

Date: Friday, May 14, 1999 8:52AM

Radio Advisory Board of Canada

Conseil consultatif canadien de la radio

File: 5200

1999-05-14

Industry Canada

300 Slater Street,

Ottawa, ON.

K1A 0C8

Attention: Director General Telecommunications Policy

Radio Advisory Board of Canada Response to Canada Gazette Notice DGTP-002-99 dated 1999-03-06, CONSULTATION ON WHETHER TO PERMIT LICENCE-EXEMPT FAMILY RADIO DEVICES IN THE LAND MOBILE FREQUENCY SUB-BANDS 462/467 MHz

Attached, in rich text format, is the RABC response to the subject Gazette Notice. This response was prepared by a Working Group (chaired by Paul Frew/EFC) of the Board's M&PC Committee and was sent to ballot on 1999-05-06. Final ballot responses are not due in until 1999-05-20.

To date the following have responded:

Approve:           APCO Canada;  
                  Canadian Cable Television Association;  
                  Mobility Canada;  
Disapprove:    Nil  
Abstain:           Department of National Defence;  
                  FCSA;  
                  NAV CANADA;  
                  Railway Association of Canada.

The final ballot results will be sent on or after 1999-05-21.

Yours truly

//original signed by//  
E.R. (Ted) Campbell  
General Manager  
Radio Advisory Board of Canada  
Conseil consultatif canadien de la radio

## **RABC Response to Canada Gazette Notice DGTP-002-99, dated 13 March 1999:**

### **Consultation on Whether to Permit Licence-Exempt Family Radio Devices in the Land Mobile Frequency Sub-Bands 462/467 MHz**

The Radio Advisory Board welcomes the opportunity to comment on *Canada Gazette* notice DGTP-002-99 addressing, what is now an urgent spectrum issue regarding the proposed Family Radio Service in the UHF land mobile band.

The Board has general comments on sections 1 through 3 and 5. All the substantive comments that follow are related to the questions set out in section 4.

#### **General**

The Family Radio Service (FRS) continues to have a phenomenal rate of growth as is shown in the response to section 4. It is also spreading rapidly to Latin and South America, Europe and Asia. In these areas there are approximately 20 countries that are already offering this service or are expecting to do so shortly.

FRS is a new type of service filling an old, established public need: inexpensive, unlicensed radio communications meeting a very wide variety of short-range, mobile applications. While, as its name suggests, the radios were originally intended to allow families to stay in contact in shopping malls and on the ski slopes, many other applications are appearing - as quickly as the public can buy the radios. These new applications include, for example, functions like neighbourhood watch, vehicle-to-vehicle communications, and even replacing certain commercial land mobile systems used for light duty applications.

The Radio Advisory Board is very concerned that the Family Radio Service has gained broad consumer acceptance in Canada well in advance of regulatory action by Industry Canada. There is now a large grey market. These radios are currently being sold in Canada and are in common use – by Canadians – in resort areas. The lack of regulation and the grey market deprives legitimate Canadian suppliers. It also questions the spectrum management system. Government and the industry sectors seeking to introduce new services have a joint obligation to manage the introductory process so that current users are not adversely effected and the public has timely access to new services. The grey market ties the hands of both government and industry.

The Board wishes to draw the Department's attention to two points:

A) Not all users will need to be displaced. While the problem of displacement of licensed users is uppermost in everyone's mind, it is by no means the only way to allow the FRS into the bands in question. Current users will fall into four categories:

- Those unaffected by the FRS operation. Certain current users operate land mobile radios in confined areas or in a rural environment where it is unlikely that they will suffer harmful interference. They should be allowed to continue their operations until Industry Canada determines otherwise and with the understanding that they could experience interference from the FRS.
- Those incumbents who will receive manageable amounts of interference. Certain users will receive some interference but will be able to minimise its affects through the use of sub-audible codes or other techniques. They should also be allowed to continue their operations until Industry Canada determines otherwise and with the understanding that they could experience interference from the FRS. Some will determine that the FRS could potentially meet their requirements at a lower overall cost than their existing licensed land mobile radio service.
- Those who will suffer harmful interference from the FRS. Certain users, due to system design requirements and heavy FRS usage, will receive interference that will be deemed to be unacceptable to them. Safety services in highly populated areas would be one example of a system that could be in this category. These users could be accommodated in the following ways:
  - Changes in system configuration such as antenna height, gain or direction.
  - Reprogram their existing radios to operate on another UHF channel.
  - Move to an UHF community repeater service using their current equipment.
  - Moves to other shared services such as a SMR or an ESMR using new equipment, which could potentially, give them improved service.
  - Purchase a replacement system that will operate on other available channels.
- Those who cause significant interference to the FRS.

B) The market for the FRS is active and growing. Time is of the essence if the Government of Canada and Canadian industry wish to manage the process rather than respond to it.

#### **4.0 Comments Invited on Whether Family Radio Devices Should Be Accommodated**

- a) **What are the consumer benefits and level of public interest in permitting FRS devices to operate in Canada?**

The experience of FRS in the United States points to an extremely high level of interest in the benefits FRS devices provide. The category has seen rapid growth in the USA. In its first full year of sales - 1998 - **2,000,000** units were sold. **4,000,000 units** are forecasted to be sold in 1999. Expectations remain high for 2000 with an industry consensus of **6,000,000** units.

Based on US market data, it is projected that, after markets have been established, Canadian vendor would realise a penetration of:

Year I	<b>200,000</b> units
Year II	<b>400,000</b> units
Year III	<b>600,000</b> units

Estimated three-year sales exceed \$180,000,000 of which \$27,000,000, in GST and sales taxes, would flow to the federal and provincial governments. The Industry Canada approval timeline naturally impacts these figures. Delays lend impetus to grey market activity and diminish the potential for legitimate distributors and retailers.

FRS radios are being sold in the USA by a wide variety of retail channels, including electronics/appliance retailers, mass merchandisers, department stores, club stores, sporting goods chains, office supply chains, building supply chains, TV home shopping channels, and hundreds of catalogues. The wide distribution illustrates two key factors in the product's appeal and success:

1. FRS radios can be used in a large number of situations; and
2. In most of these situations, two-way communications are neither practical nor affordable other than with FRS radios.

These situations include:

- Neighbourhood communications
- Leisure time communications
- Outdoor sports communications
- Small business communications
- Vehicle-to-vehicle communications
- Public safety (security at events, etc) auxiliary functions

Product primary benefits include:

- Safety and Security
- Affordable
- FM sound clarity

- UHF ability to penetrate structures and other obstacles
- Range of up to 2 miles/3.3 km
- No license required
- Multiple codes within each channel for greater level of privacy

**b) Could the manufacturers and distributors facilitate the move of the most seriously affected base stations of land mobile users to other frequency bands to permit the introduction of family radio devices?**

The RABC notes that the market potential for this product is substantial and the demand is immediate. In the interests of establishing legitimate markets quickly, certain suppliers have expressed a willingness to assist the most greatly affected incumbent users with the cost of reprogramming equipment to new frequencies, or, where this possibility does not exist, to assist in the cost of modifying or purchasing new radio equipment.

However, the Board has certain concerns and questions concerning the amount, the degree, and the mechanics of such assistance. The RABC offers the following proposal, with suggested conditions, and questions that need to be addressed before any official commitment will be reached.

**Proposal:**

The Board proposes a two-phase fee collection strategy.

In the first phase, parties interested in obtaining type approval for a FRS device would be required to submit a standard (predisposed) fee.

In the second phase, FRS suppliers would be required to buy certification stickers to indicate that their product is type approved. The amount collected from sticker sales must only be sufficient to cover reasonable costs of displacing current, licensed users.

There is an existing, well established, and efficient sticker sales and management process, within Industry Canada, which is well suited for indicating to consumers that their product is acceptable for use in Canada, thus choking off the grey market, and for collecting the money necessary to compensate displaced users.

Suppliers should be invited to recommend the cost of each sticker. These costs will have to be carefully balanced to cater for market conditions, including consumers' price expectations, so that the grey market does not continue to thrive because of the cost of approved products.

The Radio Advisory Board of Canada is willing to assist Industry Canada in the creation of an application and set of criteria for assistance.

## **Conditions**

The RABC is concerned because it is clear that the grey market in Canada is sizeable. Although no data exists to identify the number, the sheer size of the US FRS market suggests that in Canada there could be thousands of units. This grey market is preventing Board Members from fulfilling market demand for their own product and potentially eliminating monies that would be used to help IC with the incumbent users who might be impacted by FRS approval. The Board wishes to ensure that Canadians can meet their needs for this service through legitimate sales by Canadian vendors. To facilitate an early (1999) market and to ensure that funds are available to compensate displaced users, the Board's recommends that:

- The collection of all funds is to be managed by Industry Canada.
- The total amount collected is to have a pre-agreed dollar limit.
- Separate certification stickers would no longer be required once the negotiated industry contribution level limit has been reached or two years after sales commence. (I.e. if, by the expiry date, the negotiated dollar limit had not been reached, the fee would cease to be collected).
- The fee would be collected from ALL suppliers/retailers until such time as the dollar limit is reached or the expiry date passes. This is included to ensure a level playing field for all FRS distributors
- Approval to sell FRS is given prior to 1 September 1999 because time lines on production, packaging, product information inserts and translation are long, and to hit this key selling window (leading up to Christmas sales) the wheels of the supply chain must start turning now.
- Any funds remaining subsequent to the closing of the fund would be redistributed to the contributors in proportion to their total prior contributions or as otherwise agreed to.

## **Follow-up Questions to be addressed Prior to Any Industry Commitment**

- The RABC is not in a position to carry out the required engineering studies to determine the number of users that will require new systems. After reviewing the list of current users the Board believes that the number of active licensed users may be closer to 4,000. Of these, how many has Industry Canada determined will need, a) new systems and b) reprogramming / re-tuning?
- The suppliers would like to discuss further with Industry Canada the amount required and amounts paid to incumbents and associated issues.

- How does the narrow-band Refarming project impact the real number of affected users (i.e. How many of the affected users are going to have to move in the near future, as part of the narrow band Refarming project)

The Radio Advisory Board of Canada is eager to arrive at a resolution to this issue. Industry Canada Officials have indicated that an agreeable response to the captioned question would likely expedite our desire for a legitimate FRS marketplace in Canada. The Board recognises this implication and understands that the suppliers are willing to respond in a fair and equitable manner. Having said this, the group also requires that the solution is fair and equitable to their interests as well. In this regard, the group is eager to work closely and diligently with Industry Canada officials to quantify and identify the most greatly conflicting incumbents, apply an exercise to estimate the cost of solving these conflicts, and determine a suitable strategy to move forward with the solutions.

**c) Do the land mobile users believe that the burden of moving to other frequency bands is outweighed by the effects of the potential for some interference to their overall operations?**

The land mobile users acknowledge that the FRS manufacture and distribution representatives on the committee are looking for a very quick displacement (this fall) of the incumbent licensees (those who will most likely receive and cause interference to/from the FRS users). This is a challenging task as it may be difficult to find replacement channels for the existing licensees. However, the FRS units purchased via the grey market will also cause a problem. Therefore, the land mobile users agree that a quick resolution should be found.

It is likely that FRS radios could end up as part of the product line operated by some land mobile users and would provide benefit to the same. However, the implementation of the FRS can be seen as an example of a general threat to scarce, commercial land mobile spectrum currently occupied by licensed users, who appear to have little recourse to actions like the initiation of FRS south of the border. New uses such as FRS and continued demand / growth of traditional two-way users has put tremendous pressure on the existing bands. Allocating additional spectrum for Land Mobile use must become a priority for Industry Canada.

Land mobile users believe that a major challenge in resolving this situation will be in finding acceptable replacement radio channels for the incumbent users. If unoccupied land-mobile spectrum were readily available, it is likely that the severity of this situation could be minimised. It is generally accepted, however, that the demand for land mobile radio spectrum exceeds the supply and may leave the existing user with very few alternatives.

Without a detailed examination it is difficult to determine the levels of interference that may be acceptable to a user. This mainly depends on the nature of the user's business and the occupancy level of the radio channel. It is expected that a significant number of users will be able to continue to operate on their current channels for the short to medium term, at least. Some users will suffer harmful interference and will require either re-tuning of their current radios or will need new stations. This latter group, which is expected to be small, will need to be displaced.

The Radio Advisory Board of Canada recommends a case by case approach to interference resolution. The incumbent licensees should make the necessary decisions with Industry Canada's guidance, with displacement being the final option.

**d) What measures, if any, could be introduced to enable existing land mobile users of the frequencies to share spectrum with family radio users either in the short or long term?**

FRS products currently being sold in the United States are generally being used for recreational purposes. These recreational areas in most cases are located outside of where land mobile users traditionally operate. It is recognised, however, that the FRS products will be used in and around existing, land mobile users. To accommodate land mobile users through either a short or long transition period, FRS product manufacturers can include an addendum in their user manuals. The addendum would advise users of FRS products what channels to avoid in particular areas of Canada. An example of how the addendum could read is,

*'As FRS is new in Canada, some users in various regions of the country may experience interference on particular channels, due to past allocation of the frequencies now used by FRS radios. To reduce the potential for interference, check the chart below for channels to avoid in your area. The information on this chart is subject to change, over time.'*

**e) What would the impact be on existing, land mobile users if family radio devices were permitted without limitation?**

The impact on existing users cannot be assessed without a detailed study, which is beyond the Board's means. There is already, a significant and growing grey market. The RABC is not aware of any interference to licensed users caused by the FRS, however, your Department may be aware of some instances of interference. It is expected that these interference levels will grow, as the service expands through legitimate or grey market sales. Since the Board assumes that the existing, reported, interference is minimal it must also be assumed that future problems will be manageable through a case by case process.

This would, however, depend on:

- How quickly present users of these channels are migrated to new assignments, and
- Current loading on these channels, region by region, across Canada.

If there is no migration plan, or the plan developed is one taking several years, the impact would be difficult to estimate.

FRS products have several features that would alleviate potential negative impact to existing users.

They are:

- Some models are equipped with BCLO (Busy Channel Lockout)
- The availability to move to another channel (14 channels available)
- Once a FRS product user identifies a channel of low or no activity, they will tend to use that channel.

f) **Can manufacturers and distributors modify the operational design of family radio devices to prevent or limit harmful interference to existing, land mobile licensees from family radio users? For example, could family radio devices be modified to operate on seven channels as opposed to the current fourteen channels?**

It is not practical to manufacture a product to accommodate special markets conditions considering the number of units to be sold in Canada and the change(s) that would have to be made, this alternative would be unprofitable for manufacturers.

The goal is to keep the product features in Canada and the United States the same. It is generally understood, by the public, that products purchased on either side of the border will work and can be used anywhere within the two countries. A product sold in Canada that is perceived as being inferior (7 channels as opposed to 14) would lead to less demand for the Canadian product, encourage cross border shopping and grey marketing of the “superior” product in Canada.

The increased costs from making design changes, special runs, packaging and managing a separate model number would make manufacturers/distributors unable to compete in the market for which the product was originally designed.

g) **If the decision were to open these frequencies to family radio, what steps should Industry Canada take, and in what time frame, to ensure a smooth transition? How should existing land mobile users be accommodated?**

Canadian vendors would like to begin selling FRS radios as soon as possible. The Board believes that if Industry Canada is diligent in moving the most seriously effected incumbents then the interference resulting from increasing FRS penetration and the remaining land mobile users will be acceptable to all. The Board recommends the establishment of a migration fund, with a fixed ceiling, paid for by the sale of certification stickers, to aid in this process. Incumbent users who must migrate will be able to apply for assistance to retune or replace their current systems. Industry Canada would be obliged to determine the extent to which compensation is warranted. The Board submits the following schedule for the Departments review:

- 1999-06-30 – FRS approved for sale in Canada from 1999-09-01;
- 1999-06-30 – Industry Canada regulations (e.g. RSS-210) are amended to allow FRS type approval and eventual sale;

- 1999-06-30 – Industry Canada advises incumbent users that:
  - FRS is approved and that sales will begin on 1999-09-01;
  - they *may* experience harmful interference and indicate that they can contact the local district office of Industry Canada for various options to mitigate interference;
  - As of 2001-05-31 users that cause harmful interference to the FRS must be off their existing frequency. Industry Canada should recommend that those users intending to relocate to new channels or bands should move sooner rather than later for their own benefit;
- 1999-10-01 – financial assistance applications can be made;
- 2001-05-31 – all incumbent users intending to use licensed land mobile services must be in the new bands.

## **Conclusion**

In conclusion, the Board, understands that:

- There is a significant level of public interest and benefit in the Family Radio Service.
- There is increasing number of FRS radios being imported or sold in Canada and are being used in Canada. The level of interference has not been determined
- That it is possible, however, to allow the FRS to start operating legally in Canada this year if those most affected are accommodated, and
- Finally, that it is important for the sake of both the existing land mobile user and the potential FRS users that industry and Industry Canada move quickly to provide a structure to implement the FRS.