Industry Canada Industrie Canada

SP 25.25 GHz
June 2011

Spectrum Management and Telecommunications

Spectrum Utilization Policy, Decisions on the Band 25.25-28.35 GHz

Aussi disponible en français – PS 25,25 GHz

Canada

Table of Contents

1. Intent

This spectrum utilization policy, announced in *Canada Gazette* Notice SMSE-011-11, addresses the implementation of fixed radio systems in the band 25.25-28.35 GHz, including the band plan.

2. Background

In February 1996, Industry Canada issued a call for applications, announcing that the Department would use a comparative process to select licensees for two 500 MHz frequency blocks in the 28 GHz band for Local Multipoint Communication Systems (LMCS): Block A from 27.85 to 28.35 GHz; and Block B from 27.35 to 27.85 GHz.

In October 1996, the Department announced the successful candidates of the comparative process and issued licences to three companies. It was also announced that the remaining four 500 MHz blocks (blocks C, D, E and F) from 25.35 to 27.35 MHz would be reserved. Limited deployments took place in blocks A and B and all licences were eventually returned to Industry Canada by January 2002.

In March 2009, the Department released DGRB-004-09, *Decision on the Renewal of 24 and 38 GHz Spectrum Licences and Consultation on Spectrum Licence Fees for 24, 28 and 38 GHz Bands*. The Department decided at that time that it would implement a first-come, first-served (FCFS) process for the unassigned and returned 28 GHz spectrum.

3. Recent Consultation

DGTP-002-10, *Consultation on the Use of the Band 25.25-28.35 GHz*, was released in May 2010. This consultation dealt with the opening of the lower and upper portions of the band 25.25-28.35 GHz (25.25-26.5 GHz and 27.5-28.35 GHz) for fixed systems, leaving the middle portion of the band (26.5-27.5 GHz) subject to a future policy review. Comments were sought on a spectrum policy for the lower and upper portions of the band, including proposed spectrum structure, spectrum access principles and licensing options.

In response to the consultation, five comments were received, as listed below. These comments generally supported the opening of the lower and upper portions of the band for fixed systems.

Comments were received from:

- Mobilexchange Spectrum Inc.
- Radio Advisory Board of Canada (RABC)
- Rogers Communications
- TeraGo Networks Inc.
- TELUS

4. Spectrum Policy

4.1 Decisions on the Band Plan

In the DGTP-002-10 consultation, the Department provided two options for a new Canadian band plan in the bands 25.25-26.5 GHz and 27.5-28.35 GHz, as shown in Figure 1 below. Comments were sought on these two band plans, as well as on the use of point-to-point versus point-to-multipoint systems, interest in frequency division duplex (FDD) versus time division duplex (TDD) deployments, and preferred channel bandwidths.

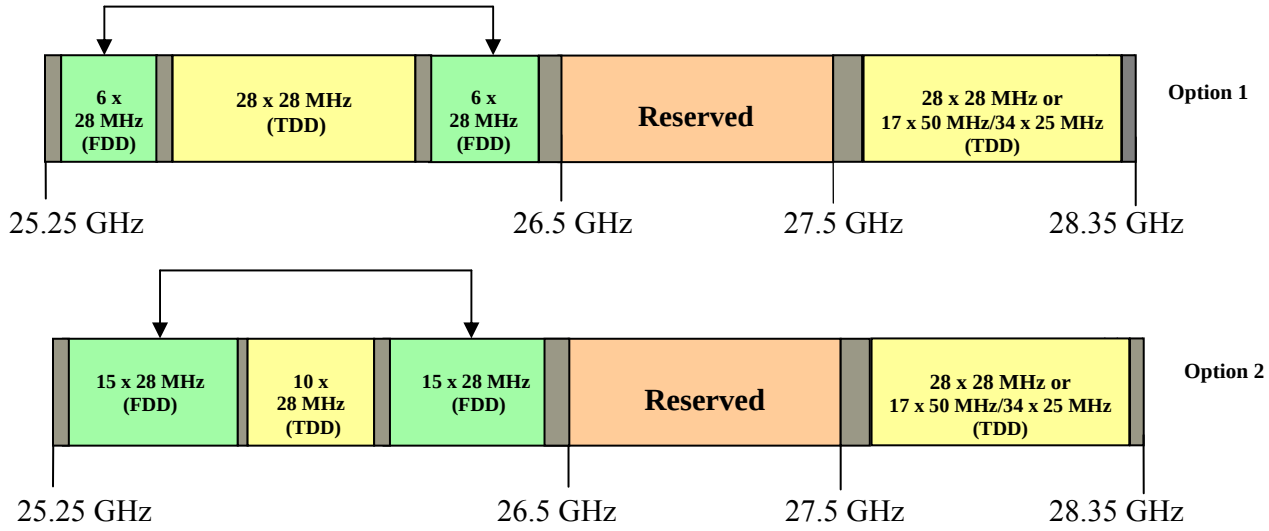

Figure 1 - DGTP-002-10 Proposed Canadian Band Plan Options

In general, comments received on the 25.25-26.5 GHz range indicated support for Option 1, with six paired FDD channels with a duplex spacing of 1008 MHz, and TDD channels in between. Some comments received on the 27.5-28.35 GHz band suggested that it would be beneficial to identify additional FDD spectrum in that range rather than the proposed TDD scenario, given that the preferred option (Option 1) for 25.25-26.5 GHz provides only six paired FDD channels.

Overall, comments also indicated general support for FDD systems for point-to-point use, and TDD systems for both point-to-point and point-to-multipoint use. There was general support for 28 MHz channel bandwidths in the band 25.25-26.5 GHz, whereas in the band 27.5-28.35 GHz, there was support for various channel bandwidths, including 25 MHz, 28 MHz or multiples of 10 MHz (10, 20, 30, 40 and 50 MHz). Interest was also expressed in the possibility of combining more than one channel in either sub-band, where necessary.

Accordingly, the Department is permitting a mix of FDD and TDD operations for the 25.25-26.5 GHz range, with appropriate guardbands to be established in between. For the 27.5-28.35 GHz range, the Department will permit either FDD and/or TDD operation. The specific channelling plans and technical details will be developed, in consultation with the Radio Advisory Board of Canada (RABC), through the revision or replacement of Standard Radio System Plan SRSP-325.35, *Technical Requirements for Local Multipoint Communication Systems (LMCS) Operating in the Band 25.35-28.35 GHz*.

The 26.5-27.5 GHz range will be subject to future review.

The Department is committed to ensuring flexible, economic and efficient use of spectrum by the fixed service in these bands. During the development of the channelling plan, the Department will consider assigning some portions of the bands to a specific duplex scheme (FDD or TDD). There is an advantage to accommodating both point-to-point and point-to-multipoint use in the band and these details will be covered during the development of the SRSP.

The Department will allow fixed radio systems to be deployed in the band 25.25-26.5 GHz, with a mix of FDD and TDD operation. The details will be established during the development of the SRSP. Appropriate guardbands and possible divisions of point-to-point and point-to-multipoint use will also be established.

The Department will allow fixed radio systems with FDD and/or TDD operation to be deployed in the band 27.5-28.35 GHz. The details will be established during the development of the SRSP.

The band 26.5-27.5 GHz will be subject to future review.

4.2 Summary of Band Plan Decisions

The following figure summarizes the decisions made with respect to the 25.25-28.35 GHz band plan:

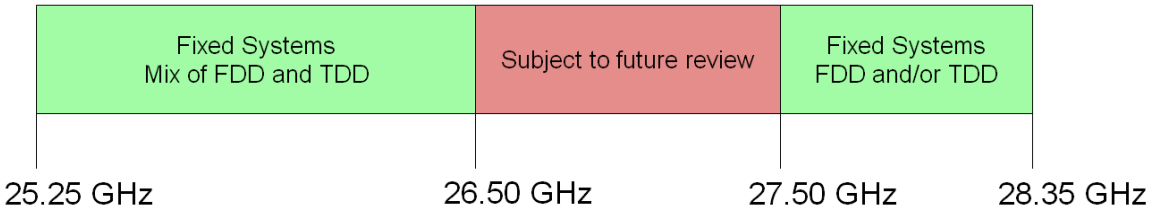

Figure 2 – Summary of Band Plan Decisions for 25.25-28.35 GHz

The Department will undertake a revision or replacement of SRSP-325.35 in consultation with the RABC. The revision or replacement will be in line with the band plan provided in the above figure.

5. Licensing Process and Principles

In DGRB-004-09, *Decisions on the Renewal of 24 and 38 GHz Spectrum Licences and Consultation on Spectrum Licence Fees for 24, 28 and 38 GHz Bands*, Industry Canada indicated that licences in the 28 GHz band would be issued on an FCFS basis. In DGTP-002-10, the Department specifically identified this band as extending from 25.25 to 28.35 GHz, including the additional 100 MHz from 25.25 to 25.35 GHz, and proposed that the entire band be licensed on an FCFS basis.

All five responses received were in favour of an FCFS licensing process as proposed. In agreeing with licensing on an FCFS basis, TELUS proposed that the Department modify the deployment requirement (within six months of licence issuance) to allow operators to reserve sufficient spectrum for backhaul facilities when building out or expanding their networks, particularly in light of the demand for higher data rates. TELUS indicated that the deployment requirement should be satisfied through the provision of a network plan, with a committed date, and that this would provide the Department with assurance that the spectrum would be used and, at the same time, introduce the critical business certainty required by the network operator upon commencement of a major network expansion or build.

In the DGTP-002-10 consultation paper, the Department proposed the application of the following seven principles as part of the FCFS licensing process:

(a) Assignments of blocks will be on an "as needed" basis. Licensees will be required to demonstrate their need for spectrum for each request;

(b) A second block will be assigned to a licensee in the same service area only when the original block assignment cannot be reused;

(c) Assignments will be brought into service within a period not greater than six months from the receipt of an approval-in-principle/licence;

(d) A licensee will be assigned the same frequency blocks, to the extent possible, in all authorized service areas;

(e) Requests for wide area authorization – for example, large regions of a province – will not be considered;

(f) Point-to-point systems may have shared access where it is determined that their usage requirements are low;

(g) Should demand exceed supply in a particular area, the Department reserves the right to review the use and consider a competitive process.

Mobilexchange indicated that the principles could be implemented only if and to the extent that they do not conflict with the policy articulated in DGRB-004-09, and that the principle of licensing a second block should accommodate demand expected to be generated by the customers of proposed licensees based on reasonable forecasts provided by the proposed licensees. Rogers agreed with the principles provided that channels may be combined in order to provide additional bandwidth to support fast-growing and traffic-intensive services, such as mobile broadband services. TeraGo indicated that the principles should help to ensure that the spectrum ends up in the hands of operators who are ready to deploy immediately.

In arguing against principle (e) above, that wide area authorizations would not be considered, Mobilexchange indicated that this would increase cost and complexity if the backhaul is to be used by operators of commercial networks for which other wide area spectrum licences (tier-based) were held. The Department's view, as indicated in the consultation, is that "wide area authorizations" refers to large regions of a province. The Department notes that, as part of any FCFS licensing process, an applicant must be able to justify the need for spectrum and geography.

Work on the licensing policy and the setting of fees (through *the User Fee Act* process) is continuing. Until such time as this work is completed, the interim licensing process described in DGTP-002-10 will continue to apply.

The Department will adhere to the seven licensing principles indicated above as part of an FCFS spectrum licensing process. Spectrum will be assigned on an "as needed" basis and licensees will be required to demonstrate their need for spectrum for each request.

6. Equipment

Radio Standards Specification RSS-191, *Local Multipoint Communication Systems in the Band 25.35-28.35 GHz; Point-to-point and Point-to-Multipoint Broadband Communication Systems in the Bands 24.25-24.45 GHz and 25.05-25.25 GHz; and Point-to-Multipoint Broadband Communications in the Band 38.6-40.0 GHz,* will be updated as necessary.

7. Domestic Coordination

Domestic coordination required between licensees in the same and adjacent service areas is currently outlined in SRSP-325.35. This SRSP will be updated or replaced, based on the decisions herein.

8. International Coordination

Use of the band 27.5-28.35 GHz near the Canada-United States border is subject in part to the provisions of the *Interim Arrangement Concerning the Sharing between Canada and the United States of America on Local Multipoint Communication Systems, the Local Multipoint Distribution Service and Certain Other Services in Parts of the Frequency Bands 27.35-28.35 GHz, 29.1-29.25 GHz, and 31.0-31.3 GHz*.

Use of the band 25.25-26.50 GHz near the Canada-United States border is currently not subject to an arrangement. The Department will undertake discussions with the United States with a view to developing a sharing agreement for the band 25.25-26.5 GHz near the Canada-United States border.

In addition, use of the band 25.50-26.50 GHz will also be subject to the International Telecommunication Union's (ITU) requirements for the protection of inter-satellite systems in relation to the band 25.25-27.5 GHz, as outlined in SRSP-325.35.

The Department will carry out due diligence in the establishment of cross-border arrangements with the United States for use of the band 25.25-26.5 GHz to ensure continued protection of fixed systems in Canada. Fixed service licensees will be subject to any international agreements that may be established in the future.

9. Revisions to the Canadian Table of Frequency Allocations

Consequential to the decisions to open portions of the 25.25-28.35 GHz band for fixed systems, Footnotes C47A and C47B of the *Canadian Table of Frequency Allocations* will be editorially updated to remove the term "Local Multipoint Communication Systems (LMCS)." When first developed, the term "LMCS" was intended to be a reflection of the fixed service use in the band at that time. At this time, the general term "fixed systems" is more appropriate.

Marc Dupuis
Director General
Engineering, Planning, and Standards Branch

Fiona Gilfillan
Director General
Spectrum Management Operations Branch