

Radio Advisory Board of Canada

Conseil consultatif canadien de la radio

March 12, 2009

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Subject: **Canada Gazette, Part I, December 19, 2009, Notice No. DGTP-010-09:
Consultation on the Spectrum Allocations and Spectrum Utilization
Policies for the Frequency Range 1435-1525 MHz (L-Band)**

The Radio Advisory Board of Canada is pleased to respond Canada Gazette, Part I, December 19, 2009, Notice No. DGTP-010-09: Consultation on the Spectrum Allocations and Spectrum Utilization Policies for the Frequency Range 1435-1525 MHz (L-Band)

The Board's response, prepared by a Joint Working Group, is attached.

This response was balloted to Board members. Fifteen of the RABC's 21 members responded as follows: 10 approved, 3 approved with comments, 2 abstentions and 0 disapprove ballots.

The Sponsor Member's comment (which form an integral part of the RABC's response) is as follows:

Comments from the RCMP:

The RCMP agrees with the RABC Response. Additional comments are provided below on the RCMP perspective to the L-Band consultation as an SRS spectrum incumbent:

- 1) The RCMP is an incumbent in the SRS spectrum (1435-1452 MHz paired with 1492-1525 MHz band). If we are asked to move in a short notice, we would suffer both from financial and operational hardships. We would like to continue to operate in this band for the next 5 to 10 years. This equipment provides us with very reliable communications.
- 2) The RCMP requires to be notified prior to any tests being carried out by the AMT in the SRS spectrum in order to avoid any disruptions to our operations.
- 3) The RCMP has 6 links and they are all, unfortunately, located within the 320 km radius from Mirabel Airport. These links carry encrypted voice traffic back from police members to their Dispatch Centre in Montreal. Clusters of radio sites scattered south-east of Montreal up to the border with the United States are tied to these L-band links.

4) On Section 3.2.3 (Treatment of Incumbent SRS), preliminary analysis indicates that we would be receiving AMT signal levels above the receiver sensitivity threshold level of our L-Band equipment (should AMT be allowed in the SRS top band). One of our receiver station is pointing directly at Mirabel and is 70 km away.

5) Retuning does not appear to be a short-term solution for the RCMP if asked to move as it would require a total changeover (transmitters and antennas) and may need the addition of sites. Other alternatives are being looked at (availability of T1 circuits and new IP technologies) but there does not seem to be a readily available replacement at this time. For example, costs to bring up T1 circuits to our sites could be quite prohibitive.

6) We would prefer an AMT transition in the middle band rather than at the top band in order to accommodate the AMT urgent needs (2012).

7) On Section 3.2.3 (Treatment of Incumbent SRS) and on Section 5.1.1 (Unpaired SRS Spectrum), the RCMP supports a minimum 5-year transition period for the incumbents in both SRS paired bands (1435-1452 MHz and in the top band 1492-1525 MHz).

We welcome the opportunity to discuss this further with the Department and the AMT industry in order to assess the real impacts to our facilities and to find alternatives that would be to our mutual benefit.

Comments from Bell:

While Bell concurs with the RABC submission, we also refer the Department to Bell Canada's submission, of the same date, regarding potential adverse impacts on several thousand subscribers currently served by SRS.

Comments by the Canadian Electricity Association

Regarding the submission being made by the L-Band WG of RABC, CEA's TTTG supports overall comments made by the WG. CEA would like to further support comments made at the bottom of pg. 3 – Section 3.2.2, N-MCS (Item 2): *The Department proposes to rescind the designation for narrowband multipoint communications systems (N-MCS) in the band 1493.5-1496.5 MHz* by including CEA in the following statement:

"Because of this, UTC and CEA are both recommending that the Department provide additional spectrum for the utilities industry for AMR applications in other spectrum internationally recognized for such use."

Yours truly,



Roger Poirier
General Manager

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Consultation on the Spectrum Allocations and Spectrum Utilization Policies
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Response of the Radio Advisory Board of Canada

Introduction

The Radio Advisory Board of Canada (RABC) is pleased to respond to Canada Gazette, Part I, December 19, 2009, Notice No. DGTP-010-09: Consultation on the Spectrum Allocations and Spectrum Utilization Policies for the Frequency Range 1435-1525 MHz (L-Band).

The RABC has undertaken a review of the Consultation Document through a broadly-based working group. Because of the large number of interrelated issues raised in the Discussion Paper, the group had earlier requested that the filing date for comments be extended to March 31. While we thank the Department for extending the filing deadline to March 12th, we emphasize there has been insufficient time to undertake any technical analysis related to the interference questions or to determine what feasible alternatives are available for SRS systems that may be displaced. Unfortunately both those factors are critical in this review. Should the Department request it, the Board is prepared to assist in any efforts to provide greater clarity on the issues. In addition, other interested parties may provide some of the needed information in their respective filings.

Industry Canada is proposing to:

1. designate new spectrum for AMT at the top of the band;
2. rescind the DAB designation in the middle of the band, to be replaced by a designation for flexible use licences; and,
3. provide more flexibility and develop a new band plan in the bottom of the band.

Summary

With respect to the first main proposal, we are concerned with the plan to re-designate the band 1492-1525 MHz for AMT for the following reasons.

- The requirements of the aerospace industry are in fact quite limited. There are only two regions of 320 km radius around Mirabel and Downsview airports that are affected. Yet, the re-designation of the entire band to AMT will change the assignments of hundreds of SRS systems across Canada to secondary status.
- The Board believes that further examination is required to determine whether AMT and SRS can co-exist within the areas in question. In fact there may be only a handful of links (if any) that may need to be changed.
- The Board is concerned about the lack of readily available alternatives for SRS systems. For the most part, SRS systems provide essential telephone services to thousands of Canadians. It would seem imprudent to proceed with the proposal without fully understanding the long-term repercussion on these systems.

As for the other two main proposals, the Board is essentially in agreement.

Detailed comments are provided in the following sections of this submission.

Response to Specific Questions

Our responses below adopt the same section numbering scheme as used in the Department's Consultation document.

3.2.1 AMT

Item 1:

The Department proposes to designate the band 1492-1525 MHz for aeronautical mobile telemetry.

The Department seeks comments on this proposal, and on the potential locations of AMT test areas, and particularly whether they would be across Canada or only in certain areas.

The Department also seeks comments on whether other portions of the range 1452-1525 MHz could be used for AMT.

On the first question, the Department has indicated that there is an urgent need by the Aerospace industry for access to sufficient spectrum for Aeronautical Mobile Telemetry (AMT). The aerospace industry has indicated strong support for the proposal and "welcomes and agrees with the Department's proposal to designate the band 1492-1525 MHz for AMT". Members of the aerospace industry are expected to provide extensive comments to the Department in response to the proposal to designate the 1492-1525 MHz for AMT use.

On the other hand, re-designating the band 1492 -1525 MHz for AMT could have a number of consequential effects on existing services in that band, most notably on existing Subscriber Radio Systems (SRS). For the most part, these systems are used to provide telephone access facilities in high-cost rural and remote regions of the country.

We suggest that some of the technical assumptions dealing with AMT/SRS interference, as well as technical alternatives for SRS displacements have not been adequately studied.

On the second question, two aerospace manufacturers have been identified with flight-test telemetry needs. Both manufacturers have ongoing telemetry operations based at the Mirabel Airport (YMX) near Montreal and one has intermittent telemetry operations based at the Downsview Airport (YCD) in Toronto, ON. One of these manufacturers does not foresee, on a short term basis, using L-band spectrum for AMT at either site provided that DND still give access to S-Band spectrum 2360-2400 MHz for AMT. On a long term basis, in order to fulfill ever increasing telemetry needs, the company does not exclude possible use of the L-Band spectrum.

AMT also has the capability to deploy quickly to remote flight test sites. Other Flight Testing operations in Canada are usually done on a temporary basis in remote area, e.g., cold weather testing in the far North (Thompson, MB, LG2, QC,) could continue to be supported in the S-Band spectrum as long as DND continues to coordinate access for AMT.

Due to the risk involved, flight-testing requires that the use of telemetry generally be limited to designated test ranges and airspace. These test areas typically do not extend beyond 320 km from the receive site because of line-of-sight limitations. Therefore, the Department might consider limiting new AMT spectrum allocations to a 320 km radius centered on points located at each of the two airports, Mirabel (YMX) and Downsview (YCD), where telemetry operations are established.

On the third question, the aerospace industry has expressed an urgent need for an additional 25 MHz of AMT spectrum in order to meet requirement in the Mirabel area beginning in 2012. Two alternatives to satisfy the need have been suggested, including the use of the 1452-1477 MHz

band on an interim basis or shortening of the SRS notification and transition period, thereby making the 1492-1525 MHz band available for the 2012 time frame.

Following several discussions on this issue, the RABC has not been able to achieve consensus. Broadcasters have advised that their principal concern is that new multimedia services may be assigned portions of the 1452-1492 MHz band following the present spectrum review and these must be able to commence operations as quickly as possible. Broadcasters consider that authorizing AMT operations below 1492 MHz, even temporarily, would limit the ability of these new operators to achieve a timely roll-out of services in spectrum that they have purchased at auction or been awarded through conventional licensing processes. The actual spectrum within which such licensees would operate is unknown at this time; therefore, it is premature to conclude that AMT could operate in any part of this band.

Similarly, the SRS incumbents oppose shortening the SRS transition period for vacating the 1492-1525 MHz band; a minimum 5-year notification period is required, which follows standard procedure of the Department.

As discussed below under Item 3, we suggest that it may be possible for AMT to operate in the band 1492-1525 MHz with minimal interference and/or disruption to existing SRS systems thereby avoiding the need for an interim solution to AMT needs.

3.2.2 N-MCS

Item 2:

The Department proposes to rescind the designation for narrowband multipoint communications systems (N-MCS) in the band 1493.5-1496.5 MHz.

The Department seeks comments on the above proposal.

The Board agrees with the proposal to rescind the designation for narrowband multipoint communications systems (N-MCS) in the band 1493.5-1496.5 MHz.

The Board has consulted with members of both UTC Canada and CEA on this issue and concludes that there is no interest in the use of this band for AMR use for public utility telemetry. This is based on the non-availability of suitable automatic meter reading (AMR) equipment in this band. Because of this, UTC is recommending that the Department provide additional spectrum for the utilities industry for AMR applications in other spectrum internationally recognized for such use.

3.2.3 Treatment of Incumbent SRS

Item 3:

The Department proposes the following transition policy for SRS in the band 1492-1525 MHz:

- *SRS which may cause or be subject to harmful interference from existing or planned AMT systems will be subject to a transition policy.*
- *The transition policy would provide a five-year notification period during which SRS are protected and may operate as licensed. Five years after receiving such notification, these systems may continue to operate on a no interference, no protection basis. Notification would be issued on an "as required basis."*

The Department seeks comments on the above proposal.

We find it difficult to state a firm opinion on the whole question surrounding the treatment of incumbent SRS in the band 1492-1525 MHz.

Firstly, the Department has indicated that within the two flight test areas, their analysis indicates that SRS and AMT are not compatible. In other words, SRS will likely suffer harmful interference from AMT or vice versa. However, members of the working group have questioned the validity of this conclusion. Representatives of the aerospace industry have questioned some of the studies undertaken in this regard and have suggested that the Department's analysis significantly overstates the interference issue. Similarly, following some preliminary analysis, UTC Canada believes that SRS systems operated by the utilities will not interfere with the AMT systems in the test flight zones in the Mirabel or Toronto area and are proposing that the Department allow such SRS systems to continue to operate both during and after the transition period.

Representatives from the aeronautical industry and SRS incumbents have provided the RABC Working Group with equipment operating parameters and have suggested that a review of the impact analysis be undertaken. Affected parties have expressed an interest in undertaking actual flight testing to help resolve the issue.

The RABC believes that further engineering analysis should be undertaken to determine if AMT and SRS can co-exist in the 1492-1525 MHz band. It is entirely possible that the number of problem sites could be quite small and these could be dealt with on a case by case basis.

If interference problems can be dealt with, there is no need to find an interim solution for AMT. As a minimum, it may be necessary to advise the incumbent SRS operators, through a revision of SRSP-301.4, that there is the possibility of interference to SRS systems due to aeronautical mobile operations in the vicinity of Mirabel and Downsview airports.

Secondly, the Department has indicated that affected SRS operators could readily replace SRS equipment with TDD type systems that could continue to operate in the paired band 1435-1452 MHz. While such equipment would seem to exist (although limited in availability) SRS incumbents have indicated that such equipment is unlikely to provide an alternative to existing SRS equipment. In fact, if existing SRS systems are required to cease operation, this would likely require radically different and expensive solutions to serve these communities. One incumbent operator in BC has stated that it would cost the company in excess of \$30 million to accommodate the Department's proposals affecting SRS. There has been insufficient time to explore in any detail what alternatives to existing SRS systems might be feasible.

4.2 Proposals for a spectrum Utilization Policy for the Band 1452-1492 MHz

Item 4:

The Department proposes to rescind the DAB Allotment Plan for the band 1452-1492 MHz, including all associated channels to FM and AM stations across the full band 1452-1492 MHz.

The Department seeks comments on this proposal.

The Board agrees with the proposal to rescind the DRB Allotment Plan for the band 1452-1492 MHz, including all associated channels to FM and AM stations across the full band 1452-1492 MHz.

The current DRB Allotment Plan was based on the original digital radio implementation policy for Canada, which was modified extensively by the CRTC in 2006, immediately prior to the Department's announcement that no further licensing will occur in the 1435-1525 MHz band until the present spectrum review has been completed. Since new types of multimedia broadcasting services are contemplated by both the Commission (Ref: Broadcasting Public Notice CRTC

2006-160, paragraphs 58-60) and the Department (Ref: DGTP-010-09, Section 4.2), it follows that a different type of allotment plan would be required to accommodate such services.

The Board recommends that, once decisions have been taken with respect to the current consultation, the Department should commence negotiations with the licensees of operating DRB transmitters in Montreal, Ottawa, Toronto and Vancouver with a view to determining whether these operations might continue under the revised allocation plan for 1452-1492 MHz and, if so, how this might be achieved.

Item 5:

The Department proposes to adopt a spectrum utilization policy allowing for flexible use of the spectrum to support a variety of services and technologies for subscription broadcasting, multimedia, fixed and mobile broadband applications.

The Department seeks comments on this proposal.

The Board has no specific views at this time as to the types of services that should be allowed in this band. We note that the Department intends to consult further on the policy and licensing framework for the 1452-1492 MHz band. The Board agrees strongly that a further public consultation is desirable and the primary outcome of the present process should be only to make appropriate changes to the Canadian Table of Frequency Allocations and related footnotes so that the desired licensing flexibility can be achieved.

With respect to the future use of this band, the RABC notes the existence of International Footnote 5.345, which limits the use of the band 1452-1492 MHz by the Broadcasting Service to “digital audio broadcasting”. If some of the new types of services mentioned in DGTP-010-09 are to be implemented in this band, and these services are deemed to be Broadcasting, then modification of this footnote by Industry Canada may be required to support other new broadcasting services.

5.1.1 Unpaired SRS Spectrum

Item 6

The Department seeks comments on a suitable band plan and technical criteria (including the need for guard bands) that can facilitate planning the use of this band.

It is unclear at this stage whether there is any applicability for TDD technologies as a viable alternative to existing paired SRS systems that may need to be displaced as a result of band changes to accommodate AMT. While some equipment would seem to be available from one vendor for this purpose, there is little likelihood of any new equipment being designed for such a limited amount of spectrum (17 MHz, from 1435-1452 MHz).

As is noted in Item 9 below, we believe it is premature to examine such band plans.

5.2 Proposal for a Spectrum Utilization Policy for the Band 1435-1452 MHz

Item 7:

The Department seeks comments on the following:

- 1. Should the designation to SRS be maintained;*
- 2. Should the spectrum utilization allow for flexible use of the spectrum, for both fixed and mobile, and for both narrowband and broadband services;*
- 3. Should the spectrum be available only in rural areas, using the first-come, first-served licensing mechanism, and reviewed for use in urban areas in a few years, or should the spectrum be made available in urban areas immediately;*
- 4. If the spectrum is to be made available in urban areas immediately, what service and applications should be considered for a spectrum utilization policy?*

We have consulted with incumbent SRS operators on the need for further development of SRS in Canada and have concluded that little deployment of new SRS systems is likely to occur. Incumbents have expressed a need to grandfather existing systems, as well as some possible expansion to these existing systems. Any expansion should require a new licence rather than an addition to the existing licence, in order to ensure it fulfills applicable rules for spectrum usage.

As such, we agree that the band could be examined for possible flexible use of the spectrum to support a variety of services and technologies similar to that contemplated for the 1452-1492 MHz Band. Consultations on possible uses for this band could be undertaken at the same time as those being proposed for services in the 1452-1492 MHz band.

Item 8:

Should the spectrum be reserved only for rural areas, the Department seeks comments on a suitable definition of rural and urban areas for the application of the spectrum utilization policy for the band 1435-1452 MHz.

Except for the condition that existing SRS systems operating in the band should be grandfathered, i.e., protected, the spectrum should be made available for licensing for general use both in urban and rural areas.

Item 9:

Considering the characteristics of the new equipment for SRS, the Department seeks comments on a suitable band plan for implementation of TDD technologies.

We believe it is premature to examine such band plans. Other technologies involving FDD could also be deployed efficiently in these bands. An appropriate band plan, including paired spectrum, should be looked at in the context of SRSP 301.4 following a review of the policy and licensing framework for the bands in question.

6. General Questions Related to the Band 1435-1525 MHz

Item 10

The Department is seeking comments on the spectrum requirements of each application (AMT, SRS, and flexible use), the band plan and band division, and any issue that may impact the economic and social benefits that Canadians could derive from the use of this band. In particular, the Department seeks comments on how the different policy proposals could affect the cost of operation, the cost to subscribers, or competition.

In addition, the Department is planning or has already initiated various other consultation initiatives. As a result, the Department seeks guidance as to the timing to implement the outcomes of this consultation, including additional consultation exercises that may be required concerning licensing approaches, etc.

We suggest the questions should more appropriately be dealt with by various parties interested in developing services within these bands.

With respect to timing, there are a number of unresolved issues in relation to interference and technical options for services migration. A critical element of this consultation is the accommodation of AMT in the bands in question for long-term and possibly for an interim period. Further consultations regarding the licensing options for the bands 1435-1452 MHz and 1452-1492 MHz should be initiated to help resolve the above issues.

If the Department chooses to give priority status to AMT in the band 1492-1525 MHz, then sufficient spectrum must be provided to incumbent SRS operators to accommodate displacements over the medium to long term. The band 1435-1452 MHz may be insufficient to accommodate displaced SRS systems, depending on the extent to which these systems will need to be displaced.

7.1 Proposed Changes to the Canadian Table of Frequency Allocations for the Band 1492-1525 MHz

7.1.1 MSS

Item 11:

The Department proposes to remove allocation entry for the mobile-satellite service from the Canadian Table of Frequency Allocations in the bands 1518-1525 MHz and associated footnotes 5.348, 5.348B, 5.351A and C31, as outlined in Annex 1. Also, the Department proposes to adopt international footnote 5.343 next to the mobile allocation.

The Department seeks comments on these proposals.

The Board agrees with the Department's proposal.

7.1.2 AMT

Item 12:

The Department proposes to merge the two sub-bands 1492-1518 MHz and 1518-1525 MHz, and to adopt international footnote 5.343 next to the mobile allocation.

The Department seeks comments on these proposals.

The Board agrees with the Department's proposal.

7.2 Proposed Changes to the Canadian Table of Frequency Allocations for the Band 1452-1492 MHz

7.2.1 Broadcasting Satellite Service (BSS)

Item 13:

The Department proposes to remove the allocation entry of broadcasting-satellite service (BSS) from the Canadian Table of Frequency Allocations in the band 1452-1492 MHz and suppress associated footnotes 5.208B, C28 and C40, as outlined in Annex 1.

Comments are sought on this proposal.

The Board agrees with the proposal. However, we note that the current terrestrial Broadcasting use of the 1452-1492 MHz band substantially protects Canadian allotments against interference from US AMT. This flows from the Canada-US 1998 agreement on T-DRB/AMT sharing in this band. In the event that any 1452-1492 MHz spectrum is re-allocated for Mobile use in Canada, these new licensees may become subject to the provisions of International Footnote 5.343 which states, "In Region 2, the use of the band 1435-1535 MHz by the aeronautical mobile service for

telemetry has priority over other uses by the mobile service". This may make non-AMT Mobile uses in Canada subject to US AMT interference in border areas.

7.2.2 Mobile Service

Item 14:

The Department proposes to elevate the status of mobile service to co-primary with broadcasting and fixed services in the band 1452-1492 MHz, as outlined in Annex 1.

The Department seeks comments on this proposal.

The Board has no comments on the proposal at this time.

7.2.3 DAB

Item 15:

The Department proposes to suppress Canadian footnotes C29 and C30 to reflect the co-primary nature of all allocations in the band 1452-1492, as outlined in Annex 1.

Comments are sought on this proposal.

At present, the Fixed Service shares co-primary status with Broadcasting. These two footnotes were considered necessary so that members of the public who acquire L-Band broadcast receivers do not become subject to interference from Fixed services (e.g. SRS). The possible addition of co-primary Mobile to the band does not detract from the need to ensure that licensed Broadcasting services are adequately protected in the event that they continue to exist in this band.

DGTP-010-09 states, "A future public consultation will address the policy and licensing framework for the band 1452-1492 MHz." Therefore, the Board considers that it is premature to delete these two footnotes until such time as this second phase is concluded. In the event that a Broadcasting allotment plan were to be retained in this band, these two footnotes, or some variation thereof, will still be required.

7.3 Proposed Changes to the Canadian Table of Frequency Allocations for the Band 1435-1452 MHz

Item 16:

The Department proposes to add international footnote 5.343 for the frequency range 1429-1452 MHz.

Comments are sought on this proposal.

Footnote 5.343 says: "In Region 2, the use of the band 1435-1535 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service". Given that the Canadian AMT at L-band will eventually be confined to 1492-1525 MHz, the main beneficiary of adding this footnote would be the US, whose AMT in the 1435-1452 MHz band would not have to protect any new Mobile users in Canada that are not AMT. In fact, even without adding this footnote, non-AMT mobile applications may not be viable in Canada. Such mobile applications are expected to be concentrated mainly in populated areas, which are close to the US border. Since US AMT, as per ITU-R Region 2 Radio Regulations, has priority over other mobile service

applications, it is anticipated that non-AMT mobile applications may well suffer from significant interference which would render such applications unreliable and therefore would not be an efficient use of the spectrum.
