

No. 17231

**UNITED STATES OF AMERICA
and
CANADA**

Exchange of letters constituting an agreement relating to an Interim Arrangement for the co-ordination of U.S. land mobile radio stations operating in the 806–890 MHz frequency band in the vicinity of the border between Canada and the United States of America (with appendix). Ottawa, 21 December 1976, and Washington, 13 January 1977

Authentic text: English.

Registered by the United States of America on 24 November 1978.

**ÉTATS-UNIS D'AMÉRIQUE
et
CANADA**

Échange de lettres constituant un accord concernant un arrangement intérimaire pour la coordination des émissions radiophoniques à partir d'installations mobiles terrestres américaines, opérant sur la bande de fréquence 806–890 MHz à proximité de la frontière entre le Canada et les États-Unis d'Amérique (avec appendice). Ottawa, 21 décembre 1976, et Washington, 13 janvier 1977

Texte authentique : anglais.

Enregistré par les États-Unis d'Amérique le 24 novembre 1978.

EXCHANGE OF LETTERS CONSTITUTING AN AGREEMENT¹ BETWEEN THE UNITED STATES OF AMERICA AND CANADA RELATING TO AN INTERIM ARRANGEMENT FOR THE COORDINATION OF U.S. LAND MOBILE RADIO STATIONS OPERATING IN THE 806–890 MHZ FREQUENCY BAND IN THE VICINITY OF THE BORDER BETWEEN CANADA AND THE UNITED STATES OF AMERICA

I

GOVERNMENT OF CANADA
DEPUTY MINISTER OF COMMUNICATIONS

GOUVERNEMENT DU CANADA
SOUS-MINISTRE DES COMMUNICATIONS

December 21, 1976, Ottawa

Dear Mr. Wiley,

This refers to the “Interim Arrangement for the Coordination of U.S. Land Mobile Radio Stations Operating in the 806–890 MHz Frequency Band in the Vicinity of the Border Between Canada and the United States of America” that has been prepared by a Canada/USA working group at a series of meetings held during the period September to November 1976. A copy of the arrangement is attached for your convenience.

This arrangement has been approved in Canada and it is now sent to you for your consideration. If you agree, I would recommend that this document become effective on the date of your reply.

Yours sincerely,

[Signed]
M. F. YALDEN

Mr. Richard E. Wiley
Chairman
Federal Communications Commission
Washington, D.C., U.S.A.

INTERIM ARRANGEMENT FOR THE COORDINATION OF U.S. LAND MOBILE RADIO STATIONS OPERATING IN THE 806–890 MHZ FREQUENCY BAND IN THE VICINITY OF THE BORDER BETWEEN CANADA AND THE UNITED STATES OF AMERICA

INTRODUCTION

In response to action initiated by the Federal Communications Commission (FCC) in 1968 proposing to permit U.S. land mobile use of portions of the UHF TV spectrum, the Department of Communications (DOC) in 1970 specified 14dBu (14 decibels above one microvolt per metre at a height of 30 feet (9.1 m) above ground) as the maximum allowable field strength of a U.S.

¹ Came into force on 13 January 1977, the date of the letter in reply, in accordance with the provisions of the said letters.

land mobile signal on the Canada/U.S. border. This signal strength would provide at least 50dB protection to the Grade B contour of a Canadian UHF television station from a U.S. land mobile system. At present, both the Canadian and the International Telecommunications Union (ITU) Region 2 Tables of Frequency Allocations do not permit the land mobile service on either a primary or secondary basis in this frequency band which is allocated exclusively to the broadcasting service. Recently, in this same band, however, the U.S. domestic table of frequency allocations has been amended to permit the land mobile service on a primary basis.

In June 1976, the FCC submitted to the DOC a proposal entitled "Interim Technical Standards for Licensing 900 MHz Private Land Mobile Radio Stations in Border Zones". Due to the difficulty in predicting field strengths on the Canada/U.S. border resulting from U.S. land mobile operations, it does not appear possible, however, at this time to establish final technical criteria for shared use of the above frequency band in border areas as suggested in the June 1976 FCC proposal. The following is an interim working arrangement for the coordinated use of this band pending the outcome of a joint FCC/DOC review of related propagation considerations.

ARRANGEMENT

The frequency band concerned is 806–890 MHz which includes UHF TV channels 70 to 83. For the purpose of this arrangement, definition of private and common carrier land mobile systems operating in this frequency band may be found in Appendix A. Also in Appendix A, the terms maximum ERP (effective radiated power) and EAH (effective antenna height) are defined.

The following technical criteria* shall apply.

- U.S. private or common carrier base stations in the land mobile service operating within the zone between 145 miles (233 km) and 250 miles (402 km) from the nearest point along the Canada/U.S. border must not exceed the maximum values of ERP and EAH specified in Table 1 of Appendix A. Within the zone between 125 miles (201 km) and 145 miles (233 km) from the border, such U.S. stations must not exceed a maximum ERP of 500 watts and an EAH of 500 feet (152 m). Within the zone between 100 miles (161 km) and 125 miles (201 km) from the border, prior written approval from the DOC will be required for such U.S. stations to operate in a specified geographical area with further reduced maximum values of ERP and EAH.
- U.S. mobile units operating in the private or common carrier land mobile service associated with the above base stations must not transmit from locations closer than 90 miles (144 km) from the nearest point along the Canada/U.S. border. The maximum ERP for such mobile units operating within the zone between 90 and 145 miles (144 and 233 km) from the nearest point along the Canada/U.S. border must not exceed 200 watts.
- U.S. private and common carrier land mobile systems operating in accordance with the above technical criteria must employ a duplex channelling plan except in emergency situations so as to technically prohibit mobile-to-mobile operations closer than 90 miles to the Canada/U.S. border.
- For the duration of this interim arrangement, all U.S. land mobile systems operating in the land mobile service in this band and located within 250 miles (402 km) of the nearest point along the Canada/U.S. border must be notified for information purposes in a manner similar to the provisions of Arrangement A of the October 1962¹ Canada/U.S. agreement for the Co-ordination and Use of Radio Frequencies above 30 MHz. In addition to the parameters listed under Arrangement A, the maximum ERP and the EAH as defined in Appendix A should also be provided.

Notwithstanding the above technical criteria, should verified interference to Canadian broadcast services occur as a result of a U.S. land mobile system operating in this band, upon formal request,

* For all dimensions in feet and all distances in miles specified herein, the equivalent dimensions and distances in metres and kilometres respectively are given in brackets and can be used interchangeably for the purposes of this interim arrangement.

¹ United Nations, *Treaty Series*, vol. 462, p. 67.

such a system must immediately terminate operations until mutually acceptable corrective action is taken. Verification of this interference may involve FCC and DOC technical experts; such verification to be conducted as expeditiously as possible.

It is understood that this arrangement in no way offers or implies protection to any U.S. land mobile system from any existing or future Canadian broadcasting service operating in this band in accordance with the ITU Region 2 Table of Frequency Allocations.

It is further understood that this interim arrangement will be reviewed when propagation considerations have been satisfactorily resolved.

APPENDIX A

DEFINITIONS

“Private System.” A system for the purpose of providing primarily dispatch services for the licensee’s own purposes. Such stations may also be licensed to entrepreneurs for the purpose of providing dispatch services to others who would be eligible for obtaining a license for their own systems.

“Common Carrier System.” A system for the purpose of providing radio-telephone and dispatch services to the general public.

“Effective Radiated Power (ERP).” The power supplied to the antenna multiplied by the relative gain of the antenna in a given direction.

“Effective Antenna Height (EAH).” The effective antenna height is calculated as follows:

- a. Using charts or maps of suitable scale, determine the distance between the base or mobile relay transmitter and the closest point of the border. Maps to be used are the latest issues of U.S. Geological Survey Topographic Quadrangle Maps, or U.S. Army Corps of Engineer Maps. If such maps are not published for the area in question, the next best topographic information should be used.
- b. Next, the average elevation of the terrain between the land mobile station and the border must be determined. In determining the average elevation of the terrain, the elevations between 2 and 10 miles (3.2 and 16.1 kilometres) from the antenna site are employed. Profile graphs shall be drawn for three radials beginning at the antenna site and extending 10 miles (16.1 kilometres) therefrom. One radial shall be constructed on the azimuth between the land mobile transmitter and the closest point of the border. Two other radials, spaced 45 degrees on either side of the centre radial, shall also be constructed. At least 50 points of elevation, generally uniformly spaced, shall be used for each radial. The smallest contour interval on the map should be used to obtain the greatest accuracy. The average elevation of the 8 mile (12.9 kilometres) distance between 2 and 10 miles (3.2 and 16.1 kilometres) from the antenna site should be determined from the profile graph for each radial. This may be obtained by averaging a large number of equally spaced points, by using a planimeter, or by obtaining the median elevation (the elevation exceeded by 50% of the plotted elevations) in a number of sectors, and averaging those values.
- c. The effective antenna height is then determined for each profile. This is done by adding the height of the antenna above ground to the actual ground elevation of the transmitting site, and subtracting the average elevation determined in the previous step.
- d. Since it is probable that each profile will result in a different average elevation, giving differing effective antenna heights, the highest effective antenna height obtained is to be used in determining the maximum allowable effective radiated power.

TABLE 1. EQUIVALENT POWERS AND ANTENNA HEIGHTS FOR BASE STATIONS

<i>Effective Antenna Height (EAH)</i>		<i>ERP (watts)</i>
<i>(in feet)</i>	<i>(in metres)</i>	
4501-5000	1372-1524	65
4001-4500	1220-1371	70
3501-4000	1067-1219	75
3001-3500	915-1066	100
2501-3000	763-914	140
2001-2500	610-762	200
1501-2000	458-609	350
1001-1500	305-457	600
up to 1000*	up to 304*	1000

* Maximum permissible power and antenna height are 1 kilowatt (ERP) and 1000 feet (304 metres) EAH, respectively. Licensees will not be permitted to exceed the specified 1000-watt power limitation, regardless of whether or not use is made of an antenna which is less than 1000 feet (304 metres) effective antenna height.

II

*The Chairman of the Federal Communications Commission
to the Canadian Deputy Minister of Communications*

January 13, 1977

7600-02

Dear Mr. Yalden:

This is in response to your letter of December 21, 1976. In that letter, you sent for our consideration the "Interim Arrangement" concerning the operation of U.S. land mobile systems in the 806-890 MHz band in the vicinity of the Canadian/U.S. border. You indicate that this arrangement has been approved in Canada and recommend that it become effective on the date of our acceptance.

The Commission appreciates the consideration you and members of the staff of the Department of Communications have given to this matter. We have decided to accept the "Interim Arrangement" and, as you have suggested, it is effective as of this date. Although we believe that this initial arrangement is a constructive step forward, the Commission wishes to emphasize that the United States has a very severe need to use the 806-890 MHz band for land mobile operation in areas near the border. Accordingly, we believe that continued efforts to achieve further understandings for additional land mobile usage in these areas are essential and should proceed as soon as possible.

Again, allow me to thank you for your kind cooperation in this matter.

This letter was adopted by the Commission on January 13, 1977, Commissioner Robert E. Lee absent.

By direction of the Commission:

[Signed]

RICHARD E. WILEY
Chairman

Mr. M. F. YALDEN
Deputy Minister of Communications
Government of Canada
Ottawa, Canada