

Fixed Wireless Communications Committee Annual Report

The Fixed Wireless Communications Committee has held three meetings so far this year: March 12 in Montreal, June 18 in Toronto and September 23 in Edmonton. Each of these meetings was preceded by a set of Sub-Committee meetings where substantive progress was made in several areas that will be described later in this report. A fourth FWCC meeting is planned for December 17 in Ottawa. In all, more than 20 Sub-Committee meetings will have been held by year end 1999.



In 1999 the majority of Industry Canada Gazette Notices, pertinent to the mandate of the Fixed Wireless Communications Committee, were in the form of completed spectrum policies and licensing procedures. As such, the FWCC has not been required to expend significant amount of its energy on *Gazette Notice* responses. However, the Committee is pleased that the Department has taken into consideration the comments raised by the FWCC during the Department's consultation in 1997 and 1998. The following 1999 Gazette Notices are germane to the mandate of the FWCC but have not required RABC responses:

- DGTP-019-98 (Dec. '98): *Policy Framework for the Provision of Fixed-Satellite Services.*
- DGRB-001-99: *Consultation on the 24 and 38 GHz Frequency Bands: Proposed Policy and Licensing Procedures* (extension of reply comment period set in DGRB-003-98).
- SMBR-001-99: *Technical Standards and Procedures for Multipoint Distribution Television Systems (MDS-TV) BPR-6.*
- DGRB-003-99/DGTP-005-99: *Policy and Licensing Procedures for the Auction of the 24 and 38 GHz Bands.*
- DGRB-006-99: *Policy and Licensing Procedures - Multipoint Communications Systems in the 2500 MHz Range.*
- DGRB-008-99: *Radio Authorization Fees for Fixed Wireless Access Systems in Rural Areas in the Frequency Range 3400-3550 MHz.*
- DGTP-004-99: *Guidelines on the Licensing Process and Spectrum Release Plan (RP-020).*
- DGTP-006-99: *Amendments to the Microwave Spectrum Utilization Policies in the 1-3 GHz Frequency Range (SP 1-3 GHz).*
- DGTP-007-99: *Spectrum Utilization Policy for Licence-Exempt Wireless Local Area Networks in the 5 GHz Range (SP 5150 MHz).*
- DGRB-015-99: *Call for Expressions of Interest to Develop and Operate a Fixed Satellite Space Station in Orbital Position 118.7°W Longitude to Serve the Canadian Market and Beyond.*

In addition, on November 6, 1999 the Department released a draft Client Procedures Circular (CPC-2-6-01) under Gazette Notice DGRB-017-99: *Procedure to License Fixed Earth Stations and to Approve the Use of Foreign Fixed Satellite Service Satellites in Canada.* This gazette requires an RABC response and will be primed by the FWCC.

Sub-Committee Activities

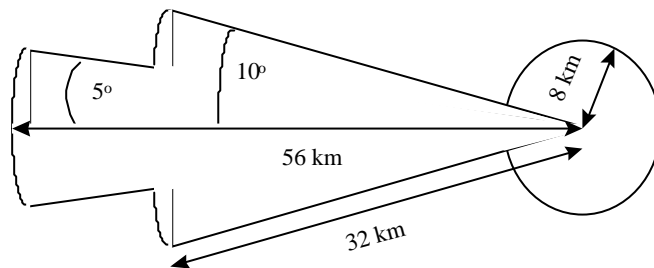
Sub-Committee A (Chaired by Keith Doucet, EFC)

Sub-Committee A, chaired by Keith Doucet, EFC/Newbridge has responsibility for area frequency co-ordination models and associated co-ordination processes. The Sub-Committee has focussed on the development of an interference model that could be used to trigger frequency co-ordination between

operators in the LMCS band at 28 GHz and in the 24/38 GHz spectrum ranges. Industry Canada recently auctioned spectrum at 24 GHz and in a large portion of the 38 GHz band.

Sub-Committee C (Chaired by Remi Chayer, EFC)

Sub-Committee C, chaired by Remi Chayer, EFC/Harris Corp. has responsibility for the preparation of SRSPs and RSSs in bands above about 10 GHz. During the early part of the year, this Sub-Committee was active on the finalisation of a co-ordination procedure applicable to the shared spectrum blocks at 38 GHz (Blocks A/A', B/B', K/K' to N/N'). The procedure, adopted by the FWCC, uses a modified keyhole approach to trigger co-ordination as shown below.

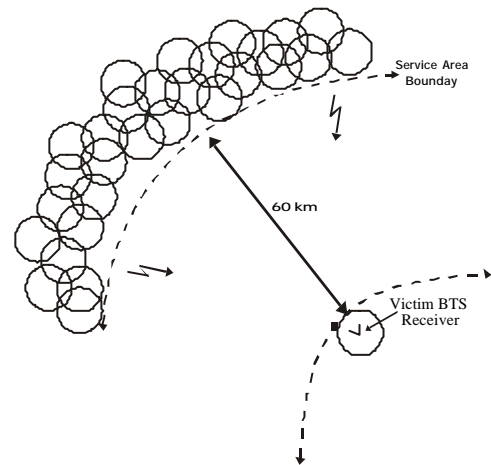


Keyhole Contour Triggering Co-ordination in the Shared 38 GHz Spectrum Blocks

Joint Sub-Committees A and C (Co-chaired by Keith Doucet & Remi Chayer)

The initial work undertaken on area frequency co-ordination at 28 GHz in Sub-Committee A, and on SRSP/RSS developments above 20 GHz in Sub-Committee C, was very much inter-related. Consequently, it made practical sense for these 2 Sub-Committees to work jointly on the preparation of technical documents pertaining to the 24, 28 and 38 GHz bands. The work took about nine months – with several formal meetings and teleconferences, one-on-one calls and e-mails being required to reach consensus on all the issues. Some documents were drafted in Industry Canada and completed in the joint Sub-Committee while others were drafted in one of the Sub-Committees, worked on in the Department, and finally completed in the joint Sub-Committee. In addition, Industry Canada officials used the draft Sub-Committee material during negotiations with FCC to set Canada/US co-ordination procedures. The joint Sub-Committee work culminated in the issuance of:

- 1) A technical report containing an interference model for LMCS and FWA systems operating between licensed service areas at 28 GHz and 24/38 GHz, respectively, depicted in part by this figure. Also included is an area-area co-ordination procedure with flow charts to assist the understanding.
- 2) SRSP 324.25, SRSP 325.35 and SRSP 338.6, all of which contain 'default' area-area co-ordination procedures outlined in the above technical report. The co-ordination processes are intended to apply between Canadian operators and between Canadian and US operators in the border areas where co-ordination agreements have not previously been arranged. In addition, SRSP 338.6 contains an additional procedure for use by operators in the shared 38



GHz spectrum blocks. This procedure makes use of the modified keyhole contour to trigger coordination.

These documents are the result of fine teamwork established between the Department and the RABC. I wish to thank in particular, Keith Doucet and Remi Chayer from EFC, and Doug Sward and Rebecca Chan from Industry Canada for their dedication on this major project. The SRSPs and supporting technical report have been placed on the RABC web site for public reference during Industry Canada's spectrum auction proceedings and will be left there until the band plans are gazetted by the Department.

The certification standards for LMCS and 24/38 GHz FWA equipment are contained in RSS-191. Following many meetings and one-on-one sessions between EFC members and the Department, this document is now nearing completion. It is expected to be finalized at the next joint Sub-Committee meeting in December.

Included in future Sub-Committee activities will be an assessment of spectrum developments above about 50 GHz for broadband fixed wireless applications, specifically the international band plans and spectrum utilization, equipment characteristics and evolutionary trends, and spectrum management techniques (e.g., licensing needs, if any).

Sub-Committee B (Chaired by Rob Morse, EFC)

Sub-Committee B, chaired by Rob Morse, EFC/Nortel Networks has responsibility for licence-exempt local area networks at 5 GHz. Sub-Committee B began its work in 1998. In June 1999 the Sub-Committee submitted a detailed technical report to Committee containing recommendations on emission standards and band usage. The report, adopted by the FWCC, recommended that Industry Canada harmonise the LE-LAN emission standards for the three 100 MHz sub-bands (5150-5250 MHz, 5250-5350 MHz and 5725-5825 MHz) with those standards adopted by the FCC under Part 15 rules for U-NII devices. We are pleased that these recommendations have subsequently been reflected in the Department's spectrum policy SP-5150MHz (October 1999).

Further, the Sub-Committee recommended that a higher-power licence-exempt outdoor system, which has been proposed by a member in Sub-Committee, be given consideration to operate in the upper 2 sub-bands only. Further, it was recommended that a moratorium be placed on the use of sub-band 5150-5250 MHz by such higher-power systems due to the need to ensure protection of non-GSO MSS feeder links that are licensed to operate in this sub-band. In addition, it has been recognized that the design and implementation of such higher EIRP systems would need to be studied further to ensure that these systems are able to co-exist with lower power LE-LAN devices and systems operating in all 3 sub-bands in accordance with RSS-210.

The Sub-Committee is continuing to address a few outstanding items involving the higher EIRP outdoor system and is expected complete its work next year.

Sub-Committee D (Chaired by Bill Taylor, Stentor)

Sub-Committee D, chaired by Bill Taylor (Stentor/Bell Canada), has responsibility for SRSP/RSSs in the 3-10 GHz range, and for bandsharing considerations between the FS and FSS at 6/4 GHz (C-band).

The Sub-Committee prepared a draft new SRSP 303.4 for fixed wireless access systems in the band 3400-3700 MHz, using the Department's spectrum policy *SP 3400-3700 MHz* (July 1998) as a guide. The SRSP was approved in Committee on March 12, then balloted and submitted to the Department. On June 18 the Sub-Committee submitted a second band plan to Committee - SRSP 303.7. This document is a proposed replacement of SRSP 303.5 for use by high capacity, point-to-point, digital radio systems. It was prepared in response to spectrum policy changes found in Annex 3 to *SP 3400-3700 MHz* (revision to SP 1-20 GHz, July 1998). The SRSP contains a new split band RF channel arrangement for high capacity radio applications in the band 3700-4200 MHz. The Committee approved SRSP 303.7; the document was subsequently balloted and submitted to Industry Canada on September 16.

Sub-Committee D has also provided comments to the Department on draft new RSS-192 (certification of fixed wireless access systems in the band 3400-3700 MHz). Subsequently, Industry Canada gazetted RSS-192 on November 6.

Finally, Sub-Committee D is developing interference objectives and co-ordination criteria between point-to-point fixed systems and non-GSO MSS feeder links (part of the fixed-satellite service). This study involves both the upper 6 GHz and 19 GHz bands. Because it is also inter-related with international work in ITU-R WP4-9S, the Sub-Committee is not expected to complete its report until WP 4-9S Recommendations are approved later in year 2000. Sub-Committee D continues to monitor these international events.

Sub-Committee J (Chaired by D'Arcy LeDrew, EFC)

Sub-Committee J, chaired by D'Arcy LeDrew, EFC/Alcatel, has responsibility for SRSP/RSSs in the 1-3 GHz band. This Sub-Committee has been very busy again this year:

- 1) The Sub-Committee prepared a draft Issue 2 of SRSP 302.5. The SRSP accommodates digital MCS and MDS systems in the bands 2150-2160 MHz and 2500-2690 MHz. The document was approved by the FWCC and, following review of the Department's spectrum policy *SP 1-3 GHz* (gazetted October 9), was balloted and submitted to the Department on October 22.

I would like to mention that the preparation of SRSP 302.5 illustrated another fine example of the working relationship between the Department and the RABC. Many thanks go to Phuong Vu of Industry Canada for his perseverance and understanding during the Sub-Committee debates. The SRSP was placed on the RABC web site for public reference during Industry Canada's MCS licence application phase and will be left there until the band plan is gazetted. The certification standard for 2.5 GHz MCS equipment is also under preparation. It has been provided the tentative designation RSS-[302.5] and is expected to be completed early in the new year.

- 2) The Sub-Committee prepared SRSP 300.953 concerning the operation of audio studio transmitter links and narrowband wireless local loop systems sharing the band 953-960 MHz on an urban/rural basis in accordance with the Department's spectrum policy *SP-944 MHz*. It is proposed that this SRSP replace SRSP 300.956. The SRSP identifies the priority geographic areas for STL operation. The preparation of the document was a joint effort with members of the Broadcast Committee. It was balloted and submitted to the Department in November.
- 3) The Sub-Committee also prepared SRSP 302.0, a draft new SRSP replacing the old upper 2 GHz plan (SRSP 301.9). The band plan addresses the use of the sub-bands 2025-2110 MHz and 2200-2285 MHz by VLC, LC and MC, point-to-point digital radio systems and electronic news gathering (ENG) systems. The P-P and ENG systems share the bottom sub-band, with ENG systems to be provided with preferential access in the Greater Toronto, Montreal and Vancouver areas.

The Sub-Committee also provided comments to the Department on GL-52, a technical guideline for the operation of radio devices and systems in the band 2400-2483.5 MHz, which led to Spectrum Advisory DGSE-SAB-002. Further, the Sub-Committee commented on RSS-139, Issue 1 which states the technical conditions under which radiocommunication devices must be licensed in the band 2400-2483.5 MHz. Since there are a number of licensed microwave systems and TV pickups in the band, licensing will be required under the specific conditions noted in the RSS.

The FWCC approved a proposal from the Department for a new adjacent band frequency co-ordination procedure for operators of Subscriber Radio Systems and digital radio broadcast (DRB) stations at 1.4 GHz. Sub-Committee J is applying this procedure in a draft revision of SRSP 301.4. It will be accommodating as well the spectrum policy revisions for wireless automated meter reading systems referenced in *SP 1-3 GHz*. The SRSP is expected to be completed early in the new year.

Sub-Committee on Gazette Notice DGRB-017-99

This is a new Sub-Committee established in November to address Client Procedures Circular CPC-2-06-01 announced in the subject Gazette Notice. George Nedoborski from Telesat Canada chairs the Sub-Committee. The first meeting is planned for December 14 to review the CPC and the text of a proposed RABC response. A response date of February 4, 2000 is required.

Other Committee Activities During 1999

In March the Committee appointed Rob Morse from EFC/Nortel Networks as Vice-Chairman. Congratulations to Rob.

Also, comments on the draft revision of RSS-210 (certification of low power licence-exempt devices) were managed at the Committee level, with input requested from Committee members.

In addition, CRC (Luc Boucher) presented a proposal to Committee members regarding use of the CRC wireless test bed (WISELAB) for fixed wireless applications. The test bed will provide opportunities for RABC members to test new wireless concepts, prototypes, and products, to evaluate competing technologies, and to experiment with new technologies and frequency bands. Members of RABC sponsor organisations have been requested to follow up directly with CRC.

Industry Canada has initiated study to determine appropriate parameters for fixed wireless fee models. FWCC sponsor members are participating in this preliminary work with the Department and are currently focusing on point-to-point (radio-relay) systems. This activity will continue into year 2000.

Looking Ahead to Year 2000

The Committee is expecting a heavy workload again next year. We anticipate that significant effort will again be required in the traditional areas such as new/revised SRSPs, RSSs, etc. In addition, the Committee will be required to delve into new spectrum planning and technical policy areas as Canada approaches WRC-2000, assesses the decisions from that Conference and Industry Canada continues its consultation process in the microwave and millimeterwave bands. Some of the issues include additional band plans for High Density Fixed Service (HDFS), frequency co-ordination process between fixed and fixed-satellite Earth stations and impacts of the IEEE 802.16 air interface on national implementation standards.

Concluding Remarks

Many thanks must go to the Sub-Committee chairmen – Keith Doucet, Remi Chayer, Rob Morse and D'Arcy LeDrew for their leadership and perseverance and to the Sub-Committee members and Industry Canada participants for their contributions throughout the year. Thanks also to George Nedoborski for offering to take on the responsibility of preparing a response to Gazette Notice DGRB-017-99.

Keith Doucet of Newbridge has moved to a new responsibility in the company. Consequently, Keith will not be able to continue with the area co-ordination activity in future but we wish him well. Also, Rob Morse from Nortel Networks recently indicated that he will be retiring and will no longer be able to carry on the RABC work in year 2000. We wish Rob all the best in his retirement. His leadership style will be missed. Finally, a special appreciation must go to Ted Campbell, our General Manager, for his organisational prowess, his uncanny ability to capture the various meeting actions and decisions and to ensure that the membership at large is kept informed, via the Internet and the RABC web site, of the accomplishments and events.

William J. Taylor, P. Eng
Chair, Fixed Wireless Communications Committee
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