning Plans are part of the Detailed Submissions, applicants are reminded that the complete Learning Plan will be posted on the Internet site. The Department therefore requires that the Learning Plan be submitted as a separate document on a non-confidential basis in electronic format, along with twelve (12) paper copies.

**The Department requests that electronic submissions be in one of the following formats if possible: WordPerfect; Microsoft Word; Adobe PDF; or ASCII TXT.**

### **5.3.2 Deadlines**

#### **Comments on Licence Fees**

Comments on the suggested fees for the bands 2150-2156 MHz and 2686-2688 MHz as well as for non-broadcasting services in the band 2596-2686 MHz must be received by the Department at the address noted in section 5.5.2 no later than 5:00 pm EDT July 9, 1999.

#### **Expressions of Interest**

To ensure inclusion in the posted list so as to allow sufficient time for interested parties to form alliances amongst each other, Expressions of Interest should be received by the Department at the address noted in section 5.5.2 no later than 5:00 pm EDT July 9, 1999.

#### **Detailed Submissions**

Detailed Submission must be received by the Department at the address noted in section 5.5.2 no later than 5:00 pm EDT on October 11, 1999.

#### **Incumbent Licensees in Toronto and Ottawa**

Incumbent MCS licensees in Toronto and Ottawa who wish to keep these existing systems in operation in the band, should submit plans to the Department to integrate a learning component to the existing MCS systems no later than October 11, 1999.

#### **Comments on Learning Plans**

Public input on posted Learning Plans must be received by the Department at the address noted in section 5.5.2 no later than 5:00 pm EDT November 19, 1999.

### **5.4 Public Access to Documents**

Every effort will be made to post the list of those who submitted **Expressions of Interest** after July 9, 1999 and **Detailed Submissions** non-confidential and complete **Learning Plans** on the Industry Canada spectrum web site shortly after October 11, 1999, at the following address:

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

Public input on Learning Plans will also be made available on this site shortly after receipt.

Printed copies of submissions may also be obtained, for a fee, from:

<b>Tyrell Press Ltd.</b> 2714 Fenton Road Gloucester, Ontario K2T 3T7	<b>Canada Communication Group Inc.</b> 45 Sacré-Coeur Blvd. Hull, Québec K1A 0S7
Canada toll-free no.: 1-800-267-4862	Toll free no.: 1-888-562-5561
U.S. toll-free no.: 1-800-574-0137	Fax number: (819) 779-2833
Worldwide tel. no.: (613) 822-0740	Worldwide tel. no.: (819) 779-4335
Fax number: (613) 822-1089	

## 5.5 Further Information

### 5.5.1 Related Documents

Links to all documents listed in this discussion paper will be displayed on our Spectrum Web site at <http://strategis.ic.gc.ca/spectrum>. Documents relating solely to MCS will be posted under the "Multipoint Communication Systems" heading.

### 5.5.2 Departmental Address/Contact

Submissions to the Department should be sent to the following address:

2500 MHz MCS  
Radiocommunications and Broadcasting Regulatory Branch  
Industry Canada  
Room 1514 A - Jean Edmonds Tower North  
300 Slater Street  
Ottawa, Ontario  
K1A 0C8

Or via email at [2500MHz@ic.gc.ca](mailto:2500MHz@ic.gc.ca)

General inquiries, strictly on clarification of the policy or on requirements and procedures contained in this document may be made to the Department at the address noted above or by fax to 613-991-3514, telephone 613-998-3837.

Jan Skora  
Director General  
Radiocommunications and Broadcasting  
Regulatory Branch

Michael Helm  
Director General  
Telecommunications Policy Branch

## Appendix A

### Spectrum Licence Fees

Services Areas	Households	Annual Fees
Newfoundland & Labrador	185,500	\$ 25,079.60
PEI	48,000	\$ 6,489.60
Nova Scotia	342,500	\$ 46,306.00
New Brunswick	271,000	\$ 36,639.20
Quebec	2,705,000	\$ 365,716.00
Eastern Ontario & Outaouais	780,000	\$ 105,456.00
Ontario	3,258,500	\$ 440,549.20
Saskatchewan	371,500	\$ 50,226.80
Alberta	978,000	\$ 132,225.60
British Columbia	1,423,500	\$ 192,457.20
Yukon	11,500	\$ 1,554.80
North West Territories	12,500	\$ 1,690.00
Nunavut	6,500	\$ 878.80

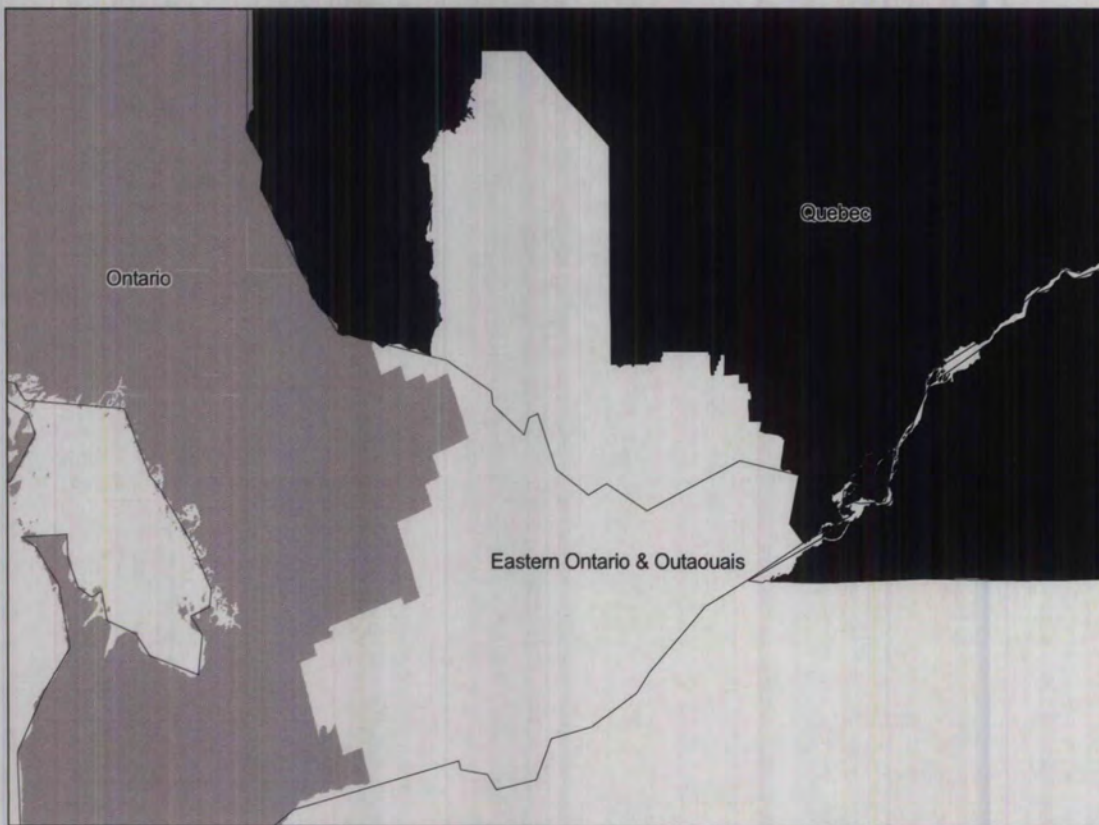
**Manitoba:** Spectrum licence fees for Manitoba are not listed as existing systems will be permitted to continue to operate under the existing terms and conditions of their radio licences and new systems will also be issued radio licences, and will be subject to appropriate fees outlined in the *Radiocommunication Regulations*.

**Households:** Licence fees are based on the actual household data obtained from the 1996 Census.

**Annual Fees:** Fees are calculated for spectrum at 2500-2596 MHz, 2150-2156 MHz and 2686-2688 MHz, for a total of 104 MHz and may change in the future based on new household data as it is available from subsequent Census'.

## Appendix B

### Eastern Ontario & Outaouais Service Area Map and List of Census Subdivisions (CSD)





CSD number	CSD name	CSD number	CSD name
3501003	Lancaster - Ont.	3506011	Rockcliffe Park - Ont.
3501006	Charlottenburgh - Ont.	3506012	Nepean - Ont.
3501007	Akwesasne (part) - Ont.	3506014	Ottawa - Ont.
3501010	Cornwall - Ont.	3506018	Rideau - Ont.
3501012	Cornwall - Ont.	3506027	Goulbourn - Ont.
3501015	Osnabruck - Ont.	3506030	Kanata - Ont.
3501017	Williamsburgh - Ont.	3506042	West Carleton - Ont.
3501019	Morrisburg - Ont.	3507001	Edwardsburgh - Ont.
3501022	Matilda - Ont.	3507002	Cardinal - Ont.
3501024	Iroquois - Ont.	3507006	Augusta - Ont.
3501027	Mountain - Ont.	3507008	Prescott - Ont.
3501031	Winchester - Ont.	3507012	Elizabethtown - Ont.
3501033	Winchester - Ont.	3507015	Brockville - Ont.
3501035	Chesterville - Ont.	3507017	Front of Yonge - Ont.
3501038	Finch - Ont.	3507020	Front of Escott - Ont.
3501041	Finch - Ont.	3507022	Front of Leeds and Lansdowne - Ont.
3501045	Roxborough - Ont.		Gananoque - Ont.
3501048	Kenyon - Ont.	3507024	Rear of Leeds and Lansdowne - Ont.
3501051	Maxville - Ont.	3507027	South Crosby - Ont.
3501053	Lochiel - Ont.		North Crosby - Ont.
3501055	Alexandria - Ont.	3507029	Westport - Ont.
3502001	East Hawkesbury - Ont.	3507031	Newboro - Ont.
3502006	West Hawkesbury - Ont.	3507033	Bastard and South Burgess - Ont.
3502008	Hawkesbury - Ont.	3507035	Rear of Yonge and Escott - Ont.
3502009	Vankleek Hill - Ont.	3507039	Athens - Ont.
3502012	Caledonia - Ont.		Kitley - Ont.
3502016	Longueuil - Ont.	3507041	South Elmsley - Ont.
3502018	L'Orignal - Ont.		Wolford - Ont.
3502021	Alfred - Ont.	3507043	Merrickville - Ont.
3502024	Alfred - Ont.	3507046	Oxford-on-Rideau - Ont.
3502026	South Plantagenet - Ont.	3507049	Kemptville - Ont.
3502027	St. Isidore - Ont.	3507051	South Gower - Ont.
3502031	North Plantagenet - Ont.	3507053	Montague - Ont.
3502034	Plantagenet - Ont.	3507056	Smiths Falls - Ont.
3502037	Clarence - Ont.	3507058	North Elmsley - Ont.
3502039	Rockland - Ont.	3507061	North Burgess - Ont.
3502042	Cambridge - Ont.	3509001	South Sherbrooke - Ont.
3502044	Casselton - Ont.	3509004	Bathurst - Ont.
3502048	Russell - Ont.	3509008	Drummond - Ont.
3506001	Osgoode - Ont.	3509011	
3506004	Cumberland - Ont.	3509014	
3506006	Gloucester - Ont.	3509016	
3506009	Vanier - Ont.	3509019	

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CSD number	CSD name	CSD number	CSD name
3509021	Perth - Ont.	3511034	Kaladar, Anglesea and
3509024	Beckwith - Ont.		Effingham - Ont.
3509028	Carleton Place - Ont.	3511038	Denbigh, Abinger and
3509029	Ramsay - Ont.		Ashby - Ont.
3509031	Almonte - Ont.	3512001	Tyendinaga - Ont.
3509034	Lanark - Ont.	3512002	Deseronto - Ont.
3509036	Lanark - Ont.	3512004	Tyendinaga Mohawk
3509040	Lavant, Dalhousie, and		Territory - Ont.
	North Sherbrooke - Ont.	3512006	Thurlow - Ont.
3509044	Darling - Ont.	3512008	Belleville - Ont.
3509046	Pakenham - Ont.	3512011	Sidney - Ont.
3510001	Wolfe Island - Ont.	3512012	Trenton - Ont.
3510004	Howe Island - Ont.	3512014	Frankford - Ont.
3510006	Pittsburgh - Ont.	3512018	Stirling - Ont.
3510009	Kingston - Ont.	3512019	Rawdon - Ont.
3510011	Kingston - Ont.	3512024	Huntingdon - Ont.
3510014	Storrington - Ont.	3512028	Hungerford - Ont.
3510018	Loughborough - Ont.	3512031	Tweed - Ont.
3510022	Portland - Ont.	3512032	Elzevir and Grimsthorpe -
3510026	Hinchinbrooke - Ont.		Ont.
3510029	Bedford - Ont.	3512036	Madoc - Ont.
3510032	Oso - Ont.	3512038	Madoc - Ont.
3510036	Olden - Ont.	3512041	Marmora and Lake - Ont.
3510039	Kennebec - Ont.	3512042	Marmora - Ont.
3510042	Barrie - Ont.	3512044	Deloro - Ont.
3510046	Clarendon and Miller -	3512048	Tudor and Cashel - Ont.
	Ont.	3512051	Limerick - Ont.
3510049	Palmerston and North and	3512054	Wollaston - Ont.
	South Canonto - Ont.	3512058	Faraday - Ont.
3511001	Amherst Island - Ont.	3512062	Bancroft - Ont.
3511004	Ernestown - Ont.	3512064	Dungannon - Ont.
3511008	Bath - Ont.	3512068	Mayo - Ont.
3511011	South Fredericksburgh -	3512071	Carlow - Ont.
	Ont.	3512074	Monteagle - Ont.
3511014	Adolphustown - Ont.	3512078	Herschel - Ont.
3511016	North Fredericksburgh -	3512091	Bangor, Wicklow and
	Ont.		McClure - Ont.
3511019	Richmond - Ont.	3513001	North Marysburgh - Ont.
3511021	Napanee - Ont.	3513004	South Marysburgh - Ont.
3511024	Camden East - Ont.	3513008	Athol - Ont.
3511026	Newburgh - Ont.	3513011	Hallowell - Ont.
3511031	Sheffield - Ont.	3513012	Bloomfield - Ont.
		3513016	Picton - Ont.

CSD number	CSD name	CSD number	CSD name
3513018	Sophiasburgh - Ont.	3515042	Harvey - Ont.
3513022	Hillier - Ont.	3515046	Galway and Cavendish - Ont.
3513024	Wellington - Ont.		
3513028	Ameliasburgh - Ont.	3516001	Emily - Ont.
3514001	Murray - Ont.	3516004	Omemee - Ont.
3514006	Brighton - Ont.	3516006	Ops - Ont.
3514008	Brighton - Ont.	3516008	Manvers - Ont.
3514011	Cramahe - Ont.	3516009	Lindsay - Ont.
3514012	Colborne - Ont.	3516011	Mariposa - Ont.
3514016	Haldimand - Ont.	3516014	Woodville - Ont.
3514019	Hamilton - Ont.	3516016	Eldon - Ont.
3514021	Cobourg - Ont.	3516021	Fenelon - Ont.
3514023	Hope - Ont.	3516022	Sturgeon Point - Ont.
3514025	Port Hope - Ont.	3516024	Fenelon Falls - Ont.
3514026	Alnwick - Ont.	3516026	Verulam - Ont.
3514027	Alderville 37 - Ont.	3516028	Bobcaygeon - Ont.
3514029	Percy - Ont.	3516031	Somerville - Ont.
3514032	Hastings - Ont.	3516034	Bexley - Ont.
3514034	Seymour - Ont.	3547001	McNab - Ont.
3514036	Campbellford - Ont.	3547002	Arnprior - Ont.
3515001	Asphodel - Ont.	3547004	Braeside - Ont.
3515004	Norwood - Ont.	3547006	Bagot and Blythfield - Ont.
3515006	Otonabee - Ont.		
3515007	South Monaghan - Ont.	3547009	Brougham - Ont.
3515008	Hiawatha First Nation 36 - Ont.	3547012	Griffith and Matawatchan - Ont.
3515009	Cavan - Ont.	3547016	Sebastopol - Ont.
3515010	Millbrook - Ont.	3547019	Brudenell and Lyndoch - Ont.
3515011	North Monaghan - Ont.		
3515014	Peterborough - Ont.	3547022	Raglan - Ont.
3515016	Ennismore - Ont.	3547024	Radcliffe - Ont.
3515018	Smith - Ont.	3547026	Sherwood, Jones and Burns - Ont.
3515019	Curve Lake First Nation 35 - Ont.	3547028	Barry's Bay - Ont.
3515022	Douro - Ont.	3547031	Hagarty and Richards - Ont.
3515024	Lakefield - Ont.		
3515026	Dummer - Ont.	3547034	Killaloe - Ont.
3515031	Belmont and Methuen - Ont.	3547036	South Algona - Ont.
		3547037	Golden Lake 39 - Ont.
3515032	Havelock - Ont.	3547038	Grattan - Ont.
3515036	Chandos - Ont.	3547039	Eganville - Ont.
3515038	Burleigh and Anstruther - Ont.	3547042	Admaston - Ont.
		3547046	Horton - Ont.

CSD number	CSD name	CSD number	CSD name
3547048	Renfrew - Ont.	2480075	Ripon - Que.
3547049	Ross - Ont.	2480080	Ripon - Que.
3547051	Cobden - Ont.	2480085	Mulgrave-et-Derry - Que.
3547054	Bromley - Ont.	2480090	Montpellier - Que.
3547058	Westmeath - Ont.	2480095	Lac-Simon - Que.
3547059	Beachburg - Ont.	2480100	Chénéville - Que.
3547062	Pembroke - Ont.	2480105	Vinoy - Que.
3547064	Pembroke - Ont.	2480110	Namur - Que.
3547066	Stafford - Ont.	2480125	Saint-Émile-de-Suffolk - Que.
3547069	Wilberforce - Ont.		
3547072	North Algona - Ont.	2480130	Lac-des-Plages - Que.
3547074	Alice and Fraser - Ont.	2480135	Duhamel - Que.
3547078	Petawawa - Ont.	2480140	Val-des-Bois - Que.
3547079	Petawawa - Ont.	2480145	Bowman - Que.
3547092	Rolph, Buchanan, Wylie and McKay - Ont.	2480902	Lac-des-Écorces - Que.
		2481005	Buckingham - Que.
3547094	Chalk River - Ont.	2481010	Masson-Angers - Que.
3547096	Deep River - Ont.	2481015	Gatineau - Que.
3547098	Head, Clara and Maria - Ont.	2481020	Hull - Que.
		2481025	Aylmer - Que.
3501001	Lancaster - Ont.	2482005	L'Ange-Gardien - Que.
2476060	Grenville - Que.	2482010	Notre-Dame-de-la-Salette - Que.
2479005	Notre-Dame-du-Laus - Que.	2482015	Val-des-Monts - Que.
2480005	Fassett - Que.	2482020	Cantley - Que.
2480010	Montebello - Que.	2482025	Chelsea - Que.
2480015	Notre-Dame-de-Bon-Secours-Partie-Nord - Que.	2482030	Pontiac - Que.
		2482035	La Pêche - Que.
2480020	Notre-Dame-de-la-Paix - Que.	2483005	Denholm - Que.
		2483010	Low - Que.
2480025	Saint-André-Avellin - Que.	2483015	Kazabazua - Que.
		2483020	Lac-Sainte-Marie - Que.
2480030	Saint-André-Avellin - Que.	2483025	Northfield - Que.
		2483030	Gracefield - Que.
2480035	Papineauville - Que.	2483035	Wright - Que.
2480040	Sainte-Angélique - Que.	2483040	Cayamant - Que.
2480045	Plaisance - Que.	2483804	Lac-Rapide - Que.
2480050	Thurso - Que.	2483902	Lac-Pythonga - Que.
2480055	Lochaber - Que.	2484005	Bristol - Que.
2480060	Lochaber-Partie-Ouest - Que.	2484010	Shawville - Que.
		2484015	Clarendon - Que.
2480065	Mayo - Que.	2484020	Portage-du-Fort - Que.
2480070	Saint-Sixte - Que.	2484025	Bryson - Que.

<b>CSD number</b>	<b>CSD name</b>
2484030	Campbell's Bay - Que.
2484035	Grand-Calumet - Que.
2484040	Litchfield - Que.
2484045	Thorne - Que.
2484050	Alleyn-et-Cawood - Que.
2484055	Leslie-Clapham-et-Hudde rsfield - Que.
2484060	Fort-Coulange - Que.
2484065	Mansfield-et-Pontefract - Que.
2484070	Waltham-et-Bryson - Que.
2484075	L'Isle-aux-Allumettes-Par tie-Est - Que.
2484080	Chapeau - Que.
2484085	L'Isle-aux-Allumettes - Que.
2484090	Chichester - Que.
2484095	Sheen-Esher-Aberdeen-et -Malakoff - Que.
2484100	Rapides-des-Joachims - Que.
2484902	Lac-Nilgaut - Que.
2489802	Grand-Lac-Victoria - Que.
2489910	Réservoir-Dozois - Que.
2476050	Calumet - Que.
2476055	Grenville - Que.

## Appendix C

### Information Related to Ownership and Control

#### 1. Incorporation Documents

- 1.1 The incorporating documents, including any by-laws relating to control matters, for the company and any related holding company.

#### 2. Shareholdings

- 2.1 The details of the authorized and issued shares for each class of shares for the company and any holding company.
- 2.2 The details of the rights, privileges, restrictions and conditions of each class of shares for the company and any holding company.
- 2.3 The details of the beneficial ownership by Canadians (as defined in the *Canadian Telecommunications Common Carrier Ownership and Control Regulations*), and by non-Canadians, of each class of shares for the company and any holding company.
- 2.4 The copies of all shareholder agreements for the company and any holding company.

#### 3. Directors

- 3.1 The name and citizenship of each member of the board of directors of the company and any holding company.
- 3.2 The details of any agreements or arrangements related to the election of directors of the company and any holding company.

#### 4. Officers

- 4.1 The name and citizenship of each officer, and office held, of each officer of the company and any holding company.
- 4.2 The details of any agreements or arrangements related to the appointment of officers of the company and any holding company.

#### 5. Financing

- 5.1 The complete details of the financial structure of the company and any holding company, including the source of debt and equity financing.

#### 6. Agreements

- 6.1 Copies of any agreements between the company and any foreign partner or affiliate.
- 6.2 The details of any other agreement or arrangement which could affect whether the company or any holding company are or are not controlled in fact by Canadians.

## Appendix D

### Release of Information under the *Access to Information Act*

The questions below are used during any review of information with respect to subsection 20(1) of the *Access to Information Act*.

Paragraph 20(1)(a) of the *Access to Information Act*

1. Is any information considered to be a "trade secret"?
2. If so, in what way is the information a "trade secret"?

For a record to qualify as a "trade secret" it must meet all of the following requirements:

- S** it must consist of information;
- S** the information must be secret in an absolute or relative sense, that is, known only by one or a relatively small number of persons;
- S** the possessor of the information must demonstrate that they have acted with the intention to treat the information as secret;
- S** the information must be capable of industrial or commercial applications; and
- S** the possessor must have an interest (eg. an economic interest) worthy of legal protection.

Information or data not meeting the requirements of a "trade secret" may nevertheless qualify for exemption under other provisions applying to subsection 20(1).

Paragraph 20(1)(b) of the *Access to Information Act*

1. Is the information of a financial, commercial, scientific or technical nature?
2. Who provided the information to the Department?
3. Has the information been consistently treated as confidential?
4. What measures have been taken to consistently treat the information as confidential?
5. Is any information in the records publicly known or readily available upon request from the third party itself or another source?

Section 20(1)(c) of the *Access to Information Act*

1. Could the disclosure of information reasonably be expected to result in material financial loss to you?
2. Could the disclosure of the information reasonably be expected to result in material financial gain to someone else?
3. In what way could there be a material financial loss or gain resulting from the disclosure of information?
4. Could the disclosure of information prejudice your competitive position?
5. Describe in what way there could be a prejudice to your competitive position by the disclosure of the information.

Section 20(1)(d) of the *Access to Information Act*

1. Could the disclosure of the information reasonably be expected to interfere with contractual or other negotiations of your firm/company?
2. If so, in what way?
3. Are such contractual or other negotiations now underway or are they clearly expected in the near future?



## Appendix E

### Designated Learning Authorities

British Columbia	Open Learning Agency 4355 Mathissi Place Burnaby, BC V5G 4S8	Bohdan Zajcew General Manager, Knowledge Network phone:(604) 431-3170 Fax: (604) 431-3387 email: bohdanz@ola.bc.ca
Alberta	Athabasca University 1 University Drive Athabasca, AB T9S 3A3	Dave Hrenewich Director, Computing Services phone: (780) 675-6318 fax: (780) 675-6333 email: daveh@athabascau.ca
Saskatchewan	SCN North Block 2440 Broad Street Regina, SK S4T 3V7	Linda Dewhirst Manager, Multimedia phone: (306) 787-8123 fax: (306) 787- 0496 email: ldewhirst@scn.uregina.ca
Ontario	The Ontario Educational Communications Authority Box 200, Station Q Toronto, ON M4T 2T1	Donald Duprey Managing Director, English Programming Services phone: (416) 484-2652 fax: (416) 484-4519 email: don_duprey@tvo.org
Quebec	<i>To be designated by the Government of Quebec</i>	
New Brunswick	New Brunswick Distance Education Network Inc. 500 Beaverbrook Court Fredericton, NB E3B 5X4	Rory McGreal CEO phone: (506) 444-4234 fax: (506) 444-4232 email: tenb@nbnet.nb.ca
Nova Scotia	Learning Resources and Technology Division, Department of Education and Culture 3770 Kempt Road Halifax, NS B3K 4X8	Michael G. Jeffrey Director phone: (902) 424-2462 fax: (902) 424-0633 email: Jeffremg@gov.ns.ca

Newfoundland	STEM-Net E-5038, Education Building Memorial University of Newfoundland St. John's, NF, A1B 3X8	Nancy Parsons Heath Director phone: (709) 737-2663 fax: (709) 737-2179 email: nancy@stemnet.nf.ca
Prince Edward Island	Department of Technology & Environment Technology PEI 4 <sup>th</sup> Floor Holman Building 25 University Avenue Charlottetown, PE C1A 7L9	Keith Tompkins Director, IT Workforce Development phone: (902) 888-8011 Fax: (902) 888-8023 email: kdtompkins@gov.pe.ca
Northwest Territories	Aurora College Box 1290 Fort Smith, NT X0E 0P0	Jennifer Lock Distance Education Coordinator phone: (867) 872-7551 or (867) 872-7019 fax: (867) 872-5049 or (867) 872-5143 email: jlock@auroracollege.com
Nunavut	Nunavut Arctic College Box 600 Iqaluit, NT X0A 0H0	Andrew Mirlin Director, Nunatta Campus phone: (867) 979-7216 fax: (867) 979 4579 email: amirlin@nac.nu.ca
Yukon	Yukon College P.O. Box 2799 Whitehorse, YK Y1A 5K4	Grant Dunham Distributed Learning Support Officer phone: (867) 668-8817 fax: (867) 668-8858 email: gdunham@yukoncollege.yk.ca

LKC  
HE 8679 .C2 T9 1999 c.2  
2500 MHz multipoint communications  
systems policy and licensing procedures

**DATE DUE**  
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DATE DUE	DATE DE RETOUR

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INDUSTRY CANADA / INDUSTRIE CANADA



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