Radio Amateurs of Canada
Radio Amateurs du Canada
Member Society of the International Amateur Radio Union

October 2, 2021

Re: Consultation on Updates to the Licensing and Fee Framework for Earth Stations and Space Stations in Canada (SMSE-009-21), dated August 4, 2021, and published in the Canada Gazette, Part I, Volume 155, Number 33 (August 14, 2021)

Radio Amateurs of Canada Inc. is a non-profit membership organization representing the interests of amateur radio operators in Canada. The responses to the questions in the consultation document were prepared solely with respect to their application to the amateur and amateur-satellite services. We do not intend these comments to be taken to apply to the commercial and professional services that are the primary subjects of the consultation.

Background

The ITU Radio Regulations (RR) define the amateur-satellite service as "a radiocommunication service using space stations on earth satellites for the same purposes as those of the amateur service." There are international frequency allocations for the amateur-satellite service, all of which are shared with the amateur radio service; that is, amateur-satellite service stations use frequencies that are available for general use by radio amateurs either worldwide, or in some cases, in one or two of the three ITU regions. The RR rules for the amateur-satellite service are the same as the rules for the amateur radio service, except for an allowance to permit encryption of control signals between earth command stations and space stations (RR Article 25.2A – apart from this exemption, encryption is not allowed in the amateur radio service), and a requirement for sufficient earth command stations to ensure the ability to terminate transmissions from a space station in the event of interference (RR Article 25.11).

The *Radiocommunication Regulations* (the Regulations) do not define or mention the amateur-satellite service. There are frequency allocations for the amateur-satellite service in the *Canadian Table of Frequency Allocations*, taken directly from the allocations in the ITU RR, but there have been no rules published for the use of these frequencies by the amateur-satellite service. SRSP-101, *Technical Requirements for Fixed Earth Stations Operating Above 1 GHz in Space Radiocommunication Services and Earth Stations on board Vessels (ESVs) Operating in the Fixed-Satellite Service*, explicitly excludes the amateur-satellite service from its scope (Section 1, first sentence). There is no mention of the amateur-satellite service in the procedures for applications for licences for earth stations and space stations in other satellite services (CPC 2-6-01 and CPC 2-6-02).

In April 2000, the amateur radio service in Canada was exempted from station licensing (Regulations section 15.3). There is no mention of amateur satellites or the amateur-satellite service in discussion paper DGRB-004-99 nor in Canada Gazette Notice SOR/2000-78, which announced the amendments to the rules for the amateur radio service to exempt it from licensing.

There are no requirements for equipment certification in the amateur radio service. The only requirement is that the person operating the equipment hold an amateur radio operator certificate listed in Section 42 of the Regulations, and that the equipment be operated in accordance with the Regulations including the requirements in RBR-4, *Standards for the Operation of Radio Stations in the Amateur Radio Service*, which is referenced in Section 45 of the Regulations. There is no mention of the amateur-satellite service or amateur satellites in RBR-4 other than incidentally in footnotes adopted verbatim from footnotes in the ITU RR table of frequency allocations.

Amateur radio operator certificates are issued to individual persons, not to corporations or other entities. Section 9 of the Regulations, which sets out the eligibility requirements for holders of radio licences and spectrum licences, explicitly excludes the amateur radio service from its provisions. The qualification requirements for operators of equipment in the amateur radio service are set out in Section 42 of the Regulations.

Paragraph 47(a) of the Regulations, which prohibits Canadian amateurs from communicating with stations in services other than the amateur radio service, does not mention the amateur-satellite service. Paragraph 47(b), which prohibits the use of encryption in the amateur radio service, is lacking an exemption from this prohibition similar to that in Article 25.2A of the ITU RR for earth stations performing control functions for a space station in the amateur-satellite service. These omissions lead to difficulties in the authorization process for space stations and earth stations in the amateur and amateur-satellite services.

Responses to Questions

Q1

ISED is seeking comments on its proposals to:

a. use spectrum licences to authorize fixed and transportable earth stations and ESIMs within Canadian territory, with multiple earth stations authorized under a single licence

b. issue the proposed spectrum licences for a Tier 1 service area, and have those licences authorize the radio service and frequency bands

c. apply the general conditions of licence that are listed in annex A to earth station spectrum licences

Q1a. We propose that any requirement for licences for earth stations in the amateur-satellite service, regardless of whether they are spectrum licences or station licences, should be confined to earth stations performing control functions only, and not to earth stations that do not perform such control functions. Canadian amateurs should be able to communicate with other amateurs using amateur telecommunications satellites as they have been doing for more than 50 years. They should also be able to receive telemetry and beacon transmissions from space stations operating on amateur frequencies, as is also a long-standing practice. Finally, if the operator/licensee of an amateur satellite has established and authorized two-way communications of a restricted nature between amateurs at large and the satellite, amateurs wishing to avail themselves of these capabilities should not be required to be authorized for that particular activity by a licence, in view of the fact that no licence is required for the rest of the station's operation. A simple example of one such capability might be the ability of any amateur to "ping" the satellite with their callsign in order to be able to receive a confirmation report ("QSL card").

Q1b. Amateur communications satellites are normally intended to be used by amateurs anywhere in the world within the footprint of the satellite, and it would be inappropriate to impose geographical restrictions on this practice. The frequencies authorized for use by amateur radio stations are defined in RBR-4, not through licence conditions.

Q1c. Many of the general conditions given in annex A are not applicable, or applicable only with modifications, to the amateur and amateur-satellite services:

- A1 appears to be meant to implement Section 9 of the Regulations, which does not apply to the amateur radio service;
- A4 refers to SRSP-101, whose scope excludes the amateur-satellite service. We suggest that technical requirements for earth stations in the amateur-satellite service should be developed with regard to the needs of the amateur-satellite service;
- A6 should apply only to stations performing control functions. Other amateur stations communicating with or through an amateur-satellite space station should not need prior agreement to do so;
- A9 assumes that generic spectrum licences would be issued only for identical stations, which is inappropriate for the amateur service where there are no type acceptance certificate requirements;
- A10 would be impossible for the licensee of a hypothetical generic spectrum licence in the amateur-satellite service to comply with;
- A13 requires earth stations to operate in Canada only. This is inappropriate in the amateur service. Satellites in the amateur-satellite service are normally used by amateurs worldwide;
- A14 is not relevant to the amateur-satellite service; CITEL PCC.II/RES. 33 (VII-06) applies to frequencies that are not authorized for use in the amateur radio service.

Q2

ISED is seeking comments on its proposals to:

a. implement spectrum licences that require site approvals for all earth stations described above operating in any frequency band

b. collect and assess the technical information listed in annex B as part of the site approval process

c. require earth station licensees with site-approved spectrum licences to hold licences for entire spectrum blocks, as per relevant SRSPs

Q2a. When applied to the amateur-satellite service, the proposal in paragraphs 36 and 37 of SMSE-009-21 to require site approval for earth stations performing TT&C is overly broad. The only earth stations in the amateur-satellite service that should require site approval, if any, would be earth stations performing control functions. Site approval should not be required for amateur earth stations only receiving telemetry, nor for communicating through an amateur telecommunications satellite with other amateur earth stations, nor for communicating directly with an amateur satellite for defined purposes publicly authorized for all amateurs by the space station licensee (e.g. "QSL" services). These stations are indistinguishable from typical terrestrial amateur radio stations. A requirement for site approvals for these widespread activities would be unenforceable, and would result in unnecessary paperwork for the Department.

Q2b. In parallel with our comments on annex A in **Q1c**, the technical information listed in annex B appears to have been developed without consideration for the unique needs of the amateur-satellite service. Some of the provisions in annex B may be directly applicable, but others might more appropriately be modified for application to the amateur-satellite service.

Q2c. Not applicable in the amateur and amateur-satellite services.

Q8

ISED is seeking comments on its proposals to:

a. issue generic spectrum licences for ESIMs on a no-interference, no-protection basis

b. require ESIM licensees to provide a contact that would be available to respond to interference issues 24 hours a day, 7 days a week, as per the licence conditions in annex A

c. require applicants to submit technical information needed to confirm compliance with SRSP-101 when they apply for generic spectrum licences for ESIMs and for fixed earth stations intended for self-installation by consumers

Q8. While the concept of an earth station in motion is applicable to the amateur and amateur-satellite services, the equipment that is used is no different from that used in typical terrestrial amateur radio communications, and generic spectrum licences for these stations would be inappropriate.

Q9

ISED is seeking comments on whether an RSS should be developed for earth stations intended for self-installation by consumers.

Q9. Since the equipment used in amateur stations is not subject to a requirement for a technical acceptance certificate, such an RSS would not be applicable to earth stations in the amateur or amateur-satellite services.

Q10

ISED is seeking comments on its proposals to:

a. introduce spectrum licensing for space stations in all satellite services, with licences authorizing the radio service, the frequency band(s), the orbital location and a coverage area

b. set the licence term on a case-by-case basis for satellites that are not FSS, BSS or MSS

c. apply the existing conditions of licence for space stations, published as N2 – Space station licences, to the new spectrum licences

Q10a. We propose that for space stations in the amateur-satellite service, licence fees, if any, should be based on a flat fee, as is proposed for the developmental service in paragraph 119. On that basis, there would appear to be little practical difference between station licensing and spectrum licensing in the amateur-satellite service.

Q10b. No comment.

Q10c. The conditions published as "N2 – Space station licences", as well as the information requirements in annex B of CPC 2-6-01, appear to be based on the requirements for commercial space services. Some of these requirements do not appear to be appropriate or applicable for the amateur-satellite service (e.g. Sections 9-12 and 14), while others might require modification (e.g. in Section 8 on Coordination, frequency coordination for the amateur-satellite service has been delegated by the ITU to the IARU). It might be more appropriate to develop and publish requirements designed specifically for the amateur-satellite service, taking into account the particular needs of that service.

Q14

ISED is seeking comments on its proposals to:

a. issue the three types of satellite-related spectrum licences separately and assign a separate fee for each

b. allow communication with multiple GSO satellites on a single earth station licence

c. require separate earth station licences for NGSO systems

Q14a. As described in responses above, we believe only one or two types of licences should be applicable to the amateur-satellite service, namely licences for space stations and possibly licences for earth stations that perform control functions. We agree with the suggestion to license space stations and earth stations separately, in order to allow for the possibility of earth stations being used as control stations for multiple space stations licensed to different licensees in the amateur-satellite service.

Q14b. At present there is only one GSO satellite operating in the amateur-satellite service, and Canada is not within its footprint. The likelihood of multiple Canadian GSO stations in the amateur-satellite service seems remote at this time, but should this change, we would agree with permitting communication with multiple GSO stations in the amateur-satellite service authorized under a single earth station licence.

Q14c. Regardless of whether "separate earth station licences for NGSO systems" means the separation of earth stations for GSO systems from earth stations for NGSO systems, or the use of separate earth stations for separate NGSO satellites, in the amateur-satellite service we would prefer to have the possibility of a single earth station being used to control multiple space stations, regardless of whether those stations are in geosynchronous or non-geosynchronous orbits.

Q15

ISED is seeking comments on its proposal to assign a consumption-based fee to earth station spectrum licences, where site and station approvals are required, as follows:

- below or equal to 1 GHz: $2000/MHz
- above 1 GHz and below or equal to 3.4 GHz: $100/MHz
- above 3.4 GHz and below or equal to 7.075 GHz: $20/MHz
- above 7.075 GHz and below or equal to 17.3 GHz: $10/MHz
- above 17.3 GHz and below or equal to 51.4 GHz: $5/MHz
- above 51.4 GHz: $1/MHz

Q15. If licences are required for earth stations performing control functions in the amateur-satellite service, a flat fee would be more appropriate for that service.

Q24

ISED is also seeking comments on limits to eligibility requirements for developmental spectrum licences, limits on frequency bands where developmental licences could be issued, and conditions of licence that could be applied. In providing comments, respondents are requested to include supporting arguments and a rationale.

Q24. Developmental licences should not be issued for amateur radio service frequencies except for purposes directly related to the amateur or amateur-satellite services, or, in cases where a frequency allocation is shared with other services, for purposes directly related to the services to which the frequencies are allocated.

Respectfully submitted,

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