Government of Canada Gouvernement du Canada

# INNOVATION, SCIENCE AND ECONOMIC DEVELOPMENT CANADA (ISED) SPECTRUM ACTIVITIES AND PRIORITIES FOR 2020-2021

## RABC AGM
## Thursday May 14th, 2020

## 1. General

The focus of the Department in the coming months will be on our continued support of telecom providers and ICT players as they provide essential services to Canadians during the COVID-19 pandemic. As one example of this support, ISED has been issuing fast-track emergency short-term spectrum sharing arrangements between service providers to ensure that networks can meet the higher demand. ISED is also promoting ways to support the economy and help it bounce back once we are on the other side of the crisis.

Work towards the release of spectrum bands is continuing throughout this time. As well, this is the start of the ITU-R WRC study cycle, so ISED is supporting ITU-R and CITEL efforts to plan work activities for WRC-23 agenda items.

In June 2018, ISED published its feedback-driven Spectrum Outlook for 2018-2022. The Outlook laid out priorities for which bands would be considered over the next five years, including mobile, fixed, satellite, and licence-exempt spectrum. We will continue to work on these priorities in 2020-21 making adjustments that take into account international developments and additional feedback received through consultations as well as the impact of priority changes and resource limitations stemming from the COVID-19 response.

In response to the announcement in Budget 2019 of new funding for ISED to modernize its spectrum management equipment and processes, ISED has been building its capacity and laying the framework over the past year to modernize tools and develop novel approaches for spectrum management. These developments will provide wireless operators, big and small, with improved access to spectrum, enhancing service quality in urban and rural areas.

## 2. Auctions

The 3500 MHz spectrum auction is scheduled to begin on December 15, 2020. Because of the impact of COVID-19, the deadline to submit licence transfer requests and clarification questions was extended from April 6, 2020 to June 5, 2020. The deadline to submit applications to participate in the auction and pre-auction financial deposits is 12:00 noon EST on October 13, 2020.

The auction for spectrum in the millimetre wave bands is planned for 2021, and the auction for spectrum in the 3800 MHz band for 2022.

## 3. Commercial and Broadband Mobile Services

**Consultations/Decisions**

In 2019, to help ensure that Canada is well prepared to meet current and future wireless needs and encourage additional access to spectrum within rural areas and support new technologies, ISED released its Decision on a new set of service areas for spectrum licensing. ISED is now in the process of updating its service areas for competitive licensing document and online tools to reflect the new set of smaller (Tier 5) service areas to complement our existing suite of spectrum licensing mechanisms.

In June 2019, ISED published a Decision on revisions to the 3500 MHz band to accommodate flexible use and preliminary decisions on changes to the 3500 MHz band. At the same time, ISED published a consultation on the policy and licensing framework for the 3500 MHz band. In March 2020, ISED published the Decision on the policy and licensing framework for the 3500 MHz band.

A preliminary decision to make changes to the 3800 MHz band was also published in June 2019 as part of the 3500 MHz Decision. As a result, SAB-001-19 – *Request for Information on Fixed Satellite Service (FSS) Earth Stations Operating in the 3700-4200 MHz Band* was published in which ISED requested Earth station information from unregistered or unlicensed operators. The associated form is still available to allow entry of Earth station information for those who have yet to do so. ISED is currently developing a consultation on the technical and policy framework on repurposing the 3800 MHz band.

In June 2019, ISED also published a Decision on releasing millimeter wave spectrum to support 5G. This Decision released 4.85 GHz of millimeter wave spectrum for licensed use and 7 GHz for license-exempt use. ISED is currently developing a licensing framework consultation for the released bands (26, 28, and 37-40 GHz).

Work is continuing on exploring potential changes to the siting framework outlined in CPC-2-0-03 — *Radiocommunication and Broadcasting Antenna Systems* that may be required to support 5G, particularly in light of the recommendations recently made by the Broadcasting and Telecommunications Legislative Review (BTLR).

Following the Federal Government's Decision to allocate 20 MHz of the 700 MHz spectrum for public safety broadband use and engagement with a broad range of stakeholder groups in 2017-18, ISED is continuing to work towards an eventual further consultation on the spectrum licensing framework for this band, in keeping with the next steps identified in the Decision. A working group consisting of federal, provincial, and municipal public safety representatives, the Temporary National Coordination Office (TNCO), was established in 2018 and is tasked with presenting formal recommendations to ISED in 2020 concerning this next consultative phase.

Finally, ISED is closely monitoring developments in the U.S. with respect to the 5850-5925 MHz band, which is being considered for a mix of Intelligent Transportation Systems (ITS) and Radio Local Area Network (RLAN) use and the 5925-7125 MHz band, commonly referred to as 6 GHz band, which has been approved for the introduction of RLANs as an overlay coexisting with incumbent services.

**Standards**

The following standards documents are planned for publication in 2020-21. Some are new standards, while others are existing standards that require updating/re-formatting.

***Existing Standard Radio System Plans (SRSPs) to be updated***

- Completion of work on a new issue of SRSP-503 – "Technical Requirements for Cellular Radiotelephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz" to account for newer generation systems and the increasing use of MIMO technology while taking into account the use of adjacent spectrum by land mobile radio systems; and
- Potential review of other commercial mobile band SRSPs (e.g. SRSP-510, SRSP-513, SRSP-516, SRSP-517, and/or SRSP-518) for consideration of possible updates to address the increasing use of MIMO and other new technology, subject to the availability of resources.

***Potential new SRSP to be developed/published***

- New SRSP 520 for deployment of mobile and fixed services (flexible use) in the 3500 MHz band to be published in late spring/early summer of 2020.
- New SRSP for deployment of mobile and fixed services (flexible use) in mmWave spectrum, including potential update or incorporation of sharing rules with fixed-satellite services in GL-10.

A few additional standards may be released or reviewed if new departmental priorities arise during the fiscal year 2020-21.

**International Activities**

At ITU-R WP 5D, we will continue to ensure that Canadian requirements, particularly frequency arrangements for bands identified for IMT at WRC-19, are reflected in M-series Recommendations, and that forward-looking work on new technologies (particularly the identification of technologies for IMT-2020) includes Canadian views. We will also begin work on several new WRC-23 agenda items under WP 5D including additional potential identifications for IMT in mid-band spectrum, protection of aeronautical and maritime mobile systems in 4800-4990 MHz from IMT, and possible use of IMT base stations on high altitude platforms.

## 4. Fixed, Land Mobile, Radiodetermination, Aeronautical and Maritime Services

**Consultations/Decisions**

In the summer of 2019, ISED published two decisions related to fees. Firstly, in July 2019, ISED published a Decision on modernizing the licence fee framework for fixed point-to-point systems to simplify the fee structure while reducing fees overall and encouraging upgrades to existing and deployment of new radio systems. In August 2019, ISED published a Decision on periodic adjustments for radio and spectrum licence fees and fees related to equipment certification in response to the *Service Fees Act* (SFA).

For fixed point-to-point systems, we are in the process of seeking related changes to the *Radiocommunication Regulations* and to our licensing software. We will be communicating in the next months the release of an online report that permits licensees to preview their new fees based on their current licences. In accordance with the Decision on periodic adjustments and SFA requirements, ISED increased fees by 2.2% on March 31, 2020. That increase is applicable to fees for renewed, new and amended licences starting on that same date.

## Procedures/Standards

In 2019 we updated technical rules for white space technology (DBS-01 and RSS-222) to take into account the white space Decision (SMSE-003-19) and our low-power radio apparatus (e.g. wireless microphone) licensing procedures CPC 2-1-11 and CPC 2-1-28 to take into account our wireless microphone Decision (SMSE-003-19). Further work on the technical rules for white space databases (DBS-01) is being planned to see whether it is possible to make further improvements and lower barriers to entry into the Canadian marketplace for white space database providers while still ensuring the viability of incumbent broadcasting use of this band.

In addition, the following standards documents are planned for publication in 2020-21. Some are new standards, while others are existing standards that require updating.

### *300 Series SRSPs*

- In 2020-21, we plan to publish several SRSPs, with a particular focus on SRSP-301.7 for the 1700-1710/1780-1850 MHz bands and SRSP-331.8 for the 31.8-33.4 GHz band, to reflect changes brought about by the decisions on backhaul.

### *500 Series SRSPs*

- New issue of SRSP-502 – "Technical Requirements for Land Mobile and Fixed Radio Services Operating in the Bands 806-821 / 851-866 MHz and 821-824 / 866-869 MHz" incorporating updates to the conditions for access to shared trunked radio networks and updates to channel plan to facilitate sharing with adjacent-band systems;
- New issue of SRSP-511 – "Technical Requirements for Land Mobile Radio Services Operating in the Bands 768-776 MHz and 798-806 MHz" for the consideration of limited narrowband public safety aeronautical use and updates to the conditions for access to shared trunked radio networks;
- Possible new issue of SRSP-500 – "Technical Requirements for Land Mobile and Fixed Radio Services Operating in the Bands 138-144 MHz and 148-174 MHz" for general updates and corrections, addition of a reference to the existing search and rescue interoperability channel as well as possible implementation of a VHF public safety interoperability channel in Canada; and
- Possible new issue of SRSP-501 – "Technical Requirements for Land Mobile and Fixed Radio Services Operating in the Bands 406.1-430 MHz and 450-470 MHz" for the possible implementation of a new 6.25 kHz channel plan in the Canada/United States coordination zones.

## International Activities

At ITU-R WP 5A, the Department will focus on the WRC-23 topic related to the use of IMT technology for fixed wireless broadband access in the fixed service. As well, ISED will contribute to general mobile service issues such as deployment scenarios, mitigation techniques and ensuring that technical characteristics of Canadian mobile systems are reflected in M-series Recommendations.

At ITU-R WP 5C, the Department will contribute towards general fixed service issues to ensure that Canadian channel plans are reflected in F-series Recommendations, as well as support the efforts on the WRC-23 topic mentioned above.

ISED will continue to remotely follow the activities of the Working Parties under ITU-R SG 1.

At ITU- R WP 5B, the Department will concentrate on maritime and aeronautical service WRC-23 agenda items such as modernization of Global Maritime Distress and Safety System, wideband HF aeronautical mobile, satellite relay of aeronautical VHF communications, and remotely piloted aircraft systems.

## 5. Satellite Services

### Consultations/Decisions

In response to the consultation on the use of the bands 18.8-19.3 GHz and 28.6-29.1 GHz and the bands 17.3-17.7 GHz, 19.3-19.7 GHz and 29.1-29.25 GHz by the Fixed-Satellite Service (FSS), we plan to publish a Decision. The Decision will address the status of Non-Geostationary Satellite Orbit (NGSO) satellite networks and Geostationary Satellite Orbit (GSO) networks in the bands 18.8-19.3 GHz and 28.6-29.1 GHz, as well as how to provide greater flexibility for FSS use in the bands 17.3-17.7 GHz, 19.3-19.7 GHz and 29.1-29.25 GHz.

Additionally we plan to publish a Decision in response to our consultation on Globalstar's ATC application which was released in August 2019.

Other satellite consultations are possible, depending on Departmental priorities and available resources, including ones related to the technical and licensing policy for Earth Stations In Motion (ESIM).

### Procedures/Standards

Following the publication of the decisions on the above consultations, the Department may begin work on developing the appropriate SRSPs, as necessary, including for example, for Earth stations in millimetre-wave bands.

### International Activities

The Department's focus will continue to be to develop contributions and participate in Study Group 4, Working Parties 4A & 4C and Working Party 7B on the initiation of work for the new WRC study cycle.

Key areas of focus will be on higher priority WRC-23 agenda items, including:

- Non-GSO FSS Earth stations in motion (ESIMs) in 17.7-18.6 GHz and 18.8-19.3 GHz (space-to-Earth)(Earth-to-space), 19.7-20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space)
- Inter-satellite links in 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz
- MSS allocation for narrowband applications
- Improvement of the regulatory framework for satellite systems
- Space-weather sensors
- Protection of EESS(passive) in 36-37 GHz from non-GSO space stations

## 6. Broadcast Services

### 600 MHz Transition

The first Canadian stations impacted by the 600 MHz project have moved to their new channels and ISED has been continuing to support and work with the remaining TV broadcast stations to prepare for their own

transition dates and ensure as smooth a transition as possible given the challenges posed by the COVID pandemic.

**Broadcasting Certificate Renewal**

We continue improving the Broadcasting Certificate renewal process. In consultation with the RABC, ISED developed the requirements to accept requests from operators to align their broadcasting certificate expiry dates with other stations at the same transmission site. Following the proposal from the RABC, ISED is assessing the potential to change the expiry date of all broadcast certificates from August 31st to November 30th on a permanent basis. This change would provide operators additional time to conduct Safety Code 6 measurements under more optimal conditions (taking advantage of summer weather).

**Standards**

- ISED has initiated a review of broadcasting policies, rules and procedures for the possibility to accommodate requests to use ATSC 3.0 technology.
- ISED is reviewing broadcasting rules and procedures with the objective to allow the regular use of HD Radio. Once review is completed, ISED will consult with the RABC on the adoption of new technical rules and procedures for a digital sound broadcasting standard (i.e. HD Radio) for the 88-108 MHz band.
- ISED and FCC have initiated a review of the Canada/US AM coordination process to look for improvements.
- BETS-7 on technical standards for TV broadcast receivers is being updated with minor changes.
- BC-15, *On-air testing procedures for AM, FM and TV broadcasting undertakings*, is under consultation with the RABC.
- BPR-1, *General Rules* is undergoing an in depth review.

**International Activities**

ISED will continue to remotely follow activities of ITU-R Study Group 6 where digital broadcasting, emergency broadcasting and the convergence of platforms for the delivery of broadcasting of multimedia content are being addressed. We will work with the U.S. to discuss the possibility of revising the AM and FM cross-border frequency arrangements, considering interference issues in the bands and the emergence of HD radio in the U.S.

## 7. Equipment Standards

The following standards documents are planned for publication in 2020-21. Some are new standards, while others are existing standards that require updating/re-formatting.

**Standards**

***Existing Radio Standards Specifications (RSS) to be updated and published***

- RSS-125 (Issue 3) – Land Mobile and Fixed Radio Transmitters and Receivers 1.705 to 50.0 MHz, Primary Amplitude Modulated - Modernize format of standard (last publication 2000) and align technical requirements with international standards.
- RSS-182 (Issue 6) – Maritime Radio Transmitters and Receivers in the Band 156-162.5 MHz - Clarify certain technical requirements.

- RSS-191 (Issue 4) – Flexible use broadband equipment operating in the 26 GHz, 28 GHz and 37- 40 GHz - Update technical requirements for flexible use.
- RSS-192 (Issue 1) – Flexible use broadband equipment operating in the band 3450-3650 MHz
- RSS-216 (Issue 3) – Wireless Power Transfer Equipment - To be updated to refer to the future ANSI C63.30 for test methods; to be updated with specific limits for WPT EV (based on Am.1 to CISPR 11 Ed.6); and review radio frequency exposure compliance requirements

***Existing Interference Causing Equipment Standards (ICES) to be updated and published***

- ICES-001 (Issue 5) – Industrial, Scientific and Medical (ISM) Equipment - Update to refer to the new CSA-adopted CISPR 11 Ed.6.
- ICES-002 (Issue 7) – Vehicles, Boats and Other Devices propelled by an Internal Combustion Engine, Electrical Means or Both - Add requirements for electric vehicles with or without wireless power transfer (WPT) functionality.
- ICES-003 (Issue 7) – Information Technology Equipment (Including Digital Apparatus) - Update to call CSA-adopted CISPR 32 Ed.2 with Canadian deviations.

***Existing and New Conformity Assessment and Terminal Procedures to be updated or issued***

- REC-LAB (Issue 7) – Procedure for the Recognition of Foreign Testing Laboratories.
- DES-LAB (Issue 8) – Procedure for the Designation of Canadian Testing Laboratories.
- REC-CB (Issue 1) – Recognition Criteria and Administrative and Operational Requirements Applicable to Certification Bodies (CBs) for the Certification of Radio Apparatus - Replace the existing CB-01 and CB-02 with a single document.
- DC-01 (Issue 7) – Procedure for Declaration of Conformity and Registration of Terminal Equipment to align with decision on wireless device testing laboratories by allowing foreign test labs to be designated by a recognized accreditation body for non-Mutual Recognition Agreement/Arrangement countries.

***Others***

- SPR-003 – RSS-102 (Issue 1) Supplementary Procedure for Assessing Compliance for Radio Apparatus operating above 6 GHz.
- SPR-004-RSS-102 (Issue 1) Time-Averaging Specific Absorption Rate (TAS) Assessment Procedures for Wireless Devices Operating in the 4 MHz-6 GHz Frequency Band.
- GL-01 (Issue 4) - Guidelines for the Measurement of Radio Frequency Fields at Frequencies from 3 kHz to 300 GHz - Introduce measurement requirements and techniques to support 5G NR and massive MIMO.
- RSS-102 (Issue 6) – Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands).

A few additional standards may be released if new departmental priorities and consultations arise during the fiscal year 2020-21.

## 8. Ongoing Licensing Activity

ISED will continue to assess the renewal of licences that are expiring as well as conduct mid-term deployment audits. Ongoing assessment of requests to transfer and subordinate commercial mobile

spectrum will also continue under the Spectrum Licence Transfer Framework. In addition, ISED will be developing a transition manual for licensees in the 3500 MHz band.

We continue to accept applications on-line for developmental licences.

ISED relies on licensees and broadcaster to provide correct and timely information on stations in operation, but issues persist with the completeness and accuracy of the data in the Spectrum Management System (SMS). ISED acknowledges that the mechanism to submit data is partly responsible for the data accuracy and completeness issues. Work is commencing to create a new, more user-friendly, data submission portal for spectrum licensees. ISED will also review the nature of the information it collects and will consult with stakeholders regarding these changes.

## 9. Safety Code 6

Concerns regarding the potential adverse health effects of radio frequency exposure continue to be important to Canadians and municipalities. As part of ISED's compliance program, the Department conducts yearly site audits to verify compliance with the uncontrolled limits in Health Canada's Safety Code 6. Although ISED's ability to complete site audits is expected to be impacted by physical distancing measures, antenna installations must continue to meet Health Canada's Safety Code 6 at all times. We are currently revising CPC-2-0-20, *Radio Frequency (RF) Fields — Signs and Access Control* in the context of recent concerns from the Commissioner of Official Languages and will consult as part of this process. In entering the fourth year of the Safety Code 6 Reporting Program, we again want to thank the RABC for their feedback to help improve the program and for their continued support of all Safety Code 6 initiatives.