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Issue 4
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Spectrum Management and Telecommunications

Radio Systems Policy

Policy Framework for Fixed-Satellite Service (FSS) and Broadcasting-Satellite Service (BSS)

Aussi disponible en français – PR-008

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Contents

1. Introduction

Innovation, Science and Economic Development Canada's (ISED) *Policy Framework for the Provision of Fixed Satellite Services* was first published in 1998, following a consultation to implement Canada's obligations under the World Trade Organization Agreement on Basic Telecommunications. The policy framework was revised in:

- 2005: to incorporate a revision to the federal government's satellite-use policy to permit the use of specialized foreign satellites for direct reception of broadcasting services by the public;
- 2006: to state that comparative review processes would be used to assign fixed-satellite service (FSS) and broadcasting-satellite (BSS) licences;
- 2013: to expand the scope to include BSS; implement the first-come, first-served (FCFS) licensing process; and reflect the removal of restrictions on ownership and control of Canadian satellite carriers effected though the changes to the *Telecommunications Act*.

This 2017 revision incorporates changes to the licensing rules to reflect the increasing commercial deployment of non-geostationary satellite orbit (NGSO) systems.

2. Policy objectives

In fulfilling its spectrum management mandate, ISED's policy objective is to maximize the economic and social benefits that Canadians derive from the use of the radio frequency spectrum resource. In licensing satellites, ISED is also guided by the objective of ensuring that Canadian satellite users (e.g. broadcasters, government institutions and telecommunications firms) have access to the satellite capacity that they need to carry out their respective functions, and to ensure that services are available throughout Canada, including the North. These objectives are furthered through the imposition of licensing rules and conditions, including those related to national coverage and the availability of sufficient capacity for Canadian use.

3. Policy framework for Canadian FSS and BSS satellites

3.1 General

This policy framework addresses the licensing of spectrum allocated to FSS and BSS in the International Telecommunication Union's (ITU) *Radio Regulations* and in the *Canadian Table of Frequency Allocations* and used by geostationary orbit satellites (GSO) and non-geostationary satellite orbit (NGSO) systems. This policy framework does not apply to mobile satellite services (MSS), except to the extent that Canadian networks use FSS spectrum to support the provision of mobile satellite services.[1] As the provision of telecommunications and broadcasting services in Canada is subject to the *Telecommunications Act* and the *Broadcasting Act*, satellite operators could also be subject to regulation by the Canadian Radio-television and Telecommunications Commission (CRTC).

[1] See RP-007, *Policy Framework for the Provision of Mobile Satellite Service Via Regional and Global Satellite Systems in the Canadian Market,* revision 2, published March 1999.

3.2 Licensing of Canadian FSS and BSS satellite spectrum

3.2.1 FSS and BSS spectrum available

The Canadian Table of Frequency Allocations (2015 edition) allocates many bands of spectrum for fixed and broadcasting satellite services. Specific requirements for different bands or services may be established in the future. Until such time as these service rules are in place, ISED requires that applications for commercial use of FSS and BSS satellite spectrum request entire sub-bands, as identified in annex A. If the sub-band is not identified in annex A, applications requesting only part of the bands identified in the Canadian Table of Frequency Allocations will be assessed on a case-by-case basis.

Requests to use spectrum that is limited to use only by the Government of Canada must be supported by the Department of National Defence.

3.2.2 Treatment of licence applications

ISED will consider applications from prospective satellite operators that are ready to use the spectrum at the requested GSO orbital positions or NGSO orbits on a first-come, first-served basis. As the FCFS process could be subject to abuse where a competing demand for licences exist, ISED has implemented safeguard measures to help ensure that spectrum is assigned only to applicants that are, in fact, ready to use the spectrum.

ISED's Client Procedure Circular 2-6-02, *Licensing of Space Stations*, sets out the application information requirements, and the processing and treatment of applications, as well as post-authorization procedures for Canadian satellite authorizations.

3.2.3 Requirements and assessment criteria

Eligibility to hold licences — The applicant must be an entity that is eligible to hold a licence under the *Radiocommunication Act* and *Radiocommunication Regulations* as a radiocommunication user or service provider, as appropriate.

Canadian direction and control — The licensee must have direction and control over the licensed satellite system , which may be achieved directly by the licensees or by way of contractual control as outlined in CPC 2-6-02

For GSO satellites, control facilities may be located outside of Canada, with certain additional requirements as outlined in CPC 2-6-02.

For NGSO systems, primary control facilities and network operations centre must be located in Canada.

Regulatory requirements — The operations of the satellite system must comply with regulatory requirements and spectrum utilization policies, specifically with the ITU's *Radio Regulations* and with Canadian spectrum allocation and spectrum utilization policies. For services provided outside of Canada, applicants will not be required to comply with Canadian spectrum policies.

Canadian coverage and capacity — ISED remains committed to requiring Canadian coverage for satellite networks positioned between and including 70°W and 130°W of the geostationary arc (the "Canadian arc"), and considers coverage to include the concepts of area, signal strength and capacity. ISED recognizes the significant economic costs of maintaining coverage to all regions of Canada in the absence of market demand, and is therefore implementing the following approach.

For any GSO satellite to be positioned between (and including) 70°W and 130°W, operators will be required to cover the entire Canadian territory visible from the orbital position, as defined in CPC-2-6-02. Operators must reserve 50% of the satellite capacity for use by Canadians for a minimum period of six months from licence issuance, during which time ISED will expect a reasonable effort be made to market the capacity to Canadian users.

For commercial NGSO BSS satellite systems and NGSO FSS satellite systems designed for the provision of real-time service to end users, the system must be capable of providing uninterrupted service (24 hours per day, 7 days per week) anywhere within the Canadian territory. For these types of systems, ISED will only license those that meet this requirement. The determination of whether a proposed constellation meets the coverage requirement will be based on the proposed system's orbital parameters and signal strength. Applications that do not meet these requirements will be denied.

For GSO systems, ISED may grant a waiver from the coverage requirement, under exceptional circumstances or if the operator can demonstrate that Canadian needs will be met, as follows: (a) there is adequate capacity on existing Canadian satellites to meet known demand; (b) Canadian customers are not ready to commit to purchase; and (c) there are other opportunities on future licensed satellites for Canadians to obtain capacity. If a waiver is granted, the licence would specifically exclude those areas, and other operators may apply for and obtain a licence to serve those areas, subject to coordinating their use of the spectrum. ISED expects licensed operators to coordinate with future applicants that wish to provide complementary coverage allowing for the provision of services in Canada, unless they can demonstrate that it is technically not possible to do so.

ISED finds that this approach to coverage and capacity for use in Canada is a reasonable measure that provides a meaningful opportunity for Canadian users to acquire Canadian FSS and BSS capacity. It also provides flexibility for Canadian operators to pursue other markets if there is no Canadian demand.

Technical plans — ISED will assess technical plans to ensure: (a) compliance with applicable ITU technical requirements; (b) compliance with Canadian coverage requirements; and (c) minimum spectrum efficiency.

Space debris mitigation — All licensees must implement measures to mitigate the possibility of orbital debris. Space debris mitigation plans will be assessed at the time of application.

GSO satellites must be de-orbited in accordance with Recommendation ITU–R S.1003-2, *Environmental Protection of the Geostationary Satellite Orbit.* NGSO satellites must be de-orbited in accordance with the guidelines issued by the Inter-Agency Space Debris Coordination Committee, including the requirement for the satellite(s) to de-orbit within 25 years of end of operational life.

3.2.4 Post-authorization obligations

In addition to the above requirements, which are both assessed at the time of application and also carry over as licence obligations, the following obligations are imposed as conditions of licence for FSS/BSS spectrum.

Satellite coordination — The satellite network must be successfully coordinated and notified via the appropriate ITU procedures and regulations, as well as coordinated with other potentially affected Canadian satellites and terrestrial networks, prior to launch. Satellite operators must maintain a valid ITU filing associated with the licensed satellite system at all times and must participate, on an ongoing basis and at their own expense, in coordination activities with a view to protecting its network and fulfilling ITU obligations. In the event that coordination cannot be successfully completed between licensees, ISED may impose the implementation of mitigation techniques. The licensee must ensure that the operation of its satellite network complies with all such measures imposed.

Satellite implementation milestones — ISED expects that it will receive applications with well-developed plans for the use of the spectrum at the requested GSO orbital positions or NGSO orbits. ISED has established a five-year time frame for GSO satellites and a nine-year time frame for commercial NGSO systems, with predetermined milestones for the implementation of satellite projects. Strictly enforced milestones are intended to ensure that licensees make diligent and timely progress in the construction and implementation of their satellites and in the provision of services.

Adherence to these milestones, demonstrated through progress in construction and the launch of a satellite(s), will help to ensure that valuable spectrum is not held by licensees that are unable or unwilling to proceed with their plans. ISED will strictly enforce the established milestones and does not anticipate granting milestone extensions in the absence of extraordinary circumstances. ISED does not consider that failure to secure a customer is an acceptable reason to extend milestone deadlines. Where milestones have been missed and have not been extended, ISED will initiate a revocation process aimed at making the spectrum available for others.

Public benefit obligation — ISED remains committed to the objective of helping to ensure that Canadian satellite users have access to the satellite capacity that they need, and that services are available throughout Canada. In balancing this objective with the need to minimize the regulatory and administrative burdens placed on licensees, the public benefit condition of licence will remain in place for future FSS and BSS satellites, but at a reduced level of 0.5% of adjusted gross revenue for the particular satellite. The public benefit conditions of licence that are set out in existing licences, under which satellites are operational at the time of publication of this document, will continue to apply as they are currently written.

3.2.5 Use of spectrum outside Canada

Canadian authorizations for space stations should not be construed in any way as giving the licensee any rights to operate earth stations, nor to otherwise provide satellite services in any country other than Canada. Should any party intend to operate earth stations or to provide satellite services outside of Canada using the proposed space station, ISED recommends that the party consult with the appropriate regulatory authorities of the administrations concerned.

3.2.6 Filing outside the Canadian arc

ISED will submit ITU filings and process applications for satellite spectrum at orbital positions outside of the Canadian arc. In such cases, applicants must have at least one operational satellite providing services throughout Canada.

All elements of the licensing regime will apply to these filings and applications, with the exception of compliance with Canadian spectrum utilization policies and national coverage requirements.

3.2.7 Satellite use policy to accommodate broadcasting services to the Canadian public

A policy statement concerning the use of Canadian satellite facilities, as it applies to broadcasting undertakings, is set out in a 2005 collaborative statement issued jointly by ISED and Canadian Heritage. For the full text of the statement, see annex B.

3.3 Foreign authorized space stations by WTO members

3.3.1 General

In keeping with the 1998 and 2005 frameworks, foreign-owned and controlled space stations continue to be permitted to provide domestic and international service. The primary mechanism to ensure compliance with the policy provisions contained in this document is via the earth station licensing process.

ISED's Client Procedure Circular 2-6-01, *Procedure for the Submission of Applications to License Fixed Earth Stations and to Approve the Use of Foreign Satellites in Canada*, describes the earth station licence application procedure that accommodates the use of foreign FSS satellites. This circular also sets out a procedure to obtain approval for the use of foreign FSS satellites in the Canadian market.

3.3.2 Assessment criteria

ISED may approve requests to use non-Canadian satellites that have been authorized by WTO members. Such requests will be assessed on a case-by-case basis to ensure that the satellite system:

- has been authorized by a WTO member administration;
- complies with Canadian spectrum policy requirements, particularly with respect to frequency allocations, utilization and efficiency, and orderly deployment and coexistence with other radio services and stations authorized for use in the same and adjacent frequency bands; and
- has been successfully coordinated and notified via the appropriate ITU procedures and regulations. If coordination has been completed with Canadian networks that have an earlier date of receipt at the ITU, but not with other foreign networks, approval may be granted subject to no interference, no protection with respect to those networks.

3.4 Foreign authorized space stations by non-WTO members

ISED may consider, on a case-by-case basis, requests to use non-Canadian satellites which have been authorized by a non-WTO administration.

3.5 Powers of the Minister

Notwithstanding any of the above, the Minister may amend any of the terms and conditions of the licence, and has full discretion to issue or refuse to issue a spectrum or radio licence in Canada. Furthermore, ISED makes no representations or warranties about the use of licensed spectrum for particular services, (or about whether the use of the spectrum will be successfully coordinated). A licence from ISED does not constitute an endorsement of any particular service, technology or product, nor does a spectrum licence constitute a guarantee of business success.

4. Related documents

All Spectrum Management and Telecommunications publications are available on the official publications section of its website.

SMSE-006-13	*Decisions on the Licensing Framework for Fixed-Satellite Service (FSS) and Broadcasting-Satellite Service (BSS), Implications for Other Satellite Services in Canada, and Revised Fee Proposal*
SMSE-015-17	*Decisions on the Licensing Framework for Non-Geostationary Satellite Orbit (NGSO) Systems and Clarification of Application Procedures for All Satellite Licence Applications*
RP-007	*Policy Framework for the Provision of Mobile Satellite Service Via Regional and Global Satellite Systems in the Canadian Market*
CPC-2-6-01	*Procedure for the Submission of Applications to License Fixed Earth Stations and to Approve the Use of Foreign Satellites in Canada*
CPC-2-6-02	*Licensing of Space Stations*
CPC-2-6-06	*Guidelines for the Submission of Applications to Provide Mobile Satellite Services in Canada*
	Canadian Table of Frequency Allocations 9 kHz to 275 GHz -
	ITU *Radio Regulations*

SP 3-30 GHz *Revisions to Spectrum Utilization Policies in the 3-30 GHz Frequency Range and Further Consultation*

SP 1-3 GHz *Amendments to the Microwave Spectrum Utilization Policies in the 1-3 GHz Frequency Range*

Radiocommunication Regulations

Radiocommunication Act

Annex A – List of sub-bands of FSS and BSS spectrum

Bands		Sub-bands	
		Space-to-earth	**Earth-to-space**
FSS	C	3700-4200 MHz	5925-6425 MHz
	Extended Ka	17.7-18.3 GHz	27.5-28.35 GHz
		18.3-18.8 GHz	28.35-28.6 GHz /29.25-29.5 GHz
	Ka	19.7-20.2 GHz	29.5-30.0 GHz
	Ku	11.7-12.2 GHz	14.0-14.5 GHz
	Extended Ku	10.95-11.2 GHz/11.45-11.7 GHz	13.75-14.0 GHz
		10.7-10.95 GHz/11.2-11.45 GHz	12.75-13.25 GHz
	Other Ka	18.8-19.3 GHz	28.6-29.1 GHz
	X	7250-7750 MHz	7900-8400 MHz
	V*	37.5-38.5 GHz	42.5-43.5GHz
		38.5-40.5 GHz	47.2-49.2 GHz
		40.5-42.5 GHz	49.2-50.2 GHz / 50.4-51.4 GHz
BSS	Ku	12.2-12.7 GHz	17.3-17.8 GHz
	Ka	17.3-17.8 GHz	24.75-25.25 GHz
	V	40.5-42.5 GHz	47.2-49.2 GHz

*These band pairings may be revised following consultation with stakeholders.

Annex B – Statement on the utilization of fixed-satellite services facilities for broadcasting services

As of March 1, 2000, Canada's commitments to the WTO Agreement on Basic Telecommunications services provide full flexibility in the use of fixed-satellite facilities for the transport of telecommunications services within Canada and between Canada and the United States. This includes the transport of broadcasting services such as, the transport of program feeds for news gathering, delivery of network programs to affiliates, and the delivery of programming services to distribution undertakings.

Existing rights of the Government of Canada and the Canadian Radio-television and Telecommunications Commission (CRTC) to regulate Canadian satellite facilities are not affected.

The telecommunications services covered by the agreement exclude "telecommunications services supplied for the transmission of services regulated under the Broadcasting Act where such services are intended for direct reception by the public." More specifically, direct-to-home (DTH) broadcasting services whether they use fixed-satellites or direct-broadcasting satellites (DBS) are excluded from this agreement.

In 1995, the Government of Canada clarified its satellite-use policy to the CRTC in the context of direct-to-home (DTH) satellite broadcasting distribution. The policy did not contemplate situations where Canadian satellite(s) would not be available to accommodate a particular broadcasting service. In 2004, in response to a request from the CRTC, the government carried out a public consultation that proposed changes to the policy which would permit expanded use of foreign satellites in exceptional cases.

Effective September 26, 2005, the government amended its satellite-use policy to permit the use of foreign specialized satellite facilities for the transmission of Canadian subscription satellite radio services. In this context, where a Canadian broadcasting undertaking wishes to use foreign satellite facilities, the Canadian policy concerning the use of satellite facilities for direct reception of broadcasting services by the public should now be interpreted as follows:

(i) The undertaking should make use of Canadian satellite facilities to carry (i.e. receive and/or distribute to Canadians) all Canadian programming services but may use either Canadian or non-Canadian satellite facilities to carry foreign originated services that are intended primarily for foreign audiences and are authorized, in whole or in part, for distribution by the CRTC;

(ii) In exceptional circumstances, where no Canadian satellite facilities are available to accommodate specialized satellite delivery of a digital satellite subscription radio service to the public, including vehicular reception, the use of foreign satellite facilities is permitted to provide Canadian programming services; and

(iii) In the case of emergencies leading to lack of availability of Canadian satellite facilities for broadcasting undertakings, back-up arrangements with foreign satellite operators could be utilized, on an interim basis, with appropriate authorization.

Note: Specialized satellite delivery in the context of provision (ii) is meant to differentiate unique satellite transmission/reception, such as for vehicular reception, not achievable by conventional Canadian satellite facilities used for DTH, e.g. direct broadcast satellite and fixed satellite in the 12 GHz range.

In the case of a pay-per-view or multi-channel direct-to-home (DTH) undertaking using either fixed-satellites or direct broadcasting satellites (DBS), the Canadian component would be carried on Canadian satellites while the foreign component could use either Canadian or foreign satellites.

This policy statement is the result of collaboration between Industry Canada[2] and Canadian Heritage, following a public consultation on proposed amendments to the policy. Effective September 26, 2005, this policy supersedes the clarification provided to the CRTC on June 14, 1995, which was signed by the Deputy Minister of Industry Canada and the Deputy Minister of Canadian Heritage.

[2] The name of the Department at the time of signature was Industry Canada.