

CANADA

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TREATY SERIES, 1943

No. 5

INTER-AMERICAN AGREEMENT

ON

RADIO COMMUNICATIONS

SIGNED AT SANTIAGO-DE-CHILE, JANUARY 26, 1940

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Notification of Adherence by Canada Deposited  
at Santiago, May 8, 1943

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IN FORCE FOR CANADA MAY 8, 1943



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## INTER-AMERICAN RADIO AGREEMENT (1)

Signed at Santiago-de-Chile, January 26, 1940

The Delegates of the American countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, United States of America, Guatemala, Haiti, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela, duly empowered, representing the respective Administrations, meeting in the city of Santiago, Chile, and constituting the Second Inter-American Radio-Conference, formulate, for the approval of their respective Governments, the present Agreement, which changes and replaces the Havana Arrangement of 1937. (2)

### ARTICLE 1

*Allocation of frequencies for the different services in the American continent*

In the American continent the allocation of frequencies for services established in Article 7 of the General Radio Regulations (Revision Cairo, 1938) (3), shall be applied with the following modifications or specific adaptations:

(1) *Bands of frequencies from 10 to 550 kc.*

(a) In the band of frequencies 200 to 400 kc the aeronautical service shall enjoy priority for aids to aerial navigation, including the transmission of weather reports and other information concerning the safety of aircraft in flight, subject only to the priority of the Maritime services existing on July 1, 1938.

(b) With reference to the provisions of Articles 7 and 21 of the General Radio Regulations (Cairo, 1938), the use of the frequency 333 kc shall not be applied in the Northern zone with the exception of special cases in connection with transatlantic flights.

(2) *Frequency bands 550 to 1600 kc.*

The band of frequencies from 550 to 1600 kc is assigned exclusively to broadcasting services in the American continent.

(3) *Frequency band 1600 to 15000 kc.*

The assignment of frequencies in this band to the various services will be adjusted to the provisions of Article 7 of the General Radio Regulations (Cairo, 1938), subject to the following specific adaptations for the American continent:—

(1) Canada adhered to this Arrangement subject to the following reservation, namely: Canada reserves the right to continue the use, for existing domestic services, of the frequencies 5405 kc. and 2870 kc. which are Canadian priority channels under regional agreements.

(2) For the text of this Arrangement of 1937 see *Canada Treaty Series*, 1938. No. 17.

(3) For the text of the General Radio Regulations see *United States Treaty Series* 948.



<i>Frequency</i>	<i>Northern Zone</i>	<i>Central Zone</i>	<i>Southern Zone</i>
1600-1715	Fixed and mobile (Primarily for police services, and the frequency 1638 kc for direction finding in aviation).	Fixed and mobile (including aeronautical, frequencies 1638 and 1708 kc for direction finding).	Fixed and mobile (including aeronautical, frequencies 1638 and 1708 kc for direction finding).
1715-1750	Fixed and mobile (primarily for police services).	(a) Fixed and mobile. (b) Amateur. (1)	Amateur.(1)
1750-2000	Amateur.	Amateur.	Amateur.
2000-2050	Amateur.	(a) Amateur. (b) Fixed and mobile. (1)	Fixed and mobile.(1)
2050-2100	Fixed and mobile.	Fixed and mobile.	Fixed and mobile.
2100-2200	Mobile (primarily ship stations).	(a) Mobile (Primarily ship stations). (b) Mobile (exclusively ship stations).(2)	Mobile (exclusively ship stations).(2)
2200-2260	Fixed and mobile.	Fixed and mobile.	Fixed and mobile.
2260-2300	Fixed and mobile.	(a) Fixed and mobile. (b) Mobile (exclusively ships stations). (2)	Mobile (exclusively ship stations).(2)
2300-2395	Mobile (Primarily police).	(a) Mobile (primarily police services). (b) Broadcasting.(3)	(a) Fixed. (b) Mobile. (c) Broadcasting.(4)
2395-2400	Experiments.	(a) Experiments (b) Broadcasting.(3)	(a) Fixed. (b) Mobile. (c) Broadcasting.(4)
2400-2500	Mobile (Primarily police services).	Mobile (Primarily police services).	(a) Fixed. (b) Mobile. (c) Broadcasting.(4)
2500-2600	Mobile (Primarily coastal stations).	(a) Mobile (Primarily coastal stations). (b) Fixed and mobile.(1)	Fixed and mobile.(1)
2600-2634	Aeronautical and mobile.	Aeronautical and mobile. (5)	Aeronautical and mobile. (5)
2634-2642	Aeronautical and mobile (intership frequency 2638 kc).	Aeronautical and mobile. (5)	Aeronautical and mobile. (5)
2642-2735	Aeronautical and mobile.	Aeronautical and mobile. (5)	Aeronautical and mobile. (5)
2735-2740	Mobile (Primarily intership, frequency 2738 kc).	(a) Mobile (Primarily intership, frequency 2738 kc). (b) Fixed and mobile.(1)	Fixed and mobile.(5)
2740-2850	Fixed and mobile.	Fixed and mobile.	Fixed and mobile.
2850-3000	Aeronautical and mobile.	Aeronautical and mobile. (5)	Aeronautical and mobile. (5)
3000-3065	Fixed and mobile.	Fixed and mobile.	Fixed and mobile.
3065-3100	Aeronautical.	Aeronautical.	Aeronautical.
3100-3110	Mobile and aeronautical (Primarily aircraft, calling frequency 3105 kc).	Mobile and aeronautical (Primarily aircraft, calling frequency 3105 kc). (5)	Mobile and aeronautical (Primarily aircraft, calling frequency 3105 kc). (5)
3110-3150	Mobile.	(a) Mobile. (b) Fixed and mobile.(1)	Fixed and mobile.(1)



Frequency	Northern Zone	Central Zone	Southern Zone
3150-3265	Fixed and mobile (Primarily aeronautical).	Fixed and mobile (Primarily aeronautical).(5)	Fixed and mobile (Primarily aeronautical).(5)
3265-3320	Fixed and aeronautical.	Fixed and aeronautical.(5)	Fixed and aeronautical.(5)
3320-3440	Fixed and mobile.	Fixed and mobile.	Fixed and mobile.
3440-3485	Fixed and mobile (Primarily aeronautical).	Fixed and mobile (Primarily aeronautical).(5)	Fixed and mobile (Primarily aeronautical).(5)
3485-3500	Experiments.	(a) Experiments (b) Fixed and mobile.(1)	Fixed and mobile.(1)
3500-4000	Amateur.	Amateur.	Amateur.
4000-5000	Fixed and mobile.	Fixed and mobile.(6)	Fixed and mobile.

## NOTE:

(1) These assignments shall be applied in all countries in South America to the south of Panama.

(2) It is pointed out that this same allocation has been established by the South American Radio Agreement (Santiago, Chile, 1940) with appropriate provisions, and is applicable to all countries in South America, to the south of Panama.

(3) The band of frequencies 2300-2400 kc is used for broadcasting in conformity with the provisions of Article 7, Section 8, Part I, Paragraph 3(b), (c), (d) (Nos. 137, 138 and 139) of the General Radio Regulations (Cairo, 1938) and in accordance with the Regional Radio Convention of Central America, Panama and the Canal Zone, signed in the city of Guatemala on December 8, 1938, by the following countries: Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama and the Canal Zone.

(4) The band of 2300-2500 kc may be employed for broadcasting in the countries of South America between parallels 5° south and 30° south in accordance with the provisions of Article 7, Section 8, Part I, Paragraph (a) (No. 136) of the General Radio Regulations (Cairo, 1938).

(5) Provisional and experimental allocation for all the countries of South America to the south of Panama.

(6) The countries of South America to the north of parallel 5° south, may use the band 4770-4900 kc for the broadcasting services subject to the provisions of Article 7, Sections 8, Part II, Paragraph 1 (a), (b), and Paragraph 3 (Nos. 142-143 and 145) of the General Radio Regulations (Cairo, 1938).

#### (4) Frequency Bands 5000-30000 kc.

The allocation of frequencies to the various services in this band shall conform with the provisions of Article 7 of the General Radio Regulations (Cairo, 1938), subject to the following modifications:—

(a) In the Northern zone and in the Central zone (excluding the countries of South America to the south of Panama), the band of 5500-5570 is assigned to the aeronautical services, and the band 5570-5700 to the mobile maritime services.

(b) In the Northern zone and in the Central Zone (excluding the countries in South America to the south of Panama) the band of 28000 to 30000 kc is reserved exclusively for amateurs.

#### (5) Frequency bands from 30000 to 300000 kc.

(a) This band is assigned to the various services in conformity with the arrangement given in Appendix 4 of the General Radio Regulations (Cairo, 1938) with the following modification:—

The band of frequencies 112000-116000 is assigned to amateurs, and the band of frequencies 116000-118000 to broadcasting.

(b) When the use of this band of frequencies may lead to interferences in the services of another country, every endeavour shall be made to inform the other signatory countries concerning the locality, power, frequency, and type of service of the station or stations authorized to operate in those bands.



## NOTE 1

With reference to the allocation of frequencies established in this Article of the Inter-American Agreement, the Delegation of the United States of America invites attention to Reservation No. 5 in the Final Protocol of the General Radio Regulations (Cairo, 1938) on the basis of which the Delegation reserves the right to use the band 21650-21750 kc both for mobile and broadcasting services.

## NOTE 2

With reference to Note 6, Article 1, the Delegations of Brazil, Colombia, Ecuador, Peru and Venezuela invite attention to the existence of Reservations Nos. 2 and 13 in the Final Protocol of the General Radio Regulations (Cairo, 1938) on the basis of which the Regional Agreement of Bogota (1939) was concluded, and they declare that they accept the allocation of frequencies for services in all points that do not affect the Regional Agreement of Bogota, already mentioned or the reservations previously mentioned.

## NOTE 3

Whenever, as a result of any of the preceding declarations, the radio services of other contracting countries of the Inter-American Agreement may be disturbed, these countries reserve the right to apply Declaration No. 18 of the Final Protocol of the General Radio Regulations (Cairo, 1938).

## ARTICLE 2

*Amateurs (Allocation of Amateur Bands)*

In conformity with the provisions of Article 7 of the General Radio Regulations (Cairo Revision, 1938), the following bands shall be assigned to amateurs:—

- (a) 1750-2050 kc in the Northern zone and the central zone (excluding the countries in South America to the south of Panama.)
- (b) 1715-2000 kc in the Southern zone and the countries of South America to the south of Panama.
- (c) 3500-4000 kc for all signatory countries of the American Continent.
- (d) 7000-7300 kc for all signatory countries of the American Continent.
- (e) 14000-14400 kc for all signatory countries of the American Continent.
- (f) 28000-30000 kc for all signatory countries of the American Continent.
- (g) 56000-60000 kc for all signatory countries of the American Continent.

## ARTICLE 3

*Use of the Frequency 500 kc*

With reference to the provisions of Article 21, Section 4, Par. (3) (Nos. 485, 486) of the General Radio Regulations (Cairo Revision, 1938), all of the American Continent with the exception of Hudson Bay and the region to the north thereof shall be considered a region of heavy traffic. The use of the frequency 500 kc shall be limited in consequence, to danger signals, urgency calls, the requirements of safety, calls and answers thereto and the transmission of brief and single radiotelegrams.

## ARTICLE 4

*Frequency Tolerances*

(1) Technical progress in the matter of frequency stabilization is such that it is possible for all stations to keep themselves within the tolerances specified in Appendix 1 to the General Radio Regulations of Cairo (Table of Frequency Tolerances).



(2) The Table of Frequency Tolerances of the General Radio Regulations is adopted.

(3) The Administrations will promote through their responsible centres the fullest exchange of information concerning stations deviating excessively from their assigned frequency; such data to be transmitted with the greatest possible expedition in order that immediate corrective measures may be undertaken while the transmitting apparatus is in difficulty.

(4) As between the countries of South America, the interchange of data shall be carried out in accordance with the provisions of the South American Radiocommunications Agreement.

## ARTICLE 5

### *Non-essential Radiations*

(1) In order to prevent non-essential radiations, the selection and operation of transmitting apparatus should be inspired by the most recent progress of the art; and to this end, the recommendations of the C.C.I.R. should be taken into account.

(2) The participating Governments agree to require stations under their jurisdiction to use transmitters which are as free as practicable from all spurious emissions.

(3) These radiations should not be of sufficient intensity to cause interference on receiving sets of modern design which are tuned outside the frequency band of emission required for the type of emission employed. In the case of type A-3 emission (radiotelephony), the transmitter should not be modulated in excess of its modulation capability to the extent that interfering spurious radiations occur and in the case of amplitude modulation the operation percentage of modulation should not be less than 75 per cent on peaks of frequent recurrence. Adequate means should be employed to insure that the transmitter is not modulated in excess of its modulation capability.

(4) A non-essential radiation is any radiation from a transmitter which is out-side the frequency band of emission normal for the type of transmission employed, including any harmonic modulation products, key clicks, parasitic oscillations or other transient effects.

## ARTICLE 6

### *Suppression of Interference caused by Electrical Apparatus*

The American countries shall adopt measures to suppress or alleviate, as much as possible, interference caused by apparatus or equipment which may generate, or radiate radio frequency currents capable of interfering with, or adversely affecting, the reception of radio transmissions. (See Annex No. 1.)

## ARTICLE 7

### *International Police Services*

When the signatory countries authorize their police stations which are located in close proximity to the national boundaries of contiguous countries to transmit emergency information with similar stations of another country, the following rules shall be applied:—

(a) Only police stations located close to the boundaries of contiguous countries shall be allowed to engage in this exchange of information.



(b) In general, only important police messages are to be handled, such as those which would lose their value due to slowness and time limitations of other communication systems.

(c) The frequencies to be used in radiotelephone communications with mobile police units shall not be used for radiotelegraph communications.

(d) Whenever the exchange of radiotelephone communications is authorized, these communications shall be made on the frequencies assigned to the respective stations for radiotelephone service.

(e) If the exchange of radiotelegraph communications is authorized, these communications shall be made on the following frequencies:—

2804 Calling	5195 Day calling
2808 Working	5135 Day working
2812 Working	5140 Day working

(f) Notifications concerning the particulars of stations engaged in international police service shall be forwarded to the Bureau of International Telecommunications Union, Berne, Switzerland, in order that all stations desiring to intercommunicate may be kept informed of the details concerning their operations.

(g) This service shall, in general, conform with the provisions of Article 17 of the Cairo Radio Regulations.

(h) Full use shall be made of the list of abbreviations appearing in Appendix 11 to the Cairo Radio Regulations. Plain language shall not be used if abbreviations will suffice. Service indications are as follows: "P", priority, for messages that are to be sent immediately, regardless of the number of other messages on file. If no service indication is given the messages are to be transmitted in the order of receipt.

(i) The message shall contain the preamble, text, and signature, as follows:—

- (1) *Preamble*.—The preamble of the message shall consist of the following: the serial number preceded by the letter "NR"; service indications as appropriate; check (this is the group count according to standard cable count system); the letter "CK" followed by numerals indicating the number of words contained in the text of the message; office and country of origin (not abbreviated), day of month and month, hour of filing and address.
- (2) *Text*.—The text may be either in plain language or code.
- (3) *Signature*.—The signature shall include the name and title of the person originating the message.

## ARTICLE 8

### *Amateur Third Part Messages*

The American countries, with the purpose of further improving the close and friendly relations existing between the people of America, and when their internal legislation permits, agree that amateur radio stations in their respective countries and possessions may internationally exchange messages emanating from third parties; provided, however, that such messages shall be of a character that would not normally be sent by any other existing means of electrical communications and on which no compensation may be directly or indirectly paid.



## ARTICLE 9

*Effective Date, Adherence and Denunciation*

The present Agreement will enter into effect the first day of July, nineteen hundred and forty, for the countries which may have approved it, but also remains open for the adherence of any other American country.

Any country which may wish to withdraw must denounce it with a notice of at least one year in advance.

Approvals, adherences and denunciations must be communicated through diplomatic channels to the Government of Chile which will transmit them to the other interested Governments.

In witness whereof, the respective delegates have signed copies of this instrument, one each in Spanish, English, Portuguese and French, to be deposited in the archives of the Government of Chile, which shall forward an authenticated copy thereof in each language to the other contracting Governments.

Done in the city of Santiago de Chile, on the twenty-sixth day of January, 1940.

Argentina

A. T. COSENTINO  
A. G. B. RIVERA

Bolivia

*ad referendum*

ALBERTO VIRREIRA PACCIERE

Brazil

D. P. RIBEIRO DE LESSA  
LAURO AUGUSTO DE MEDEIROS

Chile

DOMINGO SANTA MARIA

Colombia

ARMANDO SOLANO  
L. TAFUR GARCES

Costa Rica

Cuba

R. DE CASTRO

Republica Dominicana

MAX. LOVATON

Ecuador

ALBERTO CRESPO ORDONEZ

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R. HENRY NORWEB

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VIRGILIO RODRIGUEZ BETETA

Haiti

Mejico

O. R. SPINDOLA  
RAF. HERRERA CELIS

Nicaragua

ALFREDO URZUA U

Panama

Paraguay

L. YRRAZABAL

Peru

C. A. TUDELA

Uruguay

C. DE SANTIAGO

Venezuela

GILBERTO GHERSI  
A. LOPEZ  
J. M. PÉREZ MACHADO



## ANNEX (See Art. VI).

**TECHNICAL STANDARDS IN CONNECTION WITH THE SUPPRESSION OF INTERFERENCE CAUSED BY ELECTRICAL APPARATUS**

1. Diathermy apparatus, induction field heaters, carrier call systems, and similar non-radio apparatus which uses radio frequency currents as an essential to their operation, may be a serious source of interference to radio-communications.

2. The use of such apparatus has an important place in therapeutics, surgery, industry, etc.

3. The radiation of radio energy is not essential to the proper functioning of the apparatus and can be prevented or controlled without impairing the usefulness of the apparatus for its intended purpose.

4. The radiation takes place generally from the output circuit, internal circuits or power supply connection, all of which are essential elements.

5. The extent of the radiation depends upon the operating frequency or frequencies, power, and the design, installation and operating of the apparatus.

6. The radiation through the power supply connection can be prevented by means of a shielded transformer or a line filter. Radiation from the internal circuits can be prevented by means of suitable metallic cases. The radiation from the output circuits can be reduced to a level so as not to cause interference to radio communications by means of suitable metallic shielding, if the shielding encloses the entire apparatus and is of sufficient dimensions that large eddy currents are not produced in the shield. Aluminium foil paper and well-bonded copper screening have been successfully employed for shielding of rooms enclosing diathermy apparatus.

7. The frequencies used for such apparatus may be any frequency in the useful radio spectrum. However, many diathermy units (which cause most long-distance radio interference) operate in frequencies from approximately 10000 to 25000 kilocycles. Operations on other frequencies mainly cause interference to local or moderate distance reception.

8. The usual diathermy machine is essentially a radio transmitter of the self-excited oscillating type and generally uses self-rectifying plate power supply. Due to the inherent instability of the oscillator circuits, and the different uses to which the output circuit is subject, the operating frequency will vary during normal operation over very wide bands, provided automatic frequency control equipment is not incorporated.

9. All diathermy machines designed for the same service can operate on the same frequency without impairing their usefulness, since their operation is not affected by radiation from other machines. Operation on a specific frequency with a very close frequency tolerance is practicable, with little added cost. It is understood that the present design of diathermy equipment has to a great extent gravitated to frequencies above approximately 12 megacycles, hence it is recommended that the subscribing countries consider requiring all diathermy machines to use not more than two frequencies in harmonic relation above 12 megacycles which will not interfere with existing radio assignments. The harmonic relationship between the two frequencies provides a further guarantee against interference to radio-communication.





10. Standards of good engineering practice are believed to be practicable at the present time and consideration of the adoption by the governments of such standards at the earliest practicable date is recommended. The standards should include the following subjects:—

- (a) Frequencies to be used.
- (b) Automatic frequency control.
- (c) Frequency stability.
- (d) Type of emission.
- (e) Maximum power output.
- (f) Harmonic radiation to be effectively suppressed.
- (g) Internal circuits to be effectively shielded.
- (h) Radiation from power supply connection to be eliminated.

11. Where diathermy apparatus does not comply with the standards which may be adopted the subscribing countries should consider the desirability of requiring such apparatus to be operated in a properly shielded room.

12. Such apparatus as carrier call systems and certain types of induction furnaces and similar apparatus using medium or low frequencies should be required to restrict the generation of harmonics and make the necessary test to determine that radiation of signal does not result beyond a prescribed level.

13. The interested administrations will interchange all information concerning the solution of the problem created by the serious interference caused by diathermy apparatus to radio communications.



