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CPC-2-6-01  
(Provisional) Issue 3  
July 2008

Spectrum Management and Telecommunications

Client Procedures Circular

# **Procedure for the Submission of Applications to License Fixed Earth Stations and to Approve the Use of Foreign Fixed-satellite Service (FSS) Satellites in Canada**

## Preface

Client Procedures Circulars describe the various procedures or processes to be followed by the public when dealing with Industry Canada. The information contained in these circulars is subject to change without notice. It is therefore suggested that interested persons consult the nearest district office of Industry Canada for additional details. While every reasonable effort has been made to ensure accuracy, no warranty is expressed or implied. As well, these circulars have no status in law.

Comments and suggestions may be directed to the following address:

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Radiocommunications and  
Broadcasting Regulatory Branch  
300 Slater Street  
Ottawa, Ontario  
K1A 0C8

Attention: DOS

E-mail: [spectrum\\_pubs@ic.gc.ca](mailto:spectrum_pubs@ic.gc.ca)

All Spectrum Management and Telecommunications publications are available on the following website: <http://ic.gc.ca/spectrum>.

Industry Canada released a provisional version of this licence application procedure, Client Procedures Circular, *Procedure for the Submission of Applications to License Fixed Earth Stations and to Approve the Use of Foreign Fixed-satellite Service (FSS) Satellites in Canada* (CPC-2-6-01, Issue 1, Provisional), for consultation in November 1999. Comments received in response to the publication of this circular were supportive of the procedures introduced in the circular. The second issue of the circular was modified, however, to reflect the expiration of the Telesat monopoly, to add essential data elements that must be provided with an application, and to improve the clarity of some sections of the original circular.

This version, Issue 3, retains its provisional status pending departmental consideration of integrating the circular with a revision of the technical standards currently set out in Radio Standards Procedure, *Licence Application Procedure for Planned Earth Stations in Space Radiocommunication Services* (RSP-114), and Radio Standards Procedure, *Licence Application Procedure for Planned Television and/or Radio Receive Only (TVRO) Earth Stations in the Fixed-satellite Service* (RSP-116). Issue 3 has also been modified to update references to other Industry Canada documents, to remove the section of Issue 2 dealing with special treatment of Intelsat satellites, and to replace its Annex II, List of Approved FSS Satellites, with a link to the updated list maintained on Industry Canada's Spectrum Management and Telecommunications website.

This Client Procedures Circular is in effect from the date of posting on Industry Canada's website.

## Contents

<b>Introduction</b> .....	<b>1</b>
<b>Principles</b> .....	<b>1</b>
<b>Mandate</b> .....	<b>1</b>
<b>Licensing Policies</b> .....	<b>1</b>
<b>Licence Application Procedures and Processing</b> .....	<b>3</b>
<b>I. Application to License a Fixed Earth Station</b> .....	<b>4</b>
<b>II. Letter of Intent</b> .....	<b>5</b>
<b>Approval to Use a Foreign FSS Satellite</b> .....	<b>6</b>
<b>Mailing Instructions</b> .....	<b>6</b>
<b>Related Documents</b> .....	<b>6</b>
<b>Annex I - Table of FSS Frequency Bands Available for Use in Canada</b> .....	<b>8</b>
<b>Annex II - Coordination of Frequency Assignments</b> .....	<b>10</b>
<b>Annex III - Information Required to License a Fixed Earth Station</b> .....	<b>11</b>
<b>Annex IV - Information Required to Obtain Approval to Use a Foreign Space Station in the Fixed-satellite Service</b> .....	<b>15</b>

## Introduction

This circular describes the procedure to be used when submitting licence applications for fixed earth stations operating in any space radiocommunication service other than the mobile and amateur satellite services. This procedure replaces the licence application procedure and eligibility criteria set out in Radio Standards Procedure, *Licence Application Procedure for Planned Earth Stations in Space Radiocommunication Services* (RSP-114), and Radio Standards Procedure, *Licence Application Procedure for Planned Television and/or Radio Receive Only (TVRO) Earth Stations in the Fixed-satellite Service* (RSP-116)<sup>1</sup>.

In December 1998, Industry Canada released its Radio Systems Policy, *Policy Framework for the Provision of Fixed Satellite Services* (RP-008). By means of this policy framework, Canada liberalized many aspects of the provision of fixed-satellite service (FSS) communications in Canada. As a consequence of this liberalization and other related commitments made in the policy framework, many aspects of Industry Canada's existing radio licence application procedure for fixed earth stations required modification.

This circular describes an earth station licence application procedure that accommodates provisions in the policy framework with respect to the use of foreign FSS satellites. In carrying out the commitment to establish a procedure by which satellite operators may submit technical and administrative information on satellite stations to facilitate subsequent approvals of earth station licence applications, this circular also sets out a procedure to obtain approval for the use of foreign FSS satellites in the Canadian market.

## Principles

The radio frequency spectrum is a public resource to which all Canadians are entitled access. Industry Canada endeavours to provide this access with as little administrative burden to clients as possible, while ensuring the Department's ability to effectively manage the radio spectrum.

## Mandate

Section 5 of the *Radiocommunication Act* stipulates that the Minister of Industry may issue radio and spectrum licences, and fix terms and conditions of such licences in order to permit the operation of radio stations, or the use of radio spectrum in Canada.

## Licensing Policies

**Licensing Instrument:** The operation of fixed earth stations in Canada and the use of specific satellites will be authorized by means of radio licences. However, Industry Canada will soon consult with the public on the use of spectrum licences, to authorize the operation of fixed-satellite services in Canada.

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<sup>1</sup> The technical requirements for earth stations as set out in RSP-114 and RSP-116 will remain in effect.

**Term of Licence:** Radio licences expire on March 31 of each year and are renewable for a twelve-month period.

**Licence Exemptions:** No licence will be issued for broadcasting receive-only earth stations that are exempt from the licensing requirement pursuant to paragraph 4(1)(b) of the *Radiocommunication Act*. In addition, no radio authorization is required where receive-only earth stations providing telecommunications services meet the exemption criteria as low-power radio apparatus pursuant to RSS-Gen, *General Requirements and Information for the Certification of Radiocommunication Equipment, Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment* (RSS-210) and *Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category II Equipment* (RSS-310), and communicate with satellites that are approved for use in Canada.

The Department will consider applications to license these latter stations if protection is required from potential interference, or if coordination is required with other radio services or radio stations.

**Foreign Satellite News Gathering Earth Stations:** Foreign operators of satellite news gathering (SNG) earth stations are eligible to apply for short-term licences under this procedure. However, a reciprocal arrangement between the former Department of Communications and the Federal Communications Commission exists by which the Department recognizes SNG licences issued by the United States. American SNG operators are advised to consult with one of the Department's regional offices for procedures to obtain permission to operate while temporarily in Canada.

**Evaluation Criteria:** Applications to license a fixed earth station are evaluated against the following criteria:

**Eligibility to Hold Licences:** Licences for fixed earth stations may be issued, as appropriate, to eligible radiocommunication carriers, service providers or users. Applicants must comply with the eligibility criteria for holding radio licences as set out in section 10.1 of the *Radiocommunication Regulations*.

**Spectrum Allocation and Utilization Policies:** Applications to license fixed earth stations are evaluated to ensure compliance with Canadian spectrum allocation and utilization policies. Although many bands of frequencies are allocated internationally and domestically to various radiocommunication services, the Department has been licensing fixed earth stations in only some of these bands. Details of the frequency bands available for assignment are provided in Annex I of this document. The Department will consider opening additional frequency bands for licensing in the context of future public reviews of spectrum utilization policies.

**Use of Approved Satellite:** All fixed-satellite service earth stations must use a satellite that has been approved for use in Canada. Canadian satellites are approved for use by means of a licence issued in accordance with the procedure described in Client Procedures Circular, *Licensing of Space Stations* (CPC-2-6-02). The use of foreign satellites will be permitted where the satellite meets the main assessment criteria for satellites authorized by World Trade Organization (WTO) members, as specified in Annex D of Radio Systems Policy, *Policy Framework for the Provision of Fixed Satellite Services* (RP-008).

Applicants wishing to license fixed-satellite service earth stations that will use foreign satellites must demonstrate that the satellites will meet these criteria. In order to facilitate the licensing process for earth stations, foreign satellite operators or their representatives may find it beneficial to establish, in advance of the submission of earth station licence applications, that their satellite system meets these Canadian assessment criteria. To this end, a procedure for the submission of information to make such a determination is provided below.

Applications to license earth stations proposing to use a satellite that has already been approved for use following this procedure do not require this information. A list of satellites that have been approved for use in Canada is available on Industry Canada's [Spectrum Management and Telecommunications website](http://www.ic.gc.ca/epic/site/smt-gst.nsf/en/sf02104e.html) at <http://www.ic.gc.ca/epic/site/smt-gst.nsf/en/sf02104e.html>.

**Domestic and International Coordination:** Domestic coordination is carried out to show that operation of a proposed frequency assignment can be accommodated among previously established or other formally proposed Canadian frequency assignments. International coordination is carried out to protect the operation of proposed Canadian frequency assignments from frequency assignments in other countries. Information concerning coordination is provided in Annex II of this circular.

**Technical Acceptability:** Earth station radio apparatus must comply with the applicable Canadian technical requirements as specified in Radio Standards Procedure, *Licence Application Procedure for Planned Earth Stations in Space Radiocommunication Services* (RSP-114) or Radio Standards Procedure, *Licence Application Procedure for Planned Television and/or Radio Receive Only (TVRO) Earth Stations in the Fixed-satellite Service* (RSP-116).

**Safety Code 6, Land-Use and Public Consultation, Environmental Assessment and Aeronautical Safety:** Applicants must comply with the procedures, as outlined in CPC-2-0-03, *Radiocommunication and Broadcasting Antenna Systems*. Among other requirements, these procedures require that: (a) radio stations are installed and operated in a manner that complies with the limits of human exposure to radio frequency fields established by Health Canada; (b) prior to installation or modification of significant antenna structures, necessary consultation has taken place; (c) the installation and modification of radio stations are done in a manner that complies with the *Canadian Environmental Assessment Act*; and (d) proponents ensure that their proposals for any antenna are first reviewed by Transport Canada and NAV CANADA.

**Lawful Intercept Capability:** Industry Canada does not require that FSS providers provide lawful intercept capabilities. Applicants are nonetheless 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.

## **Licence Application Procedures and Processing**

This circular provides two approaches that an applicant may pursue to apply for a licence for an earth station.

The first approach is a one-step application involving the submission of complete information about the earth station. The Department recognizes that in some cases, considerable planning is involved prior to the establishment of an earth station, and that an applicant may wish to seek assurance from the department in advance that a licence can be issued or be informed of the conditions under which such a licence would be issued. To this end, an applicant may pursue the second approach and request an approval in principle with respect to the licensing of a proposed earth station by submitting a letter of intent to establish an earth station.

## **I. Application to License a Fixed Earth Station**

**Application for a New Licence.** An application to license an earth station may be submitted not earlier than two years before the expected in-service date of the station. A complete application consists of the following:

1. a certified technical brief containing the information about the earth station as listed in Annex III;<sup>2</sup>
2. information about the satellite(s), if not already approved, as listed in Annex IV;
3. a copy of the agreement between the applicant and the space station operator, or its representatives, that provides for access to the space station capacity or signals; and
4. the radio licence fee.

**Additional Information.** In some cases, Industry Canada may require the submission of additional information in order to complete the evaluation of an application.

**Transportable Earth Stations.** Applications to license transportable earth stations consist of the same information described above. However, licences for transportable earth stations may carry conditions of licence requiring subsequent departmental approval prior to relocation.

**Typical Earth Station.** Where the applicant expects to establish a significant number of the same type of earth station, such as very small aperture terminal (VSAT) networks, the applicant may wish to submit an application containing the particulars of the typical earth station to be deployed using Annex III as a guide. Under the typical earth station licensing approach, the licensing of additional similar stations would be facilitated by the submission of only the specific information that would be different for the additional earth stations to be licensed.

**Amendment to a Licence.** Any changes to the operation of an earth station, as described in the information submitted to obtain a licence, require approval by the Department prior to implementation. To apply for such an approval, a licensee must submit the information as described above for a new licence, with additional information that will identify the licence to be amended.

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<sup>2</sup> The information required as per sections 2 to 6 and 7.1 of Annex III must be certified by a person licensed by a provincial association or order of engineers.

**Departmental Response.** Industry Canada will evaluate an application and respond to the applicant within 45 days of receipt of a complete application. The response will reflect one of the following:

**Application Accepted.** Where the application is found acceptable, a radio licence for the station will be issued. In some cases, the issuance of a licence would be subject to the applicant's acceptance of conditions. In such cases, the applicant would be issued an approval in principle for the establishment of the station with the conditions that would apply to the authorization of the earth station. Where the applicant accepts such conditions, a licence would then be issued.

**Domestic Coordination Required.** If domestic coordination is required, the applicant will be advised of the requirement and will be given a list of other users with which to carry out coordination. Once completed, the applicant must forward the results of the coordination to Industry Canada. Should the technical parameters of the proposed station be modified as a result of the coordination, the applicant must submit the revised Annex III information. If requested by the Department, the applicant must also provide any relevant technical information relating to the coordination.

In order to expedite the processing of an application, an applicant may wish to initiate domestic coordination of the proposed frequency assignment in advance of submitting a radio licence application.

**International Coordination Required.** In cases where international coordination of the proposed station is required, the Department will initiate the process. However, if sufficient information is not available, or if the International Telecommunication Union (ITU) forms of notice are to be provided, the applicant will be advised.

**Additional Information.** Where a requirement for additional information is identified, the applicant will be advised.

**Application Denied.** If the application to obtain a licence is denied, the applicant will be advised with a reason given for the denial. To the extent possible, the Department will identify potential alternatives to satisfy the applicant's communication requirement. The applicant may then modify and resubmit its application based on the response received or request a reconsideration based on the presentation of new information or arguments.

**Public Information.** The Department's Technical and Administrative Frequency Lists (TAFL) are available to the public. The lists contain the technical parameters of most licensed Canadian earth stations, including fixed earth stations. The TAFL can be found on [Industry Canada's website](http://www.ic.gc.ca/epic/site/smt-gst.nsf/en/h_sf06018e.html) at [http://www.ic.gc.ca/epic/site/smt-gst.nsf/en/h\\_sf06018e.html](http://www.ic.gc.ca/epic/site/smt-gst.nsf/en/h_sf06018e.html).

## II. Letter of Intent

A letter of intent, requesting an approval in principle to establish an earth station, consists of the following:

1. information about the applicant and the earth station as listed in sections 1 and 2 of Annex III.

2. information about the satellite(s), if not already approved, as listed in Annex IV.

Within 30 days of receiving such a letter of intent, Industry Canada will respond to the applicant. Where the letter of intent is found acceptable, the applicant may receive an approval in principle for the establishment of the station, and the conditions that would apply to the authorization of the earth station. Where such an approval in principle is granted, the applicant will be invited to submit the remainder of the information to complete the application to license a fixed earth station. Once the remainder of the information is provided, the Department will assess the complete application and provide an appropriate response, as indicated in the above section.

### **Approval to Use a Foreign FSS Satellite**

To apply for approval for the use of foreign FSS satellites in the Canadian market, applicants such as satellite operators (or their representatives in Canada), radiocommunication carriers, service providers or users, may submit the information listed in Annex IV. Where the department is satisfied that the proposed satellite(s) meets all the criteria for usage in Canada, as described in the FSS policy framework, the Department will advise the applicant and add the particulars of the satellite to the list of approved FSS satellites.

No fee is charged for this submission of information or to add a satellite to the list of approved FSS satellites.

### **Mailing Instructions**

Unless alternate arrangements have been made with the Department, all inquiries or applications to license earth stations should be addressed to the appropriate regional office of Industry Canada.

Applications for approval to use a foreign space station must be submitted to:

Manager, Space Services - Authorization  
15<sup>th</sup> Floor, Jean Edmonds North Tower  
300 Slater Street  
Ottawa, Ontario  
Canada K1A 0C8

### **Related Documents**

Legislative and Regulatory Circular, *Radiocommunication Act* (RA)

Legislative and Regulatory Circular, *Radiocommunication Regulations* (RR)

*Canadian Table of Frequency Allocations*

Spectrum Utilization Policy, *Revisions to Microwave Spectrum Utilization Policies in the Range of 1-20 GHz* (SP 1-20 GHz), and associated revisions

Radio Systems Policy, *Policy Framework for the Provision of Fixed Satellite Services* (RP-008)

Client Procedures Circular, *Radiocommunication and Broadcasting Antenna Systems* (CPC-2-0-03)

Radio Standards Procedure, *Application Procedures for Planned Radio Stations above 960 MHz in the Fixed Service* (RSP-113)

Radio Standards Procedure, *Licence Application Procedure for Planned Earth Stations in Space Radiocommunication Services* (RSP-114)

Radio Standards Procedure, *Licence Application Procedure for Planned Television and/or Radio Receive Only (TVRO) Earth Stations in the Fixed-satellite Service* (RSP-116)

Radio Standards Specification (RSS-Gen), *General Requirements and Information for the Certification of Radiocommunication Equipment*

Radio Standards Specification, *Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment* (RSS-210)

Radio Standards Specification, *Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category II Equipment* (RSS-310)

Radiocommunication Information Circular, *Addresses and Telephone Numbers of Regional and District Offices* (RIC-66)

Telecommunications Regulation Circular, *Notes Regarding Designation of Emission (Including Necessary Bandwidth and Classification), Class of Station and Nature of Service* (TRC-43)

Telecom Decision CRTC 98-17, *Regulatory Regime for the Provision of International Telecommunications Services*

Health Canada Safety Code 6, *Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz*

**Annex I - Table of FSS Frequency Bands Available for Use in Canada**

Frequency Band	Canadian Utilization	Coordination Requirements	Notes
<b>C</b> 3700-4200 MHz 5925-6425 MHz	FS and FSS (space-to-Earth) FS and FSS (Earth-to-space)	Domestic and international Domestic and international	
<b>Ku</b> 10.95-11.2 GHz 11.45-11.7 GHz 11.7-12.2 GHz 13.75-14.0 GHz 14.0-14.5 GHz	FS and FSS (space-to-Earth) FS and FSS (space-to-Earth) FSS (space-to-Earth) FSS (Earth-to-space) and Radiolocation FSS (Earth-to-space)	Domestic and international Domestic and international International Domestic and international International	See the <i>Canadian Table of Frequency Allocations</i> and SP 3-30 See the <i>Canadian Table of Frequency Allocations</i> and SP 3-30 International coordination required only if the coordination area extends into St. Pierre and Miquelon or Greenland See the <i>Canadian Table of Frequency Allocations</i> and SP 3-30 International coordination required only if the coordination area extends into St. Pierre and Miquelon or Greenland
<b>Ka</b> 19.7-20.2 GHz 18.3-18.8 GHz 17.8-18.3 GHz 29.5-30.0 GHz 29.25-29.5 GHz 28.35-28.6 GHz 27.5-28.35 GHz	FSS (space-to-Earth) FSS (space-to-Earth) Also see the <i>Canadian Table of Frequency Allocations</i> and SP 3-30 FSS (Earth-to-space) FSS (Earth-to-space) Also see the <i>Canadian Table of Frequency Allocations</i> and SP 3-30	International Domestic and international International Domestic and international	

<b>For Government of Canada use only</b>			
<b>Frequency Band</b>	<b>Canadian Utilization</b>	<b>Coordination Requirements</b>	<b>Notes</b>
7250-7750 MHz	FSS (space-to-Earth)	Domestic and international	See footnote C49 of the <i>Canadian Table of Frequency Allocations</i>
7900-8400 MHz	FSS (Earth-to-space)	Domestic and international	
20.2-21.2 GHz	FSS (space-to-Earth)	Domestic and international	
30.0-31.0 GHz	FSS (Earth-to-space)	Domestic and international	
39.5-40.5 GHz	FSS (space-to-Earth)	Domestic and international	

## Annex II - Coordination of Frequency Assignments

1. There are two distinct areas of frequency coordination, namely domestic, which is undertaken by the applicant, and international, which is undertaken by Industry Canada.
2. Domestic coordination of earth station frequency assignments shall be undertaken by the applicant with operators of existing and formally proposed terrestrial stations in other radiocommunication services or earth stations operating in the opposite direction of transmission that are located within the coordination area. These operators are identified by the Department using the appropriate procedures established by the International Telecommunication Union (ITU). In the coordination process, frequency growth plans of fixed terrestrial stations that have been provided to the Department in addition to the actual frequency assignments in use or formally proposed under Radio Standards Procedure, *Application Procedures for Planned Radio Stations above 960 MHz in the Fixed Service* (RSP-113), will be taken into consideration.
3. Applicants attempting domestic coordination of frequency assignments in advance of submitting an application are advised that the coordination area for an earth station must be determined in accordance with the appropriate methods established by the ITU. Industry Canada's Technical and Administrative Frequency Lists (TAFL), which contain the technical parameters of most licensed Canadian radio stations, can be found at [Industry Canada's website](http://spectrum.ic.gc.ca/tafl/tafindxe.html) at <http://spectrum.ic.gc.ca/tafl/tafindxe.html>. The results of such coordination efforts should be included in the application.
4. The criteria for determining the need for domestic coordination are established in the relevant Recommendations of the ITU-R. Notwithstanding these criteria, alternative criteria which are mutually agreeable to the parties concerned may be used.
5. The procedures for international coordination are established by the ITU. Such coordination is required where space, earth or terrestrial stations of other administrations might be affected. The criteria to be used in determining whether coordination is necessary are established in Appendices 5 and 7 of the ITU *Radio Regulations*. Upon completion of any required international coordination, frequency assignments to earth stations may, at Industry Canada's discretion, be notified to the Radiocommunication Bureau of the ITU so that they may be entered in the Master International Frequency Register.
6. For the fixed-satellite service, international coordination with other satellite networks may be unnecessary for the majority of newly proposed earth stations which are to operate within Canada and which meet as a minimum the standard technical characteristics given in Radio Standards Procedure, *Licence Application Procedure for Planned Earth Stations in Space Radiocommunication Services* (RSP-114), or Radio Standards Procedure, *Licence Application Procedure for Planned Television and/or Radio Receive Only (TVRO) Earth Stations in the Fixed-satellite Service* (RSP-116). Therefore, the Department will not seek international inter-space-network coordination of such "conforming" earth stations.

### **Annex III - Information Required to License a Fixed Earth Station**

#### **1. Applicant Information**

- 1.1 Give the full name and address of the applicant, as well as a contact name, telephone number, facsimile number, and e-mail address.
- 1.2 Where applicable, provide a copy of the certificate of incorporation for the applicant. This is not required if the applicant has already submitted a copy to the Department in support of an application to license other earth stations, and if the information remains valid.
- 1.3 Provide a copy of the licence, if applicable, from the Canadian Radio-television and Telecommunications Commission (CRTC) for international service providers and broadcasting undertakings.

#### **2. General Information on Station**

- 2.1 Identify the location of the earth station site.
- 2.2 Give the geographical coordinates (latitude and longitude) of the earth station site in degrees, minutes and seconds to an accuracy of one second. Also give the site elevation in metres above mean sea level.
- 2.3 Indicate the anticipated date of bringing into use of the station, or the effective date of modifications to an existing station.
- 2.4 Indicate the class of station and nature of service using the symbols described in the Telecommunications Regulation Circular, *Notes Regarding Designation of Emission (Including Necessary Bandwidth and Classification), Class of Station and Nature of Service* (TRC-43). Describe the nature of the service to be provided and the type of traffic to be carried by this station.
- 2.5 Describe the relationship between the applicant and users of the radio equipment, and indicate any interconnection of the earth station with public switched networks.
- 2.6 Indicate the name and location of any other earth station with which communications will be carried out, as well as the points of origin and destination of traffic within the applicant's overall communications system.
- 2.7 For stations operating in bands requiring coordination, and where the applicant has attempted such coordination, the applicant should indicate: the method used to determine the parties with which coordination was undertaken; the parties with which coordination was undertaken; and any results of the coordination effort.

- 2.8 Identify the space station(s) with which communications will be established. Indicate whether the satellite is included on the list of approved space stations.

### **3. Antenna Information**

- 3.1 Indicate the diameter of the antenna (in metres), and the isotropic (or absolute) gain of the antenna (in dBi) in the direction of maximum radiation for each of the transmit and receive frequency bands.
- 3.2 Attach the measured radiation diagram of the antenna (taking as a reference the direction of maximum radiation) for each band of operation.
- 3.3 Where the earth station requires coordination with other domestic or international radiocommunication stations, indicate graphically the horizon elevation angle (in degrees) for each azimuth around the earth station starting from True North, or indicate that a default horizon profile of zero degrees in all directions applies.
- 3.4 Indicate the operating elevation angle (in degrees) of the antenna from the horizontal plane in the direction of the satellite. Where a range in elevation angles is expected, provide the upper and lower elevation angle limits.
- 3.5 Indicate the operating azimuthal angle (in degrees), clockwise from True North, in the direction of the satellite. Where a range in azimuthal angles is expected, provide the upper and lower azimuthal angle limits.
- 3.6 Indicate the height (in metres) of the antenna centre above ground level.

### **4. Information Related to Transmitting Earth Stations**

- 4.1 Indicate the carrier frequency or frequencies (in MHz) of the emission(s).
- 4.2 For each carrier, indicate the necessary bandwidth and class of emission using the International Telecommunication Union (ITU) designators.
- 4.3 Indicate the type of polarization of the transmitted wave in the direction of maximum radiation; also indicate the direction in the case of circular polarization and the plane in the case of linear polarization.
- 4.4 Indicate for each carrier the peak envelope power (dBW) and the maximum power density in dB (W/Hz) supplied to the input of the antenna averaged over the worst 4 kHz band for carriers below 15 GHz, or averaged over the worst 1 MHz band for carriers above 15 GHz.

4.5 Indicate for each carrier:

- 4.5.1 Where the carrier is frequency modulated by a frequency division multi-channel telephony baseband, the number of voice channels carried.
- 4.5.2 Where the carrier is modulated by an analog television signal, the necessary bandwidth of the modulated carrier and the number of associated sound channels carried.
- 4.5.3 Where the carrier is modulated by more than one analog sound channel, the number of sound channels carried.
- 4.5.4 Where the carrier is digitally modulated, the type of modulation, the number of phases and the modulated bit rate (data rate plus any bits added as a result, for example, of coding and error correction).
- 4.5.5 For all other types of modulation, provide such particulars as may be useful for an interference study.

**5. Information Related to Receiving Earth Stations**

- 5.1 Indicate the carrier frequency or frequencies (in MHz) of the signals to be received.
- 5.2 For each received carrier, indicate the necessary bandwidth and class of emission using the ITU designators.
- 5.3 Indicate the type of polarization of the received wave in the direction of maximum gain; also indicate the direction in the case of circular polarization and the plane in the case of linear polarization.
- 5.4 Where different from the transmitting station, indicate for each carrier received:
  - 5.4.1 Where the carrier is frequency modulated by a frequency division multi-channel telephony baseband, the number of telephone channels carried.
  - 5.4.2 Where the carrier is modulated by an analog television signal, the necessary bandwidth and the number of associated audio channels carried.
  - 5.4.3 Where the carrier is modulated by more than one analog sound channel, the number of sound channels carried.
  - 5.4.4 Where the carrier is digitally modulated, the number of phases and the modulated bit rate (data rate plus any bits added as a result of, for example, coding).
- 5.5 Where the receiving earth station will use radio frequency bands that are shared with stations in other radiocommunication services or that are used by earth stations operating in the opposite direction of transmission, indicate, in degrees Kelvin, the lowest total receiving system noise

temperature referred to the output of the receiving antenna of the earth station under “quiet sky conditions.” This value shall be indicated for the nominal value of the angle of elevation when the associated transmitting station is aboard a geostationary satellite and, in other cases, for the minimum value of angle of elevation.

## **6. Other Information**

6.1 Provide any other information which may assist Industry Canada in the evaluation of the proposal.

## **7. Attestations**

7.1 Provide an attestation that the earth station radio equipment will meet all technical requirements as specified in RSP-114 or RSP-116, as appropriate, and that the earth station radio equipment complies with Safety Code 6.

7.2 Provide an attestation that the applicant is or will be compliant with the procedures outlined in CPC-2-0-03, *Radiocommunication and Broadcasting Antenna Systems*.

## **Annex IV - Information Required to Obtain Approval to Use a Foreign Space Station in the Fixed-satellite Service**

### **1. Applicant**

- 1.1 Give the full name and address of the applicant, as well as a contact name, telephone number, facsimile number, and e-mail address.
- 1.2 Describe the nature of the relationship between the applicant and the satellite operator.

### **2. Satellite**

- 2.1 Give the name of the satellite and the satellite operator. Include the name of the satellite as notified to the ITU, as well as the commercial name of the satellite.
- 2.2 Indicate the remaining life expectancy of the satellite.
- 2.3 Name the administration responsible for the satellite and indicate whether the administration is a member of the World Trade Organization (WTO).
- 2.4 Give the dates that the administration coordinated and notified the satellite network, in its current or proposed operating condition, to the International Telecommunication Union (ITU), and provide the ITU special section reference number and publication date for both filings. If the satellite network has not yet been notified or if the notice is not yet published, provide a list of administrations with which coordination is required and information describing the status of coordination for each of these administrations.
- 2.5 For geostationary orbit satellites, provide the orbital position of the satellite in degrees West longitude.
- 2.6 For non-geostationary orbit satellites, provide the number of orbital planes, the number of satellites in each orbital plane, the angle of inclination of each orbit, and the altitudes (in kilometres) of the apogee and perigee of the satellites.
- 2.7 Describe the extent and nature of the satellite coverage in Canada. Include coverage maps if necessary.
- 2.8 List the frequency bands that will be used by the satellite, and indicate which bands the associated earth station(s) will use in Canada.
- 2.9 Describe the types of services to be provided in Canada.

### **3. Typical Earth Stations**

- 3.1 Provide the parameters of typical earth stations that will operate in Canada. This information is not required if the satellite information is submitted in support of an application to license specific earth stations only.