



**Radio Advisory Board of Canada**

**Conseil consultatif canadien de la radio**

File: 3400-3/30

2005-01-14

Director of Spectrum and Radio Services,  
Industry Canada, Room 1611A,  
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**Radio Advisory Board of Canada Response to DGTP-008-04, *Gazetted* 2004-10-02  
SP 3-30 GHz Revisions to Spectrum Utilization Policies in the 3-30 GHz Frequency  
Range and Further Consultation**

**GENERAL**

The Radio Advisory Board of Canada commends the Department for the timely release of this consultation.

This is the second of a two part response. The first part (RABC file: 3400-3/30 dated 2004-11-01) was sent on behalf of the Chair of the RABC's Fixed Wireless Communications Committee; it confirmed the Board's support for:

- The decisions taken to form a base for this consultation;
- The provisional changes proposed in this consultation; and
- The revised footnotes in Section 7.

This response has been balloted in accordance with the RABC's long standing procedures.

This response deals with six main issues

- 3.4 - Priority to ITS 5850-5925 MHz
- 5.3.7 - LMCS rural use
- 6.4 - 3650-3700 MHz
- 6.5.2 - 71 81 92 GHz
- 6.5.4 - 21.2-23 GHz
- 6.9 - The Broadband Spectrum Cap

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The remainder of the text is keyed to these issues.

### **3.4 - PRIORITY TO ITS 5850-5925 MHZ**

*The Department is therefore proposing to establish by domestic footnote that DSRC systems in the FS and MS services will have priority over FSS operation:*

*C16X In the band 5850-5925 MHz the use of the fixed and mobile services has priority over the use of the fixed-satellite service. The use of the fixed-satellite service in this band shall be limited to applications that pose minimal constraints on the deployment of fixed and mobile service systems. An example of such an application would be the use of a small number of large aperture earth stations, taking into account existing and potential service areas for ubiquitous deployment of fixed and mobile service systems.*

*Comment is sought on the proposal for a domestic footnote to ensure that DSRC systems in the FS and MS services have priority over FSS operations in the band 5850-5925 MHz.*

The Board notes, as does the Department, that, “the List of Satellites Approved to Provide Fixed satellite Services (FSS) in Canada does not contain any satellites employing the band 5850-5925 MHz” and, therefore, the RABC agrees that there should be “a domestic footnote to ensure that DSRC systems in the FS and MS services have priority over FSS operations in the band 5850-5925 MHz.”

### **5.3.7 - LMCS RURAL USE**

*In order to facilitate access in rural areas, the Department proposes to divide the spectrum in the band 27.35-28.35 GHz into smaller blocks such as three paired blocks of 150+150 MHz separated by a common go-return spacing of approximately 550 MHz.*

*The Department also proposes to make licences to use this spectrum available on a first-come, first-served basis in rural areas where it is evident that there is more spectrum than demand.*

*The Department seeks comment on these proposals ...*

The Radio Advisory Board of Canada notes that the 1 GHz “complete package” licenses issued for LMCS have all been returned.

The Board urges the Department to adopt a flexible policy which does not prejudge the eventual deployments in this band. The Board considers it premature to make recommendations on block sizes, but will be prepared to make recommendations in response to any future public consultation.

The Board agrees that some bands should be available for use in rural areas under a first-come/first-served basis. Once trends become evident, which happens quickly, it will be possible to establish technical conditions for specific bands. Thus, the Board agrees with the proposals to:

“make licences to use this spectrum available on a first-come, first-served basis in rural areas where it is evident that there is more spectrum than demand.”

The Board notes that this consultation does not address licensing for urban areas for which applications and products will most likely be developed first and for which a separate consultation will be required.

*The Department seeks comment on these proposals as well as on the following:*

*(1) The suitability of defining rural areas as those areas for which the population density does not exceed 400 people per square kilometre as measured by the latest Statistics Canada Census Report.*

*(2) The designation of a buffer zone and/or other conditions to avoid encroachment on the eventual use of this spectrum in urban areas.*

*(3) The block pairing accommodates frequency division duplex systems. Are there measures which should be introduced or other accommodations which should be made for time division duplex systems (TDD) such as guard bands between the blocks, or dedicated spectrum for TDD use?*

The RABC notes that it has, previously, agreed to a rural/urban definition.

(1) The Board believes that the proposed definition of “rural areas” as “those areas for which the population density does not exceed 400 people per square kilometre as measured by the latest Statistics Canada Census Report” would appear to be reasonable considering that it is also simple to administer. It should be noted that on a similar exercise the FCC had reviewed some eight potential definitions for rural areas and settled on a figure of 100 persons per square mile or less (which equates to about 270 persons or less per square kilometre).

(2) The Board supports the establishment of an appropriate buffer zone and other conditions similar to those adopted in SP 3400-3700 MHz, to avoid encroachment on the eventual use of this spectrum in urban areas.

(3) While the use of FDD systems is likely to be prevalent, the Board recommends the adoption of a technology-neutral flexible policy to allow also the use of TDD systems. The Board would also recommend that the possible use of mesh networks by some operators be considered in the establishment of the new policy; some suppliers have been working on the development of such systems.

#### **6.4 - 3650-3700 MHz**

*The Department seeks comment on whether to make the band 3650-3700 MHz available for license-exempt applications. Comment is also requested on the types of systems and services that could be implemented in the band, and noting the availability of licensed spectrum in the adjacent bands, whether there is a requirement to continue the designation for licensed services in the band.*

*The Department also seeks comment on the measures which should be introduced for the treatment of incumbent licences in the band, noting the*

***existing policy for the accommodation of FWA services in the band 3500-3650 MHz.***

***(1) Are there measures which could be introduced for the operation of licence-exempt devices which would ensure the protection of existing licensed systems?***

***(2) How could such measures be enforced?***

***(3) Should existing licenses be grandfathered indefinitely or should a sunset period apply?***

The Board supports making this 3650-3700 MHz band available for licence exempt operations and notes that the FCC and ITU are currently studying the future of the entire 3400-5000 MHz spectrum, including licence exempt issues.

In particular, the Board notes the FCC Notice of Inquiry (FCC 02-328), released on December 20, 2002 on the possibility of permitting unlicensed devices to operate in additional frequency bands below 900 MHz and in the 3 GHz band. Since then, the FCC has initiated a rulemaking proceeding through their NPRM (FCC-04-100), released on April 23, 2004, to foster the introduction of wireless broadband operations in the 3650-3700 MHz band involving several proposals, including the following:

- allowing unlicensed devices to operate in some or all of the 3650-3700 MHz band with higher power than currently authorized under Part 15 Rules for unlicensed devices and subject to cognitive technology safeguards with features, such as –
  - fixed unlicensed devices would be subject to a professional installation requirement,
  - non-fixed unlicensed devices would be subject to “listen-before-talk” requirements for detecting any incumbent FSS earth stations sharing the band, and
  - unlicensed devices would also be required to emit standardized identification signal; and
- options that would allow for licensed operations in this band by fixed and mobile services, or segmenting the band to provide a combination of unlicensed and licensed terrestrial services. Licensed services could use cognitive technologies similar to those proposed for unlicensed devices to avoid interference to existing FSS earth stations

As stated in many past responses, the Board remains convinced that harmonization with the US is in the best interest of Canadians. Therefore, subsequent to the FCC’s finalization of the above NPRM and other international proceedings, the Board urges the Department to undertake a consultation for the appropriate utilization of the spectrum in the 3650-3700 MHz band. During that consultation it would be more appropriate to address the issues raised in the three questions raised by the Department for this band.

It is important to mention that the Canadian environment for the 3650-3700 MHz band is quite different from the US environment. This proposed band is immediately adjacent to a licensed 3500-3650 MHz band, which is not the case in the US; this might require a Canadian solution.

Protection of licensed services in the adjacent 3700-4200 MHz band would also need to be ensured. Specifically, any proposed 3650 – 3700 MHz band modifications must take into account existing Canadian licensed users both within the bands and in adjacent bands.

### **6.5.2 - 71 81 92 GHz**

*The Department seeks comment on the framework, including technical and operational rules which would be required to open the bands 71-76 GHz 81-86 GHz and 92-95 GHz for fixed service operation on a licensed, non-exclusive basis.*

*(1) What are the technical and operational limits which should be established to facilitate co-existence:*

*(a) among licensees within the fixed service*

*(b) with future implementations of co-primary services (FSS, BSS and MS services as applicable)*

*(2) What are the characteristics, data elements and access requirements for a database which could establish rights within an area based on date and time registration?*

*(3) Are there propagation models which could be readily incorporated to develop interference contours and increase sharing efficiencies?*

The Radio Advisory Board of Canada notes that the US has made this spectrum available for licensed use on a non-exclusive basis. The RABC supports harmonizing with the US in this matter.

The Board notes that the FCC had held a public forum in July 2000 to address possible new uses of the 92-95 GHz band. In September 2001 the FCC received a petition requesting the establishment of service rules for the licensed use of the 71-76 GHz and 81-86 GHz bands. In response to these developments, the FCC proposed rules in their NPRM (FCC 02-180; released on June 28, 2002) to allow the commercial use of the 71-76 GHz, 81-86 GHz and 92-95 GHz bands for a broad range of fixed and mobile services. Subsequently, on October 16, 2003 the FCC adopted service rules in their R&O (FCC 03-248; released November 4, 2003) for the 71-76 GHz, 81-86 GHz and 92-93 GHz bands to promote the development of an additional broadband deployment platform. In the same Order, the three bands were allocated to both Federal Government and non-Federal Government users on a co-primary basis, excepting the 94.0-94.1 GHz portion which was allocated for exclusive Federal Government use.

Some of the industry proposals that were provided during the FCC consultation were addressing the need for Gigabit capacities with a single go channel occupying the whole 70 GHz band and the return channel occupying the whole 80 GHz band, as well as the need for a simplified link licensing regime. In view of the complex issues involved in the questions raised by the Department for the efficient utilization of these bands, and noting the extensive deliberations by the FCC in its proceeding for these bands, the Board urges the Department to undertake a similar consultation for the development of efficient spectrum utilization and licensing policies for these bands.

#### 6.5.4 - 21.2-23.6 GHz

*The Department is seeking comment on the level of interest in opening a portion of this spectrum for license-exempt operation.*

*(1) Would spectrum within the point-to-point designation or the point-to-multipoint designation be more appropriate?*

*(2) What technical rules would be required to facilitate co-existence with fixed services as well as other co-primary allocated services in the band?*

*(3) How would cross-border interference/coordination be managed with the US?*

*(One possibility would be to only authorize entities capable of becoming radiocommunication carriers to operate license-exempt equipment in the band. Rules could then be established which would avoid the possibility of cross-border interference).*

The RABC agrees that there needs to be a good supply of licence exempt spectrum in various bands to facilitate new product and service development.

The Board believes that the Department's proposal for designating a licence-exempt (LE) band adjacent to a licensed fixed service band, which could be advantageous to operators for the rapid implementation of their networks, needs further review. Preferably, a separate consultation should be considered. Although there may be cases where the Department's proposal could be advantageous to licensed fixed operators, it is more likely to be a cause of concern to adjacent incumbents from interference considerations, as may be seen from the FCC's deliberations (ET Docket No. 98-156) for designating the 24.05-24.25 GHz band for unlicensed fixed point-to-point operations. A potential solution may reside in the establishment of guard channels to provide some isolation between the unlicensed and licensed users, but this requires further analysis.

The Department's specific proposal for designating the 21.6-21.8 GHz and 22.8-23.0 GHz paired bands, currently under "reserved" status, for licence-exempt operations, would raise, in the Board's view, similar concerns as discussed above for the adjacent use of the band as well as for cross-border interference coordination considerations with the US. Again, a separate consultation on this subject should be considered. This could be a single consultation for both bands.

It should be noted that the FCC has fully channelized the 21.2-23.6 GHz band for point-to-point licensed fixed service operations, mainly to accommodate the 2 GHz fixed systems displaced by PCS systems, and also to accommodate the growth of backhaul networks for cellular/PCS systems.

Considering the need to accommodate the displaced fixed systems under SRSP-318.5 in the band 18.3-19.3 GHz under the provisions for transition in the SP 3-30 GHz, and considering the significant use of the 21.8-22.4 GHz/23.0-23.6 GHz bands in Canada under the provision of SRSP-321.8, where some 1400 one-way links currently operate and are mainly used for backhaul by cellular/PCS service providers, the Board believes that the Department should consider a review of SP 23/38 GHz with the view to maximize the harmonization of the entire 21.2-23.6

GHz band with the FCC rules for the licensing of point-to-point systems on a first come-first served basis.

## **6.9 - Broadband Spectrum Cap**

*The Department seeks comments, with supporting rationale, on the proposal to rescind the spectrum cap for the bands 24, 28 and 38 GHz.*

The Board notes the minimal roll-out of wireless broadband facilities using the 24 GHz and 38 GHz spectrum resources since the auction of this spectrum three years ago. The Board also notes the return of the 28 GHz LMCS spectrum to the Department.

In the Board's view the present limited use of the spectrum in the bands 24, 28 and 38 GHz, together with the recent availability of additional spectrum in the bands 2.3 GHz, 2.5 GHz and 3.5 GHz for the purpose of broadband access and local wireless access facilities, would appear to provide ample spectrum for the provision of such facilities. Therefore, the Board agrees with the Department's assessment "that there now exists an opportunity for competition and delivery of a choice of services and that the spectrum cap is no longer required".


### **SUMMARY**

The Radio Advisory Board of Canada:

- Agrees that there should be "a domestic footnote to ensure that DSRC systems in the FS and MS services have priority over FSS operations in the band 5850-5925 MHz."
- For the use of the 27.35-28.35 GHz LMCS band in rural areas -
  - Agrees that some blocks could be made available under a first-come, first-served basis,
  - Considers it premature to make recommendations on block size,
  - Recommends the adoption of a flexible policy which is technology-neutral,
  - Agrees with the definition of rural areas, and
  - Recommends a separate consultation on licensing of systems in this band in urban areas.
- Supports the consideration of the 3650-3700 MHz band for possible licence-exempt operations, taking into account the eventual outcomes of the work of the FCC and the ITU, and ensuring protection for licensed systems within and adjacent to this band.
- Noting the complex issues involved in the FCC's deliberations for the use of the 71, 82 and 92 GHz bands, urges the Department to undertake a separate consultation for the efficient use of these bands.

- For the 21.2-23.6 GHz band -
  - Believes the Department's proposal for designating a licence-exempt band adjacent to a fixed service band needs further study,
  - Believes that the Department should initiate a review of SP 23/38 GHz to accommodate the displacement of fixed systems operating under SRSP-318.5 in the band 18.3-19.3 GHz that would be affected by the transition provisions for this band in Section 5 of the revised SP 3-30 GHz.
- Agrees with the Department's assessment that the broadband spectrum cap for 24, 28 and 38 GHz is no longer required.

Yours truly



Paul Frew  
President of the Radio Advisory Board of Canada