Agreement between United States and Canada, Cuba, Dominican Rep, Haiti, and Mexico respecting regional broadcasting, Dec. 1937, proclaimed by US Jan 1941 (Original NARBA)

Arrangement between the United States and Canada regarding Radio Broadcasting, Oct/Dec 1938

Arrangement between the US, Canada, Cuba, the DR, Haiti, and Mexico comprising recommendations of the Regional Radio Engineering Meeting (supplemental to the 1937 NARBA), Jan/Mar 1941

Summary of original agreement from 1938 Annual FCC Report

TREATIES

December 13, 1937
[T. S. 962]

Agreement between the United States of America, Canada, Cuba, Dominican Republic, Haiti, and Mexico respecting regional broadcasting. Signed at Habana December 13, 1937; ratification advised by the Senate of the United States June 15, 1938; ratified by the President of the United States June 30, 1938; ratification of the United States of America deposited with the Government of Cuba July 21, 1938; proclaimed by the President of the United States January 23, 1941.

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

WHEREAS, a North American Regional Broadcasting Agreement between the United States of America, Canada, Cuba, the Dominican Republic, Haiti, and Mexico, was signed by their respective plenipotentiaries at Habana on December 13, 1937, a true copy of which agreement as certified by the Undersecretary of State of Cuba, in the English, Spanish and French languages is in words and figures as follows:

Post, p. 1398.

NORTH AMERICAN REGIONAL BROADCASTING AGREEMENT

concluded among the following Governments:

Canada
Cuba
Dominican Republic
Haiti
Mexico
United States of America

The undersigned, plenipotentiaries of the Governments listed above, having met in conference at Habana, Cuba, have, in common agreement and subject to ratification, concluded the following Agreement.

PURPOSE AND SCOPE OF THIS AGREEMENT

1. *Purpose of Agreement.* The purpose of this Agreement is to regulate and establish principles covering the use of the standard broadcast band in the North American Region so that each country may make the most effective use thereof with the minimum technical interference between broadcast stations.

2. *North American Region.* The North American Region (hereinafter referred to as "Region") for the purpose of this Agreement shall

be deemed to include and to consist of the following countries: Canada, Cuba, Dominican Republic, Haiti, Mexico, Newfoundland, and United States of America.

3. *Standard broadcast band.* The standard broadcast band shall be deemed to be the band of frequencies extending from 550 to 1600 kc, both inclusive, both 550 kc and 1600 kc being the carrier frequencies of broadcasting channels as hereinafter defined. The Governments agree, subject to the provisions of Article 7 of the General Radio Regulations annexed to the International Telecommunications Convention, Madrid, 1932, that this band of frequencies shall be allocated exclusively to broadcasting in the Region.

49 Stat. 2453; 54 Stat. 1429.

4. *Sovereign right to use channels.* The sovereign right of all countries, parties to this Agreement, to the use of every channel in the standard broadcast band is recognized. The Governments recognize, however, that until technical developments reach a state permitting the elimination of radio interference of international character, a regional arrangement between them is necessary in order to promote standardization and to minimize interference.

5. *Regional character of Agreement.* The Governments recognize that this Agreement, and each provision thereof, is a regional arrangement within the meaning of, and authorized by the International Telecommunications Convention and the General Radio Regulations annexed thereto.

49 Stat. 2391, 2445; 54 Stat. 1417.

II

TECHNICAL

A. DEFINITIONS

1. *Broadcast station.* A station the emissions of which are primarily intended to be received by the general public.

2. *Broadcast channels—550 to 1600 kc.* A broadcast channel is a band of frequencies ten (10) kc in width, with the carrier frequency at the center. Channels shall be designated by their assigned carrier frequencies. Carrier frequencies assigned to broadcast stations shall begin at 550 kc and be in successive steps of 10 kc. No intermediate frequency shall be assigned as the carrier frequency of any broadcast station.

3. *Service areas.*

(a) *Primary service area.* The primary service area of a broadcast station is the area in which the ground wave is not subject to objectionable interference or objectionable fading.

(b) *Secondary service area.* The secondary service area of a broadcast station is the area served by the sky wave and not subject to objectionable interference. The signal is subject to intermittent variations in intensity.

4. *Dominant stations.* A "dominant" station is a Class I station, as hereinafter defined, operating on a clear channel.

5. *Secondary station.* A "secondary" station is any station except a Class I station operating on a clear channel.

6. *Objectionable interference.* Objectionable interference is the degree of interference produced when, at a specified boundary or field intensity contour with respect to the desired station, the field intensity of an undesired station (or the root-mean-square value of field intensities of two or more stations on the same frequency) exceeds for ten (10) percent or more of the time the values hereinafter set forth in this Agreement.

7. *Power.* The power of a radio transmitter is the power supplied to the antenna. The power in the antenna of a modulated-wave transmitter shall be expressed in two numbers, one indicating the power of the carrier frequency supplied to the antenna, and the other the actual maximum percentage of modulation.

8. *Spurious radiation.* A spurious radiation from a transmitter is any radiation outside the frequency band of emission normal for the type of transmission employed, including any harmonic modulation products, key clicks, parasitic oscillations and other transient effects.

9. *English, French and Spanish equivalents.* It is agreed that, as used in this Agreement, the French and Spanish words below set forth are respectively the equivalent of, and mean the same as, the English terms opposite which they appear:

English	*French*	*Spanish*
Clear channel	Frequence libre	Canal despejado
Objectionable interference	Brouillage nuisible	Interferencia objetable

B. CLASSES OF CHANNELS AND ALLOCATION THEREOF

1. *Three classes:* The 106 channels in the standard broadcast band are divided into three principal classes: clear, regional and local.

2. *Clear channel:* A clear channel is one on which the dominant station or stations render service over wide areas and which are cleared of objectionable interference, within their primary service areas and over all or a substantial portion of their secondary service areas.

3. *Regional channel:* A regional channel is one on which several stations may operate with powers not in excess of 5 kw. The primary service area of a station operating on any such channel may be limited, as a consequence of interference, to a given field intensity contour.

4. *Local channel:* A local channel is one on which several stations may operate with powers not in excess of 250 watts. The primary service area of a station operating on any such channel may be limited, as a consequence of interference, to a given field intensity contour.

5. *Number of channels of each class:* The number of channels of each class shall be as follows:

Clear channels	59
Regional channels	41
Local channels	6
	106

6. *Allocation of specific channels to each class:* The channels are allocated to the several classes as follows:

Clear channels. The following channels are designated as clear channels: 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 940, 990, 1000, 1010, 1020, 1030, 1040, 1050, 1060, 1070, 1080, 1090, 1100, 1110, 1120, 1130, 1140, 1160, 1170, 1180, 1190, 1200, 1210, 1220, 1500, 1510, 1520, 1530, 1540, 1550, 1560, 1570 and 1580.

Regional channels. The following channels are designated as regional channels: 550, 560, 570, 580, 590, 600. 610, 620, 630, 790, 910, 920, 930, 950, 960, 970, 980, 1150, 1250, 1260, 1270, 1280, 1290, 1300, 1310, 1320, 1330, 1350, 1360, 1370, 1380, 1390, 1410, 1420, 1430, 1440, 1460, 1470, 1480, 1590, 1600.

Local channels. The following channels are designated as local channels: 1230, 1240, 1340, 1400, 1450, and 1490 kc.

7. *Use of regional and local channels by countries.* All countries may use all regional and all local channels, subject to the power limitations and standards for prevention of objectionable interference set forth in this Agreement.

8. *Priority of use of clear channels by countries.*

(a) The clear channels are assigned for priority of use by Class I and II stations in the several countries in accordance with the table set forth in Appendix I.

Post, p. 1020.

(b) Each such channel shall be used in a manner conforming to the best engineering practice with due regard to the service to be rendered by the dominant stations operating thereon, as set forth elsewhere in this Agreement. If, for one year within the term of this Agreement, a country fails to make any use of a clear channel assigned to it, the channel shall be considered open for use by the other countries, parties to this Agreement, pursuant to such arrangement as may be agreed upon by their respective administrations and without any necessity for revision of this Agreement.

(c) No country to which a clear channel has been thus assigned shall permit, or agree to permit, any other country to use such channel in a manner not in conformity with this Agreement without first giving sixty days [a] advance notice of its intention so to do to all other countries, parties to this Agreement. If during this period of sixty days [a] any other country shall present objections to such proposed use of the channel, the country to which the clear channel has been assigned shall not permit, or agree to permit, such proposed use until the difference presented by the objection has been amicably resolved.

(d) If within the period of this Agreement the country to which a clear channel has been assigned shall have made use of the channel but not in the manner above prescribed or not to the extent required by the provisions of this Agreement, such country shall be considered as

[a] calendar days

having relinquished that portion of the rights which it has not used and at the expiration of this Agreement the other countries party thereto shall have the right, if they see fit, to withdraw the unused privileges from such country and to reassign them to any or all of the other interested countries.

C. CLASSES OF STATIONS AND USE OF THE SEVERAL CLASSES OF CHANNELS.

1. *Classes of stations.* Broadcast stations are divided into four principal classes, to be designated Class I, Class II, Class III, and Class IV, respectively.

2. *Definitions of classes.* The four classes of broadcast stations are defined as follows:

Class I: A dominant station operating on a clear channel and designed to render primary and secondary service over an extended area and at relatively long distances. Class I stations are subdivided into two classes:

Class I–A: A Class I station which operates with power of 50 kw or more and which has its primary service area, within the limits of the country in which the station is located, free from objectionable interference from other stations on the same and adjacent channels, and its secondary service area, within the same limits, free from objectionable interference from stations on the same channel, in accordance with the engineering standards hereinafter set forth.

Class I–B: A Class I station which operates with power of not less than 10 kw or more than 50 kw and which has its primary service area free from objectionable interference from other stations on the same and adjacent channels and its secondary service area free from objectionable interference from stations on the same channel, in accordance with the engineering standards hereinafter set forth.

(a) When two Class I–B stations on the same channel are separated by a distance of 2800 miles or more, neither station shall be required to install a directional antenna.

(b) When two Class I–B stations on the same channel are separated by a distance of more than 1800 miles and less than 2800 miles, it will, in the absence of proof to the contrary, be assumed that each station is free of objectionable interference caused by the other and neither shall be required to install directional antennas or take other precautions to avoid such interference. In case the existence of objectionable interference is proved, the governments concerned will consult with each other regarding the desirability and practicality of installation of directional antennas or the taking of other precautions to eliminate the interference and will determine by special arrangement the measures, if any, to be taken.

(c) When two Class I–B stations on the same channel are separated by a distance less than 1800 miles, it will, in the absence of proof to the contrary, be assumed that the installation of directional antennas or the taking of other precautions to avoid interference is

necessary, and the governments concerned will consult with each other and will take such measures as may be agreed upon between them to the end that the objectionable interference may be reduced or eliminated.

Class II: A "secondary" station which operates on a clear channel and is designed to render service over a primary service area which, depending on geographical location and power used, may be relatively large, but which is limited by and subject to such interference as may be received from Class I stations. A station of this class shall operate with power of not less than 0.25 kw or more than 50 kw. Whenever necessary a Class II station shall use a directional antenna or other means to avoid interference, in accordance with the engineering standards hereinafter set forth, with Class I stations and with other Class II stations.

Class III: A station which operates on a regional channel and is designed to render service primarily to a metropolitan district and the rural area contained therein and contiguous thereto. Class III stations are subdivided into two classes:

Class III–A: A Class III station which operates with power not less than one kilowatt or more than five kilowatts and the service area of which is subject to interference in accordance with the engineering standards hereinafter set forth.

Class III–B: A Class III station which operates with a power not less than 0.5 kw or more than 1 kw night and 5 kw daytime and the service area of which is subject to interference in accord with the engineering standards hereinafter set forth.

Class IV: A station using a local channel and designed to render service primarily to a city or town and the suburban and rural areas contiguous thereto. The power of a station of this class shall not be less than 0.1 kw or more than 0.25 kw and its service area is subject to interference in accord with the engineering standards hereinafter set forth.

3. *Change of class.* If a station or stations in Class III–B located in any country can, through the use of directional antennas or otherwise, so reduce the interference caused or received by such station or stations to the field contour to which interference to stations in Class III–A is allowed, such station or stations shall automatically be classified and included in Class III–A and shall thereafter be so recognized and treated by the Administrations of all countries within the Region.

4. *Use of clear channels.*

(a) In principle and subject only to the exception hereinafter set forth, Class I stations shall be assigned only to clear channels.

(b) Class II stations may be assigned to clear channels only on condition that objectionable interference will not be caused to any Class I stations. Where any country has priority of use of a clear channel for any Class I–A station, no other country shall assign any Class II station to that channel for nighttime operation (from sunset to sunrise at the location of the Class II station) unless such Class II station is located not less than 650 miles from the nearest border of the country

in which the Class I–A station is located; provided, however, that where an assignment for a Class II station is specifically stated in Appendix I, such assignment shall be deemed as authorized under the limitations therein set forth. Post, p. 1020.

5. *Use of regional channels.*

(a) In general only Class III–A and Class III–B stations shall be assigned to regional channels.

(b) On condition that interference be not caused to any Class III–A or Class III–B station, and subject to such interference as may be received from Class III–A or Class III–B stations, Class IV stations may be assigned to regional channels.

(c) Because of their geographical location with respect to the North American continent, special consideration will be given to the use by Cuba, the Dominican Republic, Haiti and Newfoundland of stations of Classes I and II assigned to certain regional channels under certain conditions, with respect to power and precautions to avoid objectionable interference as set forth in Appendix VII. Post, p. 1034.

6. *Use of local channels.* Only Class IV stations shall be assigned to local channels.

D. SERVICE AND INTERFERENCE

1. *Satisfactory signal.* It is recognized that, in the absence of interference from other stations and in regions where the natural electrical noise level is not abnormally high, a signal of 100 microvolts per meter constitutes a usable signal in rural and sparsely settled areas but that, because of the higher electrical noise levels in more thickly populated communities, greater field intensities (ranging as high as 25 millivolts or more in cities) are necessary to render satisfactory service. It is further recognized that it is not possible to accord protection to stations from objectionable interference over the entire areas over which their signals are or may be above the electrical noise level, particularly at night, and that it is necessary to specify boundaries or contours at or within which stations are protected from objectionable interference from other stations.

2. *Areas protected from objectionable interference.* The boundaries or contours at and within which the several classes of stations shall be protected from objectionable interference are as set forth in Appendix II. No station, however, need be protected from objectionable interference at any point outside the boundaries of the country in which such station is located. Post, p. 1024.

With respect to the root-mean-square values of interfering field intensities referred to herein, it shall be understood to apply in determining the interference between existing stations and no station thereafter assigned the channel shall increase the root-mean-square value of the interfering field intensity above the maxima specified in the attached tables.

3. *Objectionable interference on the same channel.* Objectionable interference shall be deemed to exist to a station when, at the boundary or field intensity contour specified in Appendix II with respect to the Post, p. 1024.

class to which the station belongs, the field intensity of an interfering station (or the root-mean-square value of the field intensities of two or more interfering stations) operating on the same channel, exceeds for ten (10) percent or more of the time the value of the permissible interfering signal set forth opposite such class in Appendix II.

Post, p. 1024.

4. *Interference to dominant clear channel stations.* A station shall be considered as not capable of causing objectionable interference to a Class I clear channel station on the same frequency when it is separated from the dominant clear channel station by a difference of 70 degrees or more of longitude.

5. *Objectionable interference on adjacent channels.* It is recognized, in principle, that objectionable interference may be caused to a desired station when, at or within the specified contours of a desired station, the field intensity of the ground wave of an undesired station operating on an adjacent channel (or the root-mean-square value of the field intensities of two or more such undesired stations operating on the same adjacent channel) exceeds a value determined by the following ratio:

Separation between channels	*Minimum permissible ratio of desired to undesired signals*
10 kc	1 to 0.5
20 kc	1 to 10
30 kc	1 to 50

For convenient reference, the maximum permissible values of interfering signals on such adjacent channels at specified contours are set forth in Appendix III, Table I.

Post, p. 1025.

6. *Application of standards to existing stations.*

(a) For the purpose of estimating objectionable interference, all stations (other than those of Class II) shall be assumed to use the maximum power permitted to their respective classes. In this connection, the power of Class I–A stations shall be considered to be 50 kw or the actual power, if higher.

(b) After this agreement has been placed in operation a station thereafter assigned a channel already assigned to other stations shall not be considered as preventing existing stations from increasing their power to the maximum allowed their class, even though such power increase may limit the newly assigned station to a field intensity contour of higher value than that permitted its class.

7. *Frequency stability* The operating frequency of each broadcast station shall be maintained to within 50 cycles of the assigned frequency until January 1, 1939, and thereafter the frequency of each new station or each station where a new transmitter is installed shall be maintained within 20 cycles of the assigned frequency, and after January 1, 1942, the frequency of all stations shall be maintained within 20 cycles of the assigned frequency.

8. *Spurious radiation.* The governments shall endeavor to reduce and, if possible, eliminate spurious radiations from broadcast stations. Such radiations shall be reduced in all cases until they are not of sufficient intensity to cause interference outside the frequency band

required for the type of emission employed. With respect to type A–3 emissions (radio-telephony) the transmitter should not be modulated in excess of its modulation capability to the extent that interfering spurious radiations occur, and, with respect to amplitude modulation, the operating percentage of modulation should not be less than seventy-five (75) percent on peaks of frequent recurrence. Means should be employed to insure that the transmitter is not modulated in excess of its modulation capability.

E. DETERMINATION OF PRESENCE OF OBJECTIONABLE INTERFERENCE

1. *Antenna performance.* For the purpose of calculating the presence and the degree of objectionable interference, stations of the several classes shall be assumed to produce effective field, corrected for absorption, for one kilowatt of input power to the antenna, as follows:

Class of Station	*At One Mile*	*At One Kilometer*
I	225 mv/m	362 mv/m
II and III	175 mv/m	282 mv/m
IV	150 mv/m	241 mv/m

In case a directional antenna is employed, the interfering signal of a broadcasting station will vary in different directions. To determine the interference in any direction, in the absence of actual interference measurements, the horizontal and vertical field intensity patterns of the directional antenna must be calculated and by comparing the appropriate vectors in the horizontal or vertical pattern with that of a nondirectional with the same effective field, the interfering signal toward any other station can be expressed in terms of kilowatts. This rating in kilowatts shall be applied in the use of mileage separation tables or in computing distances from the propagation curves or tables.

2. *Power.* The power of a station shall, for the purposes of notifications required by this Agreement, be determined in one of the following manners:

(a) By taking the product of the square of the antenna current and the antenna resistance (antenna input power).

(b) By determination of the station's effective field intensity, corrected for absorption, by making sufficient field intensity measurements on at least eight radials as nearly equally spaced as practicable and by relating the field intensity thus determined to the effective field intensity of a station having the antenna efficiency stipulated above for its class.

3. *Methods of determining the presence of objectionable interference—General.* The existence or absence of objectionable interference from stations on the same or adjacent channels shall be determined by one of the following methods:

(a) By actual measurements obtained in the method hereinafter prescribed;

or, with the mutual consent of the countries concerned:

Post, pp. 1026, 1027. (b) By reference to the propagation curves in Appendices IV and V, or

Post, p. 1028. (c) By reference to the distance tables set forth in Appendix VI.

4. *Actual proof of existence or absence of objectionable interference.* The existence or absence of objectionable interference may be proved by field intensity measurements or recordings made with suitable apparatus, duly calibrated, by Government engineers or other engineers as may be mutually acceptable to the Governments concerned. Such field intensity measurements shall be made in the manner and for the periods of time mutually agreed upon by the Governments concerned.

The contracting Governments agree to facilitate the making of the measurements by requiring the stations involved to remain silent or operate in the manner deemed necessary, and at such times as not to interrupt regular schedules.

5. *Proof based on propagation curves and distance tables.*

(a) *Sky wave curves.* In computing the distance to the 50 per cent sky wave field intensity contour of a Class I station of a given power, and also in computing the 10 percent sky wave field intensity of an alleged interfering station, of any class and given power, at a specified distance, use may be made of the appropriate graphs set forth in Appendix V, entitled "Average Sky Wave Field Intensity Corresponding to the Second Hour after Sunset in the Recording Station, 100 Millivolt per Meter at One Mile (161 at one kilometer)".

Post, p. 1027.

(b) *Ground wave curves.* The distance to any specified ground wave field intensity contour may be determined from appropriate ground wave curves plotted for the frequency under consideration and the conductivity and dielectric constant of the earth between the station and desired contour. The frequency and the conductivity of the earth must be considered in every case and where the distance is great due allowance must be made for loss due to curvature of the earth. A family of curves is necessary for this purpose. A graph for a conductivity of 10^{-13} is set forth in Appendix IV, entitled "Ground Wave Field Intensity vs. Distance for One Kilowatt Radiated From Short Antenna". Three frequencies in the standard broadcast band are given. For other frequencies and soil conditions (conductivity and dielectric constant) other curves are required. A conductivity of 10^{-13} is considered average and is used throughout in determining the ground wave value for computing the mileage separation tables.

Post, p. 1026.

(c) *Distance tables.* Table I shows the required day separation in miles between broadcast stations on the same channel. Table II gives the required distance in miles from the boundary of a country in which a Class I–A station is located for the daytime operation of a Class II station on the same channel in another country. Table III gives the required separation in miles between broadcast stations on adjacent channels during both daytime and nighttime. Table IV gives the required night separation in miles between broadcast stations operating on the same channel. The assumed conditions of operation are given in Appendix VI.

Post, p. 1028.

The tables are based upon the use of nondirectional antennas but, in case a directional antenna is employed at a particular station, it will be necessary to consider the radiation distribution of the directional antenna involved and to modify the mileage separation accordingly. The night separation tables for stations on the same frequency are computed from the skywave curve given in Appendix V. These curves are based on extensive measurements of the skywave produced by broadcasting stations and shall be considered as accurate in all cases unless proof to the contrary is available as set out in Section E 4. The mileage separation tables for the same channel during daytime and for adjacent channels day and night are computed from the groundwave curve in Appendix IV. Tables apply only in case the frequency is 1000 kc and the assumed soil conductivity and dielectric constant prevail. Since these values vary in every case the tables for daytime and adjacent channel separation cannot be used except as a general guide. In any case under consideration an estimate of the mileage separation required may be made from the operating frequency and known or assumed soil conditions. To determine the interference accurately, measurements must be made in accordance with Section E 4 on the frequency under consideration or on another frequency and from the curves the values may be determined for the desired frequency.

Post, p. 1027.

Post, p. 1026.

F. MISCELLANEOUS

1. *Engineering standards.* The engineering standards set forth in this Agreement are subject to revision when justified by technical advances in the art, with the mutual consent of the governments parties to this Agreement.

III

NOTIFICATION AND EFFECT THEREOF

1. *Initial notification.*

Each Government shall, as soon as possible after ratification of this Agreement, and in any event not later than 180 days prior to the effective date thereof, transmit to the other Governments

(a) A complete list of all broadcast stations actually in operation in its country in the standard broadcast band both as of the date of the signing of this Agreement and as of the date of transmitting said list, showing with respect to each station its call signal, location, frequency, power, and antenna characteristics, together with all changes authorized to be made with respect to said stations on or before the effective date of this Agreement, and the classification claimed for each such station.

(b) A complete list of all changes authorized to be made with respect to said stations after the effective date of this Agreement, the dates on or before which such changes are to be consummated, and the classification claimed for each such station under this Agreement when the proposed change has been consummated.

(c) A complete list of all new broadcast stations authorized but not yet in operation, showing with respect to each such station its call signal, location, frequency, power and antenna characteristics, the date on or before which each such station shall commence operation, and the classification claimed for it under this Agreement.

(d) The Governments agree that prior to the effective date of this Agreement, they will, so far as possible, resolve all conflicts that may arise between them as a result of the foregoing initial listings, and that, notwithstanding some such conflicts may remain unresolved, they will cooperate to the end that there be no delay in putting the provisions of this Agreement into full force and effect on that date.

(e) In resolving conflicts in the use of clear channels, and in the listing of Class I and Class II stations, the provisions of this Agreement and particularly of Appendix I shall be controlling. In resolving conflicts in the use of regional and local channels, and in the listing of Class III and Class IV stations, priority of use shall be recognized in each country with respect to stations which at the time of signing of this Agreement are in actual operation, which in substance conform to the definitions of said classes as set forth in this Agreement, and with respect to which no substantial change is made or proposed; a change of frequency in order to conform to the designation of channels in this Agreement shall not be deemed a substantial change.

Post, p. 1020.

2. *Subsequent notifications.* After the effective date of this Agreement and throughout the period during which it shall remain in effect, each Government shall promptly notify the other Governments by registered letter of all further changes in existing broadcast stations and of all further new broadcast stations, together with similar information with regard to each such change or new station, and the proposed date on which each such change is to go into effect and on which each such new station is to actually commence operation.

3. *Effect of notification.* Each Government may, within 30 days of receiving notification of any proposed change in the assignment of an existing station or of the authorization of a new station in another country, notify the Government of the latter country of any objection it may have thereto under the terms of this Agreement.

4. *Conflict between notifications.* To be valid, notifications of changes in the assignments of existing stations, or of authorizations of new stations must be such that the assignments proposed therein are in accordance with this Agreement and are such as not to involve objectionable interference to existing stations in other countries, assigned and operating in accordance with this Agreement. As between two or more notifications of changes or authorizations of new stations proceeding from different countries, after the effective date of this Agreement, priority in the date of mailing of notification shall govern.

5. *Cessation of effect.* (a) A notification of a proposed change in the assignment of an existing station or of an authorization of a new station shall cease to have any force and effect if, within one year of the date thereof such change shall not have been actually consum-

mated or such new station shall not have actually commenced continuous operation. (b) In special cases in which circumstances beyond the control of the Administration concerned have prevented the completion of the change or the construction of the new station, the term of the original notification may be extended for a period of six months.

6. *Bern Bureau.* The foregoing notifications shall be made independently of and in addition to those which, under current practice, are sent to the Bureau of the International Telecommunications Union.

IV

ARBITRATION

In case of disagreement between two or more contracting Governments concerning the execution of this Agreement the dispute, if it is not settled through diplomatic channels, shall be submitted to arbitration at the request of one of the Governments in disagreement. Unless the parties in disagreement agree to adopt a procedure already established by treaties concluded between them for the settlement of international disputes, the procedure shall be that provided for in Article 15 of the International Telecommunications Convention of Madrid, 1932. 49 Stat. 2403.

V

RATIFICATION, EXECUTION, AND DENUNCIATION

1. *Ratification.* To be valid this Agreement must be ratified by Canada, Cuba, Mexico and the United States of America.

If and when three of said four countries shall have ratified and the fourth shall, through unavoidable circumstances, have been unable to ratify but shall have signified to those countries that have ratified, its readiness, pending ratification and as an administrative measure, to put the provisions of this Agreement (including the contents of Appendix I) into effect in whole or in part, then such country, together with those countries which shall have ratified, may, by administrative agreement between them, fix a definite date on which they shall give effect to such provisions, which date shall preferably be one year from the date of such administrative agreement. *Post*, p. 1020.

The ratifications must be deposited, as soon as possible, through diplomatic channels, in the archives of the Government of Cuba. This same Government shall, through diplomatic channels, notify the other signatory Governments of the ratifications as soon as they are received.

2. *Effect of ratification.* This Agreement shall be valid only as between such countries as shall have ratified it.

3. *Execution.* The contracting Governments undertake to apply the provisions of this Agreement, and to take the steps necessary to enforce said provisions upon the private operating agencies recognized or authorized by them to establish and operate broadcast stations within their respective countries.

4. *Denunciation.* Each contracting Government shall have the right to denounce this Agreement by a notification addressed, through diplomatic channels, to the Government of Cuba, and announced by that Government, through diplomatic channels, to all the other contracting Governments. This denunciation shall take effect at the expiration of the period of one year from the date on which the notification was received by the Government of Cuba. This effect shall apply only to the author of the denunciation. This Agreement shall remain in force for the other contracting Governments but only as between such Governments.

VI

Effective Date and Term of the Agreement

Ante, pp. 1015, 1017; *post*, p. 1023.

1. Except for the provisions of Section 1 of Part III, Section 1 of Part V, and paragraph 3 of Table VI of Appendix I annexed hereto (which provisions shall go into effect immediately upon this Agreement becoming valid), this Agreement shall become effective one year after the date it shall have been ratified by the fourth of those Governments whose ratification is requisite to the validity of this Agreement. The Governments will cooperate to the end that, wherever possible, the provisions of this Agreement shall be carried out in advance of said effective date.

2. This Agreement shall remain in effect for a period of five years after said effective date.

VII

Adherence

This Agreement shall be open to adherence in the name of Newfoundland.

In witness whereof the respective plenipotentiaries have signed the Agreement in triplicate, one copy in English, one in Spanish, and one copy in French, each of which shall remain deposited in the archives of the Government of Cuba and a copy of each of which shall be forwarded to each Government.

Done at Habana, Cuba, on December 13th, 1937.

CANADA:

Laurent Beaudry.
C. P. Edwards.

CUBA:

Wifredo Albanés y Peña.
Andrés Asensio y Carrasco.
Nicolás González de Mendoza y de la Torre.
Alfonso Hernández Catá y Galt.

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FERNANDO SÁNCHEZ AYALA.
RUBÉN FUENTES.

UNITED STATES OF AMERICA:

T. A. M. CRAVEN.

ATTACHMENTS:

Appendix I—Priority of use of clear channels for Class I and II stations
" II—Protected service and interference
" III—Adjacent channel interference
" IV—Ground wave graphs
" V—Sky wave graphs
" VI—Mileage separation tables
" VII—Engineering requirements for use of regional channels by Class II stations

APPENDIX I

Ante, p. 1006.

Under the provisions of Section II of this Agreement each country may use all the 106 channels when technical conditions with respect to interference to established stations are such as to render such use practicable. However, priority of use on specified clear channels is recognized for the following number of Class I and II stations in each country.

TABLE I

Canada	14
Cuba	9*
Dominican Republic	1
Haiti	1
Mexico	15
Newfoundland	2*
United States	63

*See Table V for special arrangements provided for Cuba and Newfoundland.

These stations and the conditions of their operation are as specified in Tables II, III, IV, V, VI, VII, and VIII following herewith.

TABLE II

CLASS I–A STATIONS

(*Canada, Cuba, and Mexico*)

Frequency	Location of Stations
690	Quebec, Canada
730	Mexico, D. F.
740	Ontario, Canada
800	Sonora, Mexico
860	Ontario, Canada
900	Mexico, D. F.
990	Manitoba, Canada
1010	Alberta, Canada
1050	Nuevo Leon, Mexico
1220	Yucatan, Mexico
1540	Santa Clara, Cuba
1570	Nuevo Leon, Mexico
1580	Quebec, Canada

TABLE III

CLASS I–B STATION

Frequency	Location of Stations	Power Limitation (kw)	Requirements as to directional antennas
810	New York, U.S.A.	–	None
810	California, U.S.A.	–	To be determined
940	Quebec, Canada	5 kw minimum permissible	Determine from operation
940	Mexico, D.F.	–	" " "
1000	Jalisco, Mexico	20	To be determined
1000	Washington, U.S.A.	–	" " "
1000	Illinois, U.S.A.	–	" " "
1010	Habana, Cuba	–	Determine from operation
1060	Mexico, D.F.	–	To be determined
1060	Pennsylvania, U.S.A.	–	" " "
1070	Maritime Provinces, Canada	–	None
1070	California, U.S.A.	–	None
1080	Connecticut, U.S.A.	–	To be determined
1080	Texas, U.S.A.	–	" " "
1090	Baja Calif., Mexico	–	" " "
1090	Maryland, U.S.A.	–	" " "
1090	Arkansas, U.S.A.	–	" " "
1110	North Carolina, U.S.A.	–	" " "
1110	Nebraska, U.S.A.	–	" " "
1130	British Columbia, Canada	5 kw minimum permissible	None
1130	New York – New Jersey, U.S.A.		"
1140	Chihuahua, Mexico	–	To be determined
1140	Virginia, U.S.A.	–	" " "
1170	Oregon, U.S.A.	–	" " "
1170	Oklahoma, U.S.A.	–	" " "
1170	West Virginia, U.S.A.	–	" " "
1190	Sinaloa, Mexico	–	" " "
1190	Indiana, U.S.A.	–	" " "
1550	Ontario, Canada	–	Determine from operation
1550	Vera Cruz, Mexico	20	" " "
1560	Habana, Cuba	–	----------

TABLE IV

CLASS II STATIONS

Frequency	Location of Stations	Power Limitation (kw)	Requirements as to directional antennas
640	Newfoundland	–	None
690	Kansas – Oklahoma, U. S. A.	–	To be determined[a]
740	Calif., U. S. A.	–	" " "[b]
800	Ontario, Canada	5	" " "
810	Tamaulipas (Tampico) Mexico	50	" " "
900	Quebec, Canada	5	" " "
990	Tennessee, U. S. A.	–	" " "[c]
1000	Oriente, Cuba	10	" " "
1050	New York, U. S. A.	–	" " "
1060	Alberta, Canada	10	" " "
1070	Alabama, U. S. A.	–	" " "
1080	Manitoba, Canada	15	" " "
1080	Haiti	10	" " "
1110	Mexico, D. F.	20	" " "
1130	Louisiana, U. S. A.	–	" " "
1170	Dominican Republic	10	" " "
1190	Habana, Cuba	15	" " "

[a] Permissible to increase field intensity above 25 uv/m (10% skywave) west of Minnesota on Canadian border.

[b] Same as [a] except west of North Dakota.

[c] " " " " " east of Minnesota. Also 650 miles from border requirement waived.

TABLE V

CLASS II STATION[a] ON REGIONAL CHANNELS

(Cuba and Newfoundland)

Frequency	Location of Stations	Maximum Power in kw.
560	Newfoundland	10
570	Santa Clara, Cuba	15
590	Habana, Cuba	15
630	Habana, Cuba	15
1270	Habana, Cuba	10

[a] These stations shall use directional antennas to prevent objectionable interference to the Class III stations on the channel in accordance with Appendix VII.

TABLE VI

SPECIAL CONDITIONS AFFECTING THE UNITED STATES

The 24 Class I and II stations in the United States which use clear channels with other countries party to this agreement are given in Tables III and IV.

The remaining 39 Class I and II stations of the United States will be assigned the following clear channels:

640 650 660 670 680 700 710 720 750 760 770 780
820 830 840 850 870 880 890 1020 1030 1040 1100
1120 1160 1180 1200 1210 1500 1510 1520 1530

It is recognized that the United States must make extensive adjustments in the assignments of its existing stations in order to make possible the carrying out of this Agreement, that these adjustments will require approximately a year, and that it is not possible for the United States at this time to specify on which of the said 32 channels it will have priority of use for Class I–A stations, Class I–B stations and Class II stations respectively, nor the locations of such stations, power and other information with respect thereto. The United States may assign Class I–A stations to at least 25 of said channels. The United States agrees that ninety days before the effective date of this Agreement it will communicate this information to each of the other countries parties to this Agreement, and such information, when communicated, shall be considered part of this Agreement as if fully set forth herein.

Nothing stated in this Agreement shall be construed to preclude the United States of America from asserting, and enjoying recognition of, priority of use with reference to certain other Class II stations (not included in the 63 stations mentioned in Table I) which are now in actual operation in the band 640–1190 kcs and which are known under the Regulations of the Federal Communications Commission as "limited time stations" and "daytime stations" (having hours of operation limited to sunset taken either at their respective locations or at the locations of the respective dominant stations on clear channels and in some cases including hours not actually used by said dominant stations) which stations may, so far as permitted by the terms of this Agreement and the engineering standards herein set forth, be given assignments substantially equivalent to those they now enjoy.

TABLE VII

SPECIAL CONDITIONS REGARDING THE USE OF 1010 KC BY CUBA AND CANADA

With regard to the use of the clear channel of 1010 kc by a Class I–A station in Canada, and by a Class I–B station in Cuba, both countries mutually agree that the interfering signal shall not exceed for 10 per cent of the time or more the value of 50 microvolts per meter at the following points of measurement: in Cuba at any point east of the province of Camaguey, and in Canada at any point west of the province of Manitoba.

TABLE VIII

SPECIAL CONDITIONS AFFECTING CANADA

Nothing stated in this Agreement shall be construed to preclude Canada from asserting priority of use with reference to certain Class III and IV stations now in operation in Canada on existing clear and regional channels which through this Agreement will become of a class of channel which may not permit their use by Class III and IV stations.

APPENDIX II

TABLE I

PROTECTED SERVICE CONTOURS AND PERMISSIBLE INTERFERENCE SIGNALS FOR BROADCAST STATIONS

Class of station	Class of channel used	Permissible power	Boundary or signal intensity contour of area protected from objectionable interference [a]		Permissible interfering signal [b]	
			Day	*Night*	*Day*	*Night* [c]
I A	Clear	50 kw or more	Boundary of country in which station is located		5 uv/m	25 uv/m [d]
I B	Clear	10 kw to 50 kw	100 uv/m	500 uv/m (50% sky wave)	5 uv/m	25 uv/m
II	Clear [d]	0.25 kw to 50 kw	500 uv/m [e]	2500 uv/m [e] (Ground wave)	25 uv/m [e]	125 uv/m [e]
III A	Regional	1 kw to 5 kw	500 uv/m	2500 uv/m (Ground wave)	25 uv/m	125 uv/m
III B	Regional	0.5 kw to 1 kw night and 5 kw day	500 uv/m	4000 uv/m (Ground wave)	25 uv/m	200 uv/m
IV	Local	0.1 kw to 0.25 kw	500 uv/m	4000 uv/m (Ground wave)	25 uv/m	200 uv/m

[a] In accordance with other provisions in this Agreement this freedom of interference does not apply outside the boundaries of the country in which the station is located.

[b] From other stations on same channel only. For adjacent channels see Appendix III, Table I.

[c] Sky wave field intensity exceeded for 10% of the time.

[d] No Class II station shall be assigned to the same channel as a Class I A station for nighttime operation (from sunset to sunrise) less than 650 miles of the nearest border of the country in which the Class I A station is located.

[e] These values are with respect to interference from all stations except Class I, which stations may cause interference to a field intensity contour of higher value. However, it is recommended that Class II stations be so located that the interference received from Class I stations will not exceed these values. If the Class II stations are limited by Class I stations to higher values, then such values shall be the standard established with respect to interference from all other classes of stations.

APPENDIX III

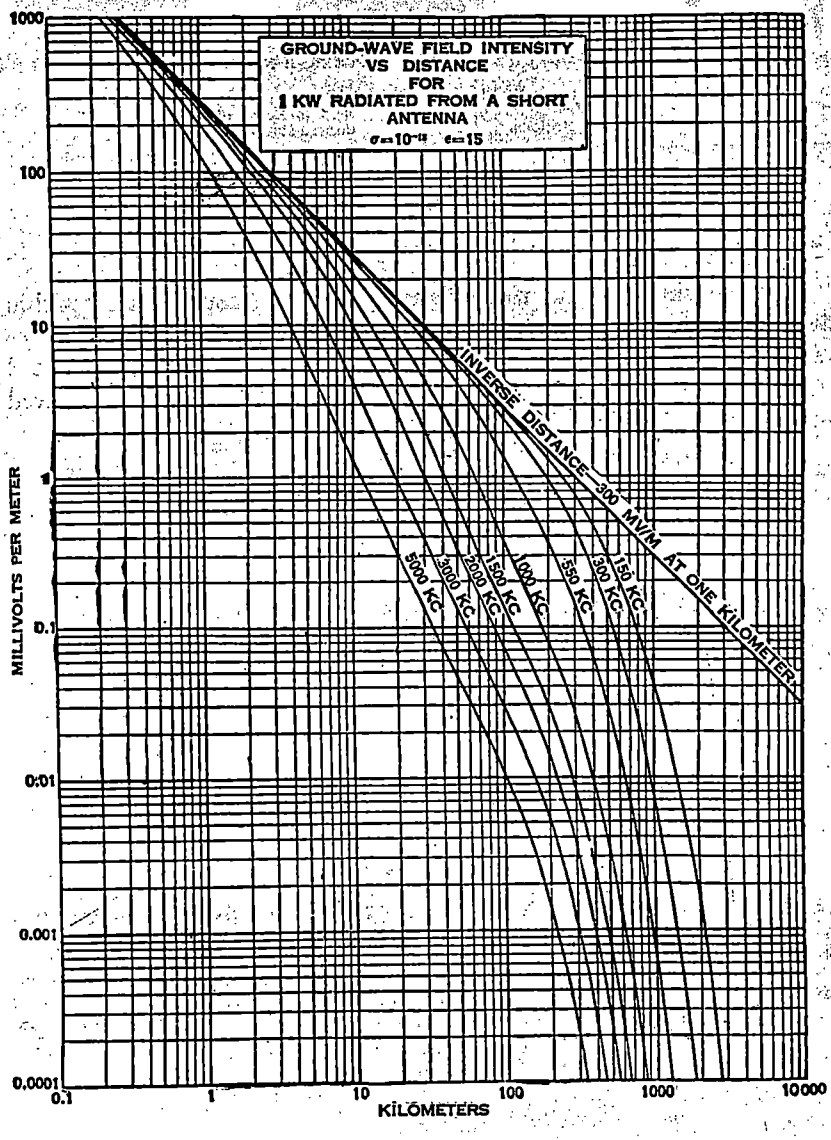
TABLE I

ADJACENT CHANNEL INTERFERENCE

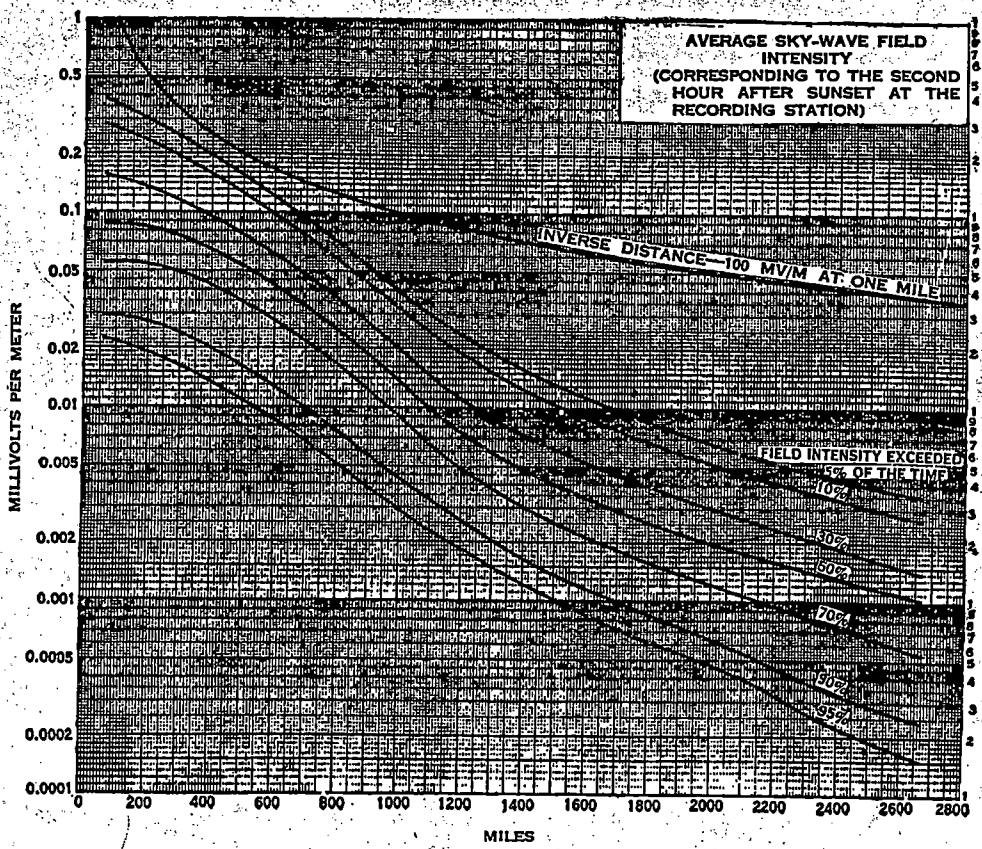
Channel separation between desired and undesired stations.	Maximum ground wave field intensity of undesired station.
10 kc	0.25 mv/m
20 kc	5.0 mv/m
30 kc	25.0 mv/m

The undesired ground wave signal shall be measured at or within the 0.5 mv/m ground wave contour of the desired station. These values apply to all classes of stations both day and night and are based on ground waves only. No adjacent channel interference is considered on the basis of an interfering sky wave.

APPENDIX IV


GROUND-WAVE FIELD INTENSITY
VS DISTANCE
FOR
1 KW RADIATED FROM A SHORT
ANTENNA
σ=10⁻¹³ ε=15
INVERSE DISTANCE 300 MVIM AT ONE KILOMETER
5000 KC
3500 KC
2000 KC
1500 KC
1000 KC
550 KC
300 KC
150 KC
MILLIVOLTS PER METER
1000
100
10
1
0.1
0.01
0.001
0.0001
0.1
1
10
100
1000
10000
KILOMETERS

APPENDIX V


AVERAGE SKY-WAVE FIELD INTENSITY (CORRESPONDING TO THE SECOND HOUR AFTER SUNSET AT THE RECORDING STATION)
INVERSE DISTANCE—100 MV/M AT ONE MILE
FIELD INTENSITY EXCEEDED
5% OF THE TIME
10%
30%
50%
70%
90%
95%
MILLIVOLTS PER METER
1
0.5
0.2
0.1
0.05
0.02
0.01
0.005
0.002
0.001
0.0005
0.0002
0.0001
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
MILES

APPENDIX VI

MILEAGE SEPARATION TABLES

The required separations between broadcasting stations as tabulated below are based upon the following conditions:

1. The use of nondirectional antennas.
2. Antenna efficiencies (in mv/m at one mile for one kilowatt)

   Class I – 225 mv/m
   Class II and III – 175 mv/m
   Class IV – 150 mv/m

3. Frequency, 1000 kc.
4. Soil conductivity, $s = 10^{-13}$.
5. Soil dielectric constant, $e = 15$.
6. Groundwave transmission as shown on chart in Appendix IV.
7. Skywave transmission as shown on chart in Appendix V.
8. Protection to service areas as shown in Appendix II, Table I.
9. Ratio of desired to undesired signal:

Channel Separation	Ratio of Desired to Undesired
Same Frequency	20:1
10 kc	2:1
20 kc	1:10
30 kc	1:50

278941°—42—PT. II——10

TABLE I

REQUIRED *DAY* SEPARATION IN MILES BETWEEN BROADCAST STATIONS ON THE SAME CHANNEL

Class and Power	Class IV		Classes II and III							Class I					
	100 w	250 w	0.25 kw	0.5 kw	1 kw	5 kw	10 kw	25 kw	50 kw	10 kw	25 kw	50 kw	100 kw	250 kw	500 kw
Class IV															
100 w	143	165	172	192	213	265	285	310	335	390	417	437	462	486	513
250 w	165	173	180	200	221	273	293	318	343	415	442	462	487	511	538
Classes II and III															
0.25 kw	172	180	183	203	224	276	296	321	346	418	446	465	490	514	541
0.5 kw	192	200	203	210	231	283	303	328	353	446	473	493	518	542	569
1 kw	213	221	224	231	239	291	311	336	361	467	494	514	539	563	590
5 kw	265	273	276	283	291	313	333	358	383	520	547	567	592	616	643
10 kw	285	293	296	303	311	333	345	370	395	540	567	587	612	636	663
25 kw	310	318	321	328	336	358	370	389	414	565	592	612	637	661	688
50 kw	335	343	346	353	361	383	395	414	430	587	614	634	639	683	710
Class I															
10 kw	390	415	418	446	467	520	540	565	587	556	585	605	628	655	682
25 kw	417	442	446	473	494	547	567	592	614	585	612	632	657	682	709
50 kw	437	462	465	493	514	567	587	612	634	605	632	652	677	702	729
100 kw	462	487	490	518	539	592	612	637	659	628	657	677	697	727	754
250 kw	486	511	514	542	563	616	636	661	683	655	682	702	727	751	778
500 kw	513	538	541	569	590	643	663	688	710	682	709	729	754	778	805

TABLE II

REQUIRED DISTANCE IN MILES FROM THE BOUNDARY OF A COUNTRY IN WHICH A CLASS I–A STATION IS LOCATED FOR *DAYTIME* OPERATION OF A CLASS II ON THE SAME CHANNEL

	Class II						
Power of Station	0.25 kw	0.5 kw	1 kw	5 kw	10 kw	25 kw	50 kw
Miles from boundary	237	261	282	335	355	380	402

TABLE III

Required Day and Night Separation in Miles Between Broadcast Stations on Adjacent Channels

Class & Power	Class IV						Classes II and III														
	0.1 kw			0.25 kw			0.25 kw			0.5 kw			1 kw			5 kw			10 kw		
	10 kc	20 kc	30 kc	10 kc	20 kc	30 kc	10 kc	20 kc	30 kc	10 kc	20 kc	30 kc	10 kc	20 kc	30 kc	10 kc	20 kc	30 kc	10 kc	20 kc	30 kc
Class IV																					
0.1 kw	73	37	32	82	45	40	86	47	42	94	55	50	105	63	58	133	84	79	149	98	93
0.25 kw	82	45	40	90	48	41	94	50	43	102	58	51	113	66	59	141	87	80	157	101	94
Classes II & III																					
0.25 kw	86	47	42	94	50	43	96	51	43	104	59	51	115	67	59	143	88	80	159	102	94
0.5 kw	94	55	50	102	58	51	104	59	51	112	62	52	123	70	60	151	91	81	167	105	95
1 kw	105	63	58	113	66	59	115	67	59	123	70	60	131	73	62	159	94	83	175	108	97
5 kw	133	84	79	141	87	80	143	88	80	151	91	81	159	94	83	180	104	87	196	118	101
10 kw	149	98	93	157	101	94	159	102	94	167	105	95	175	108	97	196	118	101	210	123	104
25 kw	172	115	110	180	118	111	182	119	111	190	122	112	198	125	114	219	135	118	233	140	121
50 kw	190	131	126	198	134	127	200	135	127	208	138	128	216	141	130	237	151	134	251	156	137
Class I																					
10 kw	162	107	102	170	110	103	172	111	103	180	114	104	188	117	106	209	127	110	223	132	113
25 kw	183	126	121	191	129	122	193	130	122	201	133	123	209	136	125	230	146	129	244	151	132
50 kw	203	144	139	211	147	140	213	148	140	221	151	141	229	154	143	250	164	147	264	169	150
500 kw	277	211	206	285	214	207	287	215	207	295	218	208	303	221	210	324	231	214	338	236	217

TABLE III (Continued)

REQUIRED DAY AND NIGHT SEPARATION IN MILES BETWEEN BROADCAST STATIONS ON ADJACENT CHANNELS

Class & Power	Class II						Class I											
	25 kw			50 kw			10 kw			25 kw			50 kw			500 kw		
	10 kc	20 kc	30 kc	10 kc	20 kc	30 kc	10 kc	20 kc	30 kc	10 kc	20 kc	30 kc	10 kc	20 kc	30 kc	10 kc	20 kc	30 kc
Class IV																		
0.1 kw	172	115	110	190	131	126	162	107	102	183	126	121	203	144	139	277	211	206
0.25 kw	180	118	111	198	134	127	170	110	103	191	129	122	211	147	140	285	214	207
Classes II & III																		
0.25 kw	182	119	111	200	135	127	172	111	103	193	130	122	213	148	140	287	215	207
0.5 kw	190	122	112	208	138	128	180	114	104	201	133	123	221	151	141	295	218	208
1 kw	198	125	114	216	141	130	188	117	106	209	136	125	229	154	143	303	221	210
5 kw	219	135	118	237	151	134	209	127	110	230	146	129	250	164	147	324	231	214
10 kw	233	140	121	251	156	137	223	132	113	244	151	132	264	169	150	338	236	217
25 kw	250	149	125	268	165	141	242	145	123	261	160	136	281	178	154	355	245	221
50 kw	268	165	141	284	172	145	260	161	139	279	163	144	297	185	158	371	252	225
Class I																		
10 kw	242	145	123	260	161	139	232	137	115	253	156	134	273	174	152	347	241	219
25 kw	261	160	136	279	168	144	253	156	134	272	163	139	292	181	157	366	248	224
50 kw	281	178	154	297	185	158	273	174	152	292	181	157	310	190	161	384	257	227
500 kw	355	245	221	371	252	225	347	241	219	366	248	224	384	257	227	451	291	247

TABLE IV

REQUIRED NIGHT SEPARATION IN MILES BETWEEN BROADCAST STATIONS ON THE SAME CHANNELS

The following tables indicate the mileage protection each class must give all other classes.

Class I–A Not required to protect Class II stations on same channel at night.

TABLE IV A

Class I–B Must protect other Class I–B stations as shown below.

Class I–B	10 kw	25 kw	50 kw
10 kw	2665	3010	3280
25 kw	3010	3243	3500
50 kw	3280	3500	3660

TABLE IV B

Class II—Must protect other classes as shown below.

Class II	Class II stations							Class I–B stations			Class I–A stations
	.25 kw	.5 kw	1 kw	5 kw	10 kw	25 kw	50 kw	10 kw	25 kw	50 kw	Distance from nearest border of country in which Class I–A station is located
.25 kw	451	602	732	1018	1136	1271	1529	1378	1610	1760	1038
.5 kw	602	606	736	1022	1140	1275	1533	1508	1735	1890	1180
1. kw	732	736	739	1025	1143	1280	1535	1658	1885	2040	1335
5. kw	1018	1022	1025	1039	1157	1292	1547	2165	2395	2550	1630
10. kw	1136	1140	1143	1157	1162	1298	1553	2450	2680	2830	2122
25. kw	1271	1275	1280	1292	1298	1310	1560	2880	3120	3260	2575
50. kw	1529	1533	1535	1547	1553	1560	1570	3090	3330	3480	2730

TABLE IV C

Class III–A[a]—Must protect other classes as shown below.

Class III–A	Class III–A		Class III–B	
	1 kw	5 kw	.5 kw	1 kw
1 kw	739	1025	550	553
5 kw	1025	1039	847	851

[a] See Appendix VII for protection Class III stations should give Class II stations on regional channels.

TABLE IV D

Class III B [b] Must protect other classes as shown below.

Class III B	Class III A		Class III B	
	1 kw	5 kw	.5 kw	1 kw
.5 kw	735	1020	383	550
1. kw	739	1025	550	553

[b] See note [a] page 7 [*ante*, p. 1032].

TABLE IV E

Class IV—Must protect other classes as shown below.

Class IV	Class III A		Class III B		Class IV
	1 kw	5 kw	.5 kw	10 kw	
.1 kw	300	300	Daytime separation determines		Daytime separation determines
.25 kw	395	407			

TABLE IV F

DISTANCE CLASS II STATION MUST BE FROM CLASS I A AND I B STATIONS TO OBTAIN RECOMMENDED PROTECTION TO CLASS II STATION (2.5 MV/M GROUND WAVE CONTOUR)

Class II[a]	Class I A and I B Stations			
	10kw.	25 kw.	50 kw.	500 kw.
.25 kw	1248	1462	1520	2767
.5 kw	1252	1470	1523	2771
1. kw	1256	1473	1528	2775
5. kw	1270	1484	1541	2789
10. kw	1275	1490	1546	2793
25. kw	1285	1498	1743	2803
50. kw	1293	1510	1750	2812

Note (a): Must use directional antenna to protect dominant station or stations with these separations.

TABLE IV G

DISTANCE CLASS IV STATIONS MUST BE FROM CLASS III-A AND III-B STATION TO OBTAIN RECOMMENDED PROTECTION TO CLASS IV STATION (4.0 MV/M GROUND WAVE CONTOUR)

Class IV Power	Class III-A or III-B		
	.5	1.0	5.0
.10	377	547	847
.25	381	551	851

APPENDIX VII

ENGINEERING REQUIREMENTS FOR THE USE OF REGIONAL CHANNELS BY CLASS II STATION UNDER THE PROVISIONS OF SECTION C 5 c

A Class II station assigned to a regional channel in accordance with Section C 5 c shall use a directional antenna or other means to limit the interfering signal within the protected service area of any Class III station on the channel to the value set forth in Appendix II, Table I. The interfering signal in case of projected operation shall be determined from the characteristics of the antenna and appropriate curve in Appendix V. In case of actual operation the interfering signal shall be determined by the method described in Section E 4.

Ante, p. 1011.

Ante, p. 1024.

Ante, p. 1014.

Class III stations, operating on a channel to which a Class II station is assigned, should limit the interference to the Class II station in conformity with the provisions of Appendix II, Table I.

Es copia fiel de su original.

[FOREIGN OFFICE SEAL] MIGUEL ANGEL CAMPA
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January 3, 2003

Benjamin F. Dawson III, P.E.
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Re: NARBA

Dear Ben:

I am happy to tell you that we did find a photocopy of the 1937 NARBA, and it is enclosed. I trust that it will be a worthy addition to your library.

Sincerely,

James P. Riley

JPR:deb

Enclosure

53 Stat. 2042
1938 WL 34396 (U.S. Treaty), E.A.S. No. 136

Canada

Arrangement between the United States of America and Canada regarding radio broadcasting.

Effected by exchange of notes, signed October 28 and December 10, 1938.
October 28, 1938.
December 10, 1938.

The Secretary of State (Hull) to the Canadian Minister (Marler)

a. ARRANGEMENT REGARDING RADIO BROADCASTING CHANNELS

The Canadian Minister (Marler) to the Acting Secretary of State (Welles)

The Secretary of State (Hull) to the Canadian Minister (Marler)

DEPARTMENT OF STATE,

Washington, October 28, 1938.

SIR:

I have the honor to inform you of the Department's consideration of three arrangements resulting from the deliberations of the Inter-American Radio Conference which was held at Habana, Cuba from November 1 to December 13, 1937. Those Agreements relate to the following subjects:

a. Arrangement regarding radio broadcasting channels which provides for a tentative allocation of broadcasting frequencies established in view of the terms of the **North American Regional Broadcasting Agreement**, Habana 1937.

b. Agreement between the United States and Canada for the use of the frequency 540 kilocycles.

c. Agreement with respect to the assignment by the United States of a Class I-A station to the 700 kilocycle frequency with a power of 50 kilowatts or more and the assignment by Canada of a similar station with equal power on a frequency of 690 kilocycles.

For your convenience there are quoted the proposed arrangements outlined above:

a. ARRANGEMENT REGARDING RADIO BROADCASTING CHANNELS

There shall be in Canada sixteen full time station assignments to stations which at present are considered as regional or local stations, and under the proposed North American Broadcasting Agreement, signed at Habana, December 13, 1937, will be classified at Class III or Class IV. Six of these stations shall have a power of 1,000 watts each and ten a power of 100 watts each, as follows;

Frequency (kc)					
Present	Proposed	Station	Location	Power	Class
1030	1300	CJBR	Rimouski, Que.	1000w	III
840	600	CFQC	Saskatoon, Sask.	1000	III
910	610	CJAT	Trail, B. C.	1000	III
960	610	CHNC	New Carlisle, Que.	1000	III
1010	620	CKCK	Regina, Sask.	1000	III
730	1260	CJCA	Belmont View, Alta.	1000	III
730	1230	CKPR	Port Arthur, Ont.	100	IV
690	1230	CJCJ	Calgary, Alta.	100	IV
730	1400	CFPL	London, Ont.	100	IV
1010	1240	CKIC	Wolfville, N. S.	100 (50)w	IV
1010	1450	CKWX } CKCD }	Vancouver, B. C.	100	IV
1010	1310	CHML	Saltfleet Twp. Ont. (Hamilton)	100	IV

960	1340	CFRN	Edmonton, Alta.	100	IV
1010	1340	CKCO	Boom Island, Que.	100	IV
1510	1490	CKCR	Waterloo, Ont.	100	IV
1510	1490	CFRC	Kingston, Ont.	100	IV

In the case of Station CHML which remains on a regional channel, the Government of the United States agrees to protect this station from interference to the same extent as it is protected from other Canadian stations but in no event to a greater extent than that provided for Class IV stations on local channels.

These assignments are hereby reserved pending ratification of and placing in operation of the proposed North American Regional Broadcast Agreement. Pending such events, the Governments of Canada and the United States agree that in making any changes in existing station assignments as of the date of this exchange of notes, or authorizing new assignments after that date, the assignments set out above will be afforded protection in accordance with the allocation standards as provided in the proposed Agreement.

In addition to these sixteen stations, there are thirteen stations now operating in Canada with power of 100 watts on channels that are now classified as regional channels and which under the terms of the proposed Agreement will be regional channels for assignment of Class III stations with a minimum power of 500 watts. Part II C 5 (b) of the proposed Agreement provides that Class IV stations may operate on regional channels, but, when so operated, they are subject to such interference as may be received from Class III stations which are not required to protect the Class IV stations on the same regional channel. The Parties to this exchange of notes recognize that, if possible, these stations should be reassigned to local channels in order that they may be afforded protection from interference from other stations in accordance with the allocation standards for Class IV stations. The assignments for these stations are provided accordingly as follows:

Frequency (kc)					
Present	Proposed	Station	Location	Power	Class
630	630	CFCO	Chatham, Ont.	100 w	IV

930	1230	CFCH	North Bay, Ont.	100	IV
580	1240	CFPR	Prince Rupert, B. C.	100	IV
950	1240	CJOC	Lethbridge, Alta.	100	IV
1120	1240	CRCS	Chicoutimi, Que.	100	IV
930	1450	CFLC	Prescott, Ont.	100	IV
930	1380	CKPC	Brantford, Ont.	100	IV
580	1450	CKCL	Toronto, Ont.	100	IV
1390	1450	CJGX	Yorkton, Sask.	100	IV
1450	1480	CHGS	Summerside, P. E. I.	100	IV
1120	1490	CHLP	Montreal, Que.	100	IV
1410	1490	CKFC	Vancouver, B. C.	100	IV
1410	1490	CKMO	Vancouver, B. C.	100	IV

Three of these stations (CFCO, CKPC, and CHGS) remain on regional channels and in accordance with the provisions above mentioned are not afforded protection from interference from the Class III stations on the channel. However, the Government of the United States agrees to protect these stations from interference to the same extent that they are protected from other Canadian stations but in no event to a greater extent than that provided for Class IV stations on local channels.

b. Recognizing the desirability of preserving the principle of their existing understanding as to the use of the frequency of 540 kilocycles for broadcasting by Canada and recognizing the desirability of affording, as far as reasonably can be done, protection to important aeronautical and maritime mobile services of the United States using frequencies in the non-public service band of 515 to 550 kilocycles from broadcast interference, the undersigned have agreed as follows:

1. The frequency 540 kilocycles may be used by Canada for broadcasting purposes

at a Canadian station which shall be located in the Province of Saskatchewan and operated so as not to produce a ground wave signal intensity in excess of 500 microvolts per meter on the Canadian-United States border west of longitude 105° W.

2. The United States of America may require that a directional antenna be installed at the station and that, if and when advice to that effect is given, Canada will install such directional antenna within one year from the date of receipt by Canada of such advice. The direction of maximum suppression of the antenna should be as near as possible in the direction of San Francisco, subject to allowing for a ground wave signal of 500 microvolts per meter intensity at any point along the boundary between Saskatchewan and the United States.

3. When, as and if a substitute broadcasting channel acceptable to the Canadian Government is made available for this station Canada agrees to discontinue the use of 540 kilocycles for broadcasting purposes.

4. This Agreement shall become effective from the date on which the North American Regional Agreement, signed at Habana on the 13th day of December, 1937, becomes effective. It shall remain in effect until the expiration, on the part of the United States and Canada, of the said North American Regional Agreement.

5. The undersigned will recommend to their respective governments that consideration be given to the cancellation, on the date on which this Agreement becomes effective, of all prior agreements insofar as they have reference to the use of 540 kilocycles by Canada for broadcasting.

c. The Government of the United States of America agrees that if it should assign a Class I-A station to the channel 700 kilocycles with power greater than 50 kilowatts, it will take, or cause to be taken, such measures as are necessary to prevent the field intensity delivered by such station at night from exceeding a value five times as great as that which would be delivered by an efficient 50 kilowatt transmitter located at or near Montreal, Canada, on 690 kilocycles at a point near Rochester, New York. For this purpose the field intensities of the United States station shall be based on the 10% skywave and the Canadian station on the 50% skywave, during the second hour after sunset. If the field intensity delivered by the Canadian station should exceed that which would be delivered by an efficient 50 kilowatt transmitter then the actual field strength shall be taken as the basis for said ratio. In no event, however, shall the Class I-A station in the United States be required to deliver a field strength at said point less than that which would be delivered by an efficient 50 kilowatt transmitter located at or near Cincinnati, Ohio.

I accordingly have the honor to inquire whether the three Agreements outlined in this communication have the approval of your Government and whether, in the event of that approval, it is agreeable to the publication immediately of this note and such favorable reply as you may find it possible to make, it being understood that none of these Agreements shall become effective until the effective date of the **North American Regional Broadcasting Agreement**.

Accept, Sir, the renewed assurance of my highest consideration.

CORDELL HULL

The Honorable

Sir HERBERT MARLER,

P. C.,

K. C. M. G.,

Minister of Canada.

The Canadian Minister (Marler) to the Acting Secretary of State (Welles)

No. 291

CANADIAN LEGATION

Washington, December 10, 1938

SIR,

With reference to your note No. 576.K1/658 of the 28th October, 1938, concerning three arrangements resulting from the deliberations of the Inter- American Radio Conference, which was held at Habana, Cuba, from November 1 to December 13, 1937, I have the honour to state that the three proposed Agreements quoted in your note have the approval of the Government of Canada, it being understood that none of the three Agreements shall become effective until the effective date of the North American Broadcasting Agreement.

The Canadian Government are agreeable to the publication immediately of your note and of this reply.

I have the honour to be with the highest consideration Sir

Your most obedient humble servant

W. A. RIDDELL

For the Minister

The Hon. SUMNER WELLES,

Acting Secretary of State of the United States, Washington, D. C.

53 Stat 2042, 1938 WL 34396 (U.S. Treaty), E.A.S. No. 136

END OF DOCUMENT

55 Stat. 1005
1941 WL 38989 (U.S. Treaty), T.S. No. 962

Multilateral

Agreement between the United States of America, Canada, Cuba, Dominican Republic, Haiti, and Mexico respecting regional broadcasting.

Signed at Habana December 13, 1937;
Ratification advised by the Senate of the United States June 15, 1938;
Ratified by the President of the United States June 30, 1938;
Ratification of the United States of America deposited with the Government of Cuba July 21, 1938;
Proclaimed by the President of the United States January 23, 1941.

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

NORTH AMERICAN REGIONAL BROADCASTING AGREEMENT

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BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

WHEREAS, a **North American Regional Broadcasting Agreement** between the United States of America, Canada, Cuba, the Dominican Republic, Haiti, and Mexico, was signed by their respective plenipotentiaries at Habana on December 13, 1937, a true copy of which agreement as certified by the Undersecretary of State of Cuba, in the English, Spanish and French languages is in words and figures as follows:

NORTH AMERICAN REGIONAL BROADCASTING AGREEMENT

concluded among the following Governments:

Canada
Cuba
Dominican Republic
Haiti
Mexico
United States of America

The undersigned, plenipotentiaries of the Governments listed above, having met in conference at Habana, Cuba, have, in common agreement and subject to ratification,

concluded the following Agreement.

PURPOSE AND SCOPE OF THIS AGREEMENT

1. Purpose of Agreement. The purpose of this Agreement is to regulate and establish principles covering the use of the standard broadcast band in the North American Region so that each country may make the most effective use thereof with the minimum technical interference between broadcast stations.

2. North American Region. The North American Region (hereinafter referred to as "Region") for the purpose of this Agreement shall be deemed to include and to consist of the following countries: Canada, Cuba, Dominican Republic, Haiti, Mexico, Newfoundland, and United States of America.

3. Standard broadcast band. The standard broadcast band shall be deemed to be the band of frequencies extending from 550 to 1600 kc, both inclusive, both 550 kc and 1600 kc being the carrier frequencies of broadcasting channels as hereinafter defined. The Governments agree, subject to the provisions of Article 7 of the General Radio Regulations annexed to the International Telecommunications Convention, Madrid, 1932, that this band of frequencies shall be allocated exclusively to broadcasting in the Region.

4. Sovereign right to use channels. The sovereign right of all countries, parties to this Agreement, to the use of every channel in the standard broadcast band is recognized. The Governments recognize, however, that until technical developments reach a state permitting the elimination of radio interference of international character, a regional arrangement between them is necessary in order to promote standardization and to minimize interference.

5. Regional character of Agreement. The Governments recognize that this Agreement, and each provision thereof, is a regional arrangement within the meaning of, and authorized by the International Telecommunications Convention and the General Radio Regulations annexed thereto.

II

TECHNICAL

A. DEFINITIONS

1. Broadcast station. A station the emissions of which are primarily intended to be received by the general public.

2. Broadcast channels-550 to 1600 kc. A broadcast channel is a band of frequencies ten (10) kc in width, with the carrier frequency at the center. Channels shall be designated by their assigned carrier frequencies. Carrier frequencies assigned to broadcast stations shall begin at 550 kc and be in successive steps of 10 kc. No intermediate frequency shall be assigned as the carrier frequency of any broadcast station.

3. Service areas.

(a) Primary service area. The primary service area of a broadcast station is the area in which the ground wave is not subject to objectionable interference or objectionable fading.

(b) Secondary service area. The secondary service area of a broadcast station is the area served by the sky wave and not subject to objectionable interference. The signal is subject to intermittent variations in intensity.

4. Dominant stations. A "dominant" station is a Class I station, as hereinafter defined, operating on a clear channel.

5. Secondary station. A "secondary" station is any station except a Class I station operating on a clear channel.

6. Objectionable interference. Objectionable interference is the degree ofinterference produced when, at a specified boundary or field intensity contour with respect to the desired station, the field intensity of an undesired station (or the root-mean-square value of field intensities of two or more stations on the same frequency) exceeds for ten (10) percent or more of the time the values hereinafter set forth in this Agreement.

7. Power. The power of a radio transmitter is the power supplied to the antenna. The power in the antenna of a modulated-wave transmitter shall be expressed in two numbers, one indicating the power of the carrier frequency supplied to the antenna, and the other the actual maximum percentage of modulation.

8. Spurious radiation. A spurious radiation from a transmitter is any radiation outside the frequency band of emission normal for the type of transmission employed, including any harmonic modulation products, key clicks, parasitic oscillations and other transient effects.

9. English, French and Spanish equivalents. It is agreed that, as used in this Agreement, the French and Spanish words below set forth are respectively the equivalent of, and mean the same as, the English terms opposite which they appear:

English	French	Spanish
Clear channel	Frequence libre	Canal despejado
Objectionable interference	Brouillage nuisible	Interferencia objetable

B. CLASSES OF CHANNELS AND ALLOCATION THEREOF

1. Three classes: The 106 channels in the standard broadcast band are divided into three principal classes: clear, regional and local.

2. Clear channel: A clear channel is one on which the dominant station or stations render service over wide areas and which are cleared of objectionable interference, within their primary service areas and over all or a substantial portion of their secondary service areas.

3. Regional channel: A regional channel is one on which several stations may operate with powers not in excess of 5 kw. The primary service area of a station operating on any such channel may be limited, as a consequence of interference, to a given field intensity contour.

4. Local channel: A local channel is one on which several stations may operate with powers not in excess of 250 watts. The primary service area of a station operating on any such channel may be limited, as a consequence of interference, to a given field intensity contour.

5. Number of channels of each class: The number of channels of each class shall be as follows:

Clear channels	59
Regional channels	41
Local channels	6
	106

6. Allocation of specific channels to each class: The channels are allocated to the several classes as follows:

Clear channels. The following channels are designated as clear channels: 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 940, 990, 1000, 1010, 1020, 1030, 1040, 1050, 1060, 1070, 1080, 1090, 1100, 1110, 1120, 1130, 1140, 1160, 1170, 1180, 1190, 1200, 1210, 1220, 1500, 1510, 1520, 1530, 1540, 1550, 1560, 1570 and 1580.

Regional channels. The following channels are designated as regional channels: 550, 560, 570, 580, 590, 600, 610, 620, 630, 790, 910, 920, 930, 950, 960, 970, 980, 1150, 1250, 1260, 1270, 1280, 1290, 1300, 1310, 1320, 1330, 1350, 1360, 1370,

1380, 1390, 1410, 1420, 1430, 1440, 1460, 1470, 1480, 1590, 1600.

Local channels. The following channels are designated as local channels: 1230, 1240, 1340, 1400, 1450, and 1490 kc.

7. Use of regional and local channels by countries. All countries may use all regional and all local channels, subject to the power limitations and standards for prevention of objectionable interference set forth in this Agreement.

8. Priority of use of clear channels by countries.

(a) The clear channels are assigned for priority of use by Class I and II stations in the several countries in accordance with the table set forth in Appendix I.

(b) Each such channel shall be used in a manner conforming to the best engineering practice with due regard to the service to be rendered by the dominant stations operating thereon, as set forth elsewhere in this Agreement. If, for one year within the term of this Agreement, a country fails to make any use of a clear channel assigned to it, the channel shall be considered open for use by the other countries, parties to this Agreement, pursuant to such arrangement as may be agreed upon by their respective administrations and without any necessity for revision of this Agreement.

(c) No country to which a clear channel has been thus assigned shall permit, or agree to permit, any other country to use such channel in a manner not in conformity with this Agreement without first giving sixty days [FN1] advance notice of its intention so to do to all other countries, parties to this Agreement. If during this period of sixty days [FN1] any other country shall present objections to such proposed use of the channel, the country to which the clear channel has been assigned shall not permit, or agree to permit, such proposed use until the difference presented by the objection has been amicably resolved.

FN1. calendar days

End of Footnote(s).

(d) If within the period of this Agreement the country to which a clear channel has been assigned shall have made use of the channel but not in the manner above prescribed or not to the extent required by the provisions of this Agreement, such country shall be considered as having relinquished that portion of the rights which it has not used and at the expiration of this Agreement the other countries party thereto shall have the right, if they see fit, to withdraw the unused privileges from such country and to reassign them to any or all of the other interested countries.

C. CLASSES OF STATIONS AND USE OF THE SEVERAL CLASSES OF CHANNELS.

1. Classes of stations. Broadcast stations are divided into four principal classes, to be designated Class I, Class II, Class III, and Class IV, respectively.

2. Definitions of classes. The four classes of broadcast stations are defined as follows:

Class I: A dominant station operating on a clear channel and designed to render primary and secondary service over an extended area and at relatively long distances. Class I stations are subdivided into two classes:

Class I-A: A Class I station which operates with power of 50 kw or more and which has its primary service area, within the limits of the country in which the station is located, free from objectionable interference from other stations on the same and adjacent channels, and its secondary service area, within the same limits, free from objectionable interference from stations on the same channel, in accordance with the engineering standards hereinafter set forth.

Class I-B: A Class I station which operates with power of not less than 10 kw or more than 50 kw and which has its primary service area free from objectionable interference from other stations on the same and adjacent channels and its secondary service area free from objectionable interference from stations on the same channel, in accordance with the engineering standards hereinafter set forth.

(a) When two Class I-B stations on the same channel are separated by a distance of 2800 miles or more, neither station shall be required to install a directional antenna.

(b) When two Class I-B stations on the same channel are separated by a distance of more than 1800 miles and less than 2800 miles, it will, in the absence of proof to the contrary, be assumed that each station is free of objectionable interference caused by the other and neither shall be required to install directional antennas or take other precautions to avoid such interference. In case the existence of objectionable interference is proved, the governments concerned will consult with each other regarding the desirability and practicality of installation of directional antennas or the taking of other precautions to eliminate the interference and will determine by special arrangement the measures, if any, to be taken.

(c) When two Class I-B stations on the same channel are separated by a distance less than 1800 miles, it will, in the absence of proof to the contrary, be assumed that the installation of directional antennas or the taking of other precautions to avoid interference is necessary, and the governments concerned will consult with each other and will take such measures as may be agreed upon between them to the end that the objectionable interference may be reduced or eliminated.

Class II: A "secondary" station which operates on a clear channel and is designed to render service over a primary service area which, depending on geographical location and power used, may be relatively large, but which is limited by and subject to such interference as may be received from Class I stations. A station of this class shall operate with power of not less than 0.25 kw or more than 50 kw. Whenever necessary a Class II station shall use a directional antenna or other means to avoid interference, in accordance with the engineering standards hereinafter set forth, with Class I stations and with other Class II stations.

Class III: A station which operates on a regional channel and is designed to render service primarily to a metropolitan district and the rural area contained therein and contiguous thereto. Class III stations are subdivided into two classes:

Class III-A: A Class III station which operates with power not less than one kilowatt or more than five kilowatts and the service area of which is subject to interference in accordance with the engineering standards hereinafter set forth.

Class III-B: A Class III station which operates with a power not less than 0.5 kw or more than 1 kw night and 5 kw daytime and the service area of which is subject to interference in accord with the engineering standards hereinafter set forth.

Class IV: A station using a local channel and designed to render service primarily to a city or town and the suburban and rural areas contiguous thereto. The power of a station of this class shall not be less than 0.1 kw or more than 0.25 kw and its service area is subject to interference in accord with the engineering standards hereinafter set forth.

3. Change of class. If a station or stations in Class III-B located in any country can, through the use of directional antennas or otherwise, so reduce the interference caused or received by such station or stations to the field contour to which interference to stations in Class III-A is allowed, such station or stations shall automatically be classified and included in Class III-A and shall thereafter be so recognized and treated by the Administrations of all countries within the Region.

4. Use of clear channels.

(a) In principle and subject only to the exception hereinafter set forth, Class I stations shall be assigned only to clear channels.

(b) Class II stations may be assigned to clear channels only on conditionthat objectionable interference will not be caused to any Class I stations. Where any country has priority of use of a clear channel for any Class I-A station, no other country shall assign any Class II station to that channel for nighttime operation (from sunset to sunrise at the location of the Class II station) unless such Class II station is located not less than 650 miles from the nearest border of the country in which the Class I-A station is located; provided, however, that where an assignment for a Class II station is specifically stated in Appendix I, such assignment shall be deemed as authorized under the limitations therein set forth.

5. Use of regional channels.

(a) In general only Class III-A and Class III-B stations shall be assigned to regional channels.

(b) On condition that interference be not caused to any Class III-A or Class III-B station, and subject to such interference as may be received from Class III-A or Class III-B stations, Class IV stations may be assigned to regional channels.

(c) Because of their geographical location with respect to the North American continent, special consideration will be given to the use by Cuba, the Dominican

Republic, Haiti and Newfoundland of stations of Classes I and II assigned to certain regional channels under certain conditions, with respect to power and precautions to avoid objectionable interference as set forth in Appendix VII.

6. Use of local channels. Only Class IV stations shall be assigned to local channels.

D. SERVICE AND INTERFERENCE

1. Satisfactory signal. It is recognized that, in the absence of interference from other stations and in regions where the natural electrical noise level is not abnormally high, a signal of 100 microvolts per meter constitutes a usable signal in rural and sparsely settled areas but that, because of the higher electrical noise levels in more thickly populated communities, greater field intensities (ranging as high as 25 millivolts or more in cities) are necessary to render satisfactory service. It is further recognized that it is not possible to accord protection to stations from objectionable interference over the entire areas over which their signals are or may be above the electrical noise level, particularly at night, and that it is necessary to specify boundaries or contours at or within which stations are protected from objectionable interference from other stations.

2. Areas protected from objectionable interference. The boundaries or contours at and within which the several classes of stations shall be protected from objectionable interference are as set forth in Appendix II. No station, however, need be protected from objectionable interference at any point outside the boundaries of the country in which such station is located.

With respect to the root-mean-square values of interfering field intensities referred to herein, it shall be understood to apply in determining the interference between existing stations and no station thereafter assigned the channel shall increase the root-mean-square value of the interfering field intensity above the maxima specified in the attached tables.

3. Objectionable interference on the same channel. Objectionable interference shall be deemed to exist to a station when, at the boundary or field intensity contour specified in Appendix II with respect to the class to which the station belongs, the field intensity of an interfering station (or the root-mean-square value of the field intensities of two or more interfering stations) operating on the same channel, exceeds for ten (10) percent or more of the time the value of the permissible interfering signal set forth opposite such class in Appendix II.

4. Interference to dominant clear channel stations. A station shall be considered as not capable of causing objectionable interference to a Class I clear channel station on the same frequency when it is separated from the dominant clear channel station by a difference of 70 degrees or more of longitude.

5. Objectionable interference on adjacent channels. It is recognized, in principle, that objectionable interference may be caused to a desired station when, at or within the specified contours of a desired station, the field intensity of the ground wave of an undesired station operating on an adjacent channel (or the root-mean-square value of the field intensities of two or more

such undesired stations operating on the same adjacent channel) exceeds a value determined by the following ratio:

Separation between channels	Minimum permissible ratio of desired to undesired signals
10 kc	1 to 0.5
20 kc	1 to 10
30 kc	1 to 50

For convenient reference, the maximum permissible values of interfering signals on such adjacent channels at specified contours are set forth in Appendix III, Table I.

6. Application of standards to existing stations.

(a) For the purpose of estimating objectionable interference, all stations (other than those of Class II) shall be assumed to use the maximum power permitted to their respective classes. In this connection, the power of Class I-A stations shall be considered to be 50 kw or the actual power, if higher.

(b) After this agreement has been placed in operation a station thereafter assigned a channel already assigned to other stations shall not be considered as preventing existing stations from increasing their power to the maximum allowed their class, even though such power increase may limit the newly assigned station to a field intensity contour of higher value than that permitted its class.

7. Frequency stability The operating frequency of each broadcast station shall be maintained to within 50 cycles of the assigned frequency until January 1, 1939, and thereafter the frequency of each new station or each station where a new transmitter is installed shall be maintained within 20 cycles of the assigned frequency, and after January 1, 1942, the frequency of all stations shall be maintained within 20 cycles of the assigned frequency.

8. Spurious radiation. The governments shall endeavor to reduce and, if possible, eliminate spurious radiations from broadcast stations. Such radiations shall be reduced in all cases until they are not of sufficient intensity to cause interference outside the frequency band required for the type of emission employed. With respect to type A-3 emissions (radio-telephony) the transmitter should not be modulated in excess of its modulation capability to the extent that

interfering spurious radiations occur, and, with respect to amplitude modulation, the operating percentage of modulation should not be less than seventy-five (75) percent on peaks of frequent recurrence. Means should be employed to insure that the transmitter is not modulated in excess of its modulation capability.

E. DETERMINATION OF PRESENCE OF OBJECTIONABLE INTERFERENCE

1. Antenna performance. For the purpose of calculating the presence and the degree of objectionable interference, stations of the several classes shall be assumed to produce effective field, corrected for absorption, for one kilowatt of input power to the antenna, as follows:

Class of Station	At One Mile	At One Kilometer
I	225 mv/m	362 mv/m
II and III	175 mv/m	282 mv/m
IV	150 mv/m	241 mv/m

In case a directional antenna is employed, the interfering signal of a broadcasting station will vary in different directions. To determine the interference in any direction, in the absence of actual interference measurements, the horizontal and vertical field intensity patterns of the directional antenna must be calculated and by comparing the appropriate vectors in the horizontal or vertical pattern with that of a nondirectional with the same effective field, the interfering signal toward any other station can be expressed in terms of kilowatts. This rating in kilowatts shall be applied in the use of mileage separation tables or in computing distances from the propagation curves or tables.

2. Power. The power of a station shall, for the purposes of notifications required by this Agreement, be determined in one of the following manners:

(a) By taking the product of the square of the antenna current and the antenna resistance (antenna input power).

(b) By determination of the station's effective field intensity, corrected for absorption, by making sufficient field intensity measurements on at least eight radials as nearly equally spaced as practicable and by relating the field intensity thus determined to the effective field intensity of a station having the antenna efficiency stipulated above for its class.

3. Methods of determining the presence of objectionable interference-General. The existence or absence of objectionable interference from stations on the same or adjacent channels shall be determined by one of the following methods:

(a) By actual measurements obtained in the method hereinafter prescribed;

or, with the mutual consent of the countries concerned:

(b) By reference to the propagation curves in Appendices IV and V, or

(c) By reference to the distance tables set forth in Appendix VI.

4. Actual proof of existence or absence of objectionable interference. The existence or absence of objectionable interference may be proved by field intensity measurements or recordings made with suitable apparatus, duly calibrated, by Government engineers or other engineers as may be mutually acceptable to the Governments concerned. Such field intensity measurements shall be made in the manner and for the periods of time mutually agreed upon by the Governments concerned.

The contracting Governments agree to facilitate the making of the measurements by requiring the stations involved to remain silent or operate in the manner deemed necessary, and at such times as not to interrupt regular schedules.

5. Proof based on propagation curves and distance tables.

(a) Sky wave curves. In computing the distance to the 50 per cent sky wave field intensity contour of a Class I station of a given power, and also in computing the 10 percent sky wave field intensity of an alleged interfering station, of any class and given power, at a specified distance, use may be made of the appropriate graphs set forth in Appendix V, entitled "Average Sky Wave Field Intensity Corresponding to the Second Hour after Sunset in the Recording Station, 100 Millivolt per Meter at One Mile (161 at one kilometer)".

(b) Ground wave curves. The distance to any specified ground wave field intensity contour may be determined from appropriate ground wave curves plotted for the frequency under consideration and the conductivity and dielectric constant of the earth between the station and desired contour. The frequency and the conductivity of the earth must be considered in every case and where the distance is great due allowance must be made for loss due to curvature of the earth. A family of curves is necessary for this purpose. A graph for a conductivity of 10-13 is set forth in Appendix IV, entitled "Ground Wave Field Intensity vs. Distance for One Kilowatt Radiated From Short Antenna". Three frequencies in the standard broadcast band are given. For other frequencies and soil conditions (conductivity and dielectric constant) other curves are required. A conductivity of 10-13 is considered average and is used throughout in determining the ground wave value for computing the mileage separation tables.

(c) Distance tables. Table I shows the required day separation in miles between broadcast stations on the same channel. Table II gives the required distance in miles from the boundary of a country in which a Class I-A station is located for the daytime operation of a Class II station on the same channel in another country. Table III gives the required separation in miles between broadcast

stations on adjacent channels during both daytime and nighttime. Table IV gives the required night separation in miles between broadcast stations operating on the same channel. The assumed conditions of operation are given in Appendix VI.

The tables are based upon the use of nondirectional antennas but, in case a directional antenna is employed at a particular station, it will be necessary to consider the radiation distribution of the directional antenna involved and to modify the mileage separation accordingly. The night separation tables for stations on the same frequency are computed from the skywave curve given in Appendix V. These curves are based on extensive measurements of the skywave produced by broadcasting stations and shall be considered as accurate in all cases unless proof to the contrary is available as set out in Section E 4. The mileage separation tables for the same channel during daytime and for adjacent channels day and night are computed from the groundwave curve in Appendix IV. Tables apply only in case the frequency is 1000 kc and the assumed soil conductivity and dielectric constant prevail. Since these values vary in every case the tables for daytime and adjacent channel separation cannot be used except as a general guide. In any case under consideration an estimate of the mileage separation required may be made from the operating frequency and known or assumed soil conditions. To determine the interference accurately, measurements must be made in accordance with Section E 4 on the frequency under consideration or on another frequency and from the curves the values may be determined for the desired frequency.

F. MISCELLANEOUS

1. Engineering standards. The engineering standards set forth in this Agreement are subject to revision when justified by technical advances in the art, with the mutual consent of the governments parties to this Agreement.

III

NOTIFICATION AND EFFECT THEREOF

1. Initial notification.

Each Government shall, as soon as possible after ratification of this Agreement, and in any event not later than 180 days prior to the effective date thereof, transmit to the other Governments

(a) A complete list of all broadcast stations actually in operation in its country in the standard broadcast band both as of the date of the signing of this Agreement and as of the date of transmitting said list, showing with respect to each station its call signal, location, frequency, power, and antenna characteristics, together with all changes authorized to be made with respect to said stations on or before the effective date of this Agreement, and the classification claimed for each such station.

(b) A complete list of all changes authorized to be made with respect to said stations after the effective date of this Agreement, the dates on or before which such changes are to be consummated, and the classification claimed for each such

station under this Agreement when the proposed change has been consummated.

(c) A complete list of all new broadcast stations authorized but not yet in operation, showing with respect to each such station its call signal, location, frequency, power and antenna characteristics, the date on or before which each such station shall commence operation, and the classification claimed for it under this Agreement.

(d) The Governments agree that prior to the effective date of this Agreement, they will, so far as possible, resolve all conflicts that may arise between them as a result of the foregoing initial listings, and that, notwithstanding some such conflicts may remain unresolved, they will cooperate to the end that there be no delay in putting the provisions of this Agreement into full force and effect on that date.

(e) In resolving conflicts in the use of clear channels, and in the listing of Class I and Class II stations, the provisions of this Agreement and particularly of Appendix I shall be controlling. In resolving conflicts in the use of regional and local channels, and in the listing of Class III and Class IV stations, priority of use shall be recognized in each country with respect to stations which at the time of signing of this Agreement are in actual operation, which in substance conform to the definitions of said classes as set forth in this Agreement, and with respect to which no substantial change is made or proposed; a change of frequency in order to conform to the designation of channels in this Agreement shall not be deemed a substantial change.

2. Subsequent notifications. After the effective date of this Agreement and throughout the period during which it shall remain in effect, each Government shall promptly notify the other Governments by registered letter of all further changes in existing broadcast stations and of all further new broadcast stations, together with similar information with regard to each such change or new station, and the proposed date on which each such change is to go into effect and on which each such new station is to actually commence operation.

3. Effect of notification. Each Government may, within 30 days of receiving notification of any proposed change in the assignment of an existing station or of the authorization of a new station in another country, notify the Government of the latter country of any objection it may have thereto under the terms of this Agreement.

4. Conflict between notifications. To be valid, notifications of changes in the assignments of existing stations, or of authorizations of new stations must be such that the assignments proposed therein are in accordance with this Agreement and are such as not to involve objectionable interference to existing stations in other countries, assigned and operating in accordance with this Agreement. As between two or more notifications of changes or authorizations of new stations proceeding from different countries, after the effective date of this Agreement, priority in the date of mailing of notification shall govern.

5. Cessation of effect. (a) A notification of a proposed change in the assignment of an existing station or of an authorization of a new station shall cease to have any force and effect if, within one year of the date thereof such change shall not have been actually consummated or such new station shall not have actually

commenced continuous operation. (b) In special cases in which circumstances beyond the control of the Administration concerned have prevented the completion of the change or the construction of the new station, the term of the original notification may be extended for a period of six months.

6. Bern Bureau. The foregoing notifications shall be made independently of and in addition to those which, under current practice, are sent to the Bureau of the International Telecommunications Union.

IV

ARBITRATION

In case of disagreement between two or more contracting Governments concerning the execution of this Agreement the dispute, if it is not settled through diplomatic channels, shall be submitted to arbitration at the request of one of the Governments in disagreement. Unless the parties in disagreement agree to adopt a procedure already established by treaties concluded between them for the settlement of international disputes, the procedure shall be that provided for in Article 15 of the International Telecommunications Convention of Madrid, 1932.

V

RATIFICATION, EXECUTION, AND DENUNCIATION

1. Ratification. To be valid this Agreement must be ratified by Canada, Cuba, Mexico and the United States of America.

If and when three of said four countries shall have ratified and the fourth shall, through unavoidable circumstances, have been unable to ratify but shall have signified to those countries that have ratified, its readiness, pending ratification and as an administrative measure, to put the provisions of this Agreement (including the contents of Appendix I) into effect in whole or in part, then such country, together with those countries which shall have ratified, may, by administrative agreement between them, fix a definite date on which they shall give effect to such provisions, which date shall preferably be one year from the date of such administrative agreement.

The ratifications must be deposited, as soon as possible, through diplomatic channels, in the archives of the Government of Cuba. This same Government shall, through diplomatic channels, notify the other signatory Governments of the ratifications as soon as they are received.

2. Effect of ratification. This Agreement shall be valid only as between such countries as shall have ratified it.

3. Execution. The contracting Governments undertake to apply the provisions of this Agreement, and to take the steps necessary to enforce said provisions upon the private operating agencies recognized or authorized by them to establish and

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operate broadcast stations within their respective countries.

4. Denunciation. Each contracting Government shall have the right to denounce this Agreement by a notification addressed, through diplomatic channels, to the Government of Cuba, and announced by that Government, through diplomatic channels, to all the other contracting Governments. This denunciation shall take effect at the expiration of the period of one year from the date on which the notification was received by the Government of Cuba. This effect shall apply only to the author of the denunciation. This Agreement shall remain in force for the other contracting Governments but only as between such Governments.

VI

EFFECTIVE DATE AND TERM OF THE AGREEMENT

1. Except for the provisions of Section 1 of Part III, Section 1 of Part V, and paragraph 3 of Table VI of Appendix I annexed hereto (which provisions shall go into effect immediately upon this Agreement becoming valid), this Agreement shall become effective one year after the date it shall have been ratified by the fourth of those Governments whose ratification is requisite to the validity of this Agreement. The Governments will cooperate to the end that, wherever possible, the provisions of this Agreement shall be carried out in advance of said effective date.

2. This Agreement shall remain in effect for a period of five years after said effective date.

VII

ADHERENCE

This Agreement shall be open to adherence in the name of Newfoundland.

In witness whereof the respective plenipotentiaries have signed the Agreement in triplicate, one copy in English, one in Spanish, and one copy in French, each of which shall remain deposited in the archives of the Government of Cuba and a copy of each of which shall be forwarded to each Government.

Done at Habana, Cuba, on December 13th, 1937.

CANADA:

LAURENT BEAUDRY.

C. P. EDWARDS.

CUBA:

WIFREDO ALBANÉS Y PEÑA.

ANDRÉS ASENSIO Y CARRASCO.

NICOLÁS GONZÁLEZ DE MENDOZA Y DE LA TORRE.

ALFONSO HERNÁNDEZ CATÁ Y GALT.

DOMINICAN REPUBLIC:

ROBERTO DESPRADEL.

MÁXIMO LOVATÓN P.

HAITI:

JUSTIN BARAU.

MEXICO:

IGNACIO GALINDO.

SALVADOR TAYABAS.

FERNANDO SÁNCHEZ AYALA.

RUBÉN FUENTES.

UNITED STATES OF AMERICA:

T. A. M. CRAVEN.

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ATTACHMENTS:

Appendix I -Priority of use of clear channels for Class I and II stations

" II -Protected service and interference

" III -Adjacent channel interference

" IV -Ground wave graphs

" V -Sky wave graphs

" VI -Mileage separation tables

" VII -Engineering requirements for use of regional channels by Class II stations

APPENDIX I

Under the provisions of Section II of this Agreement each country may use all the 106 channels when technical conditions with respect to interference to established stations are such as to render such use practicable. However, priority of use on specified clear channels is recognized for the following number of Class I and II stations in each country.

TABLE I

Canada	14
Cuba	9 [FN2]

Dominican Republic	1
Haiti	1
Mexico	15
Newfoundland	2 [FN2]
United States	63

FN2. See Table V for special arrangements provided for Cuba and Newfoundland.

These stations and the conditions of their operation are as specified in Tables II, III, IV, V, VI, VII, and VIII following herewith.

TABLE II

CLASS I-A STATIONS

(Canada, Cuba, and Mexico)

Frequency	Location of Stations
690	Quebec, Canada
730	Mexico, D. F.

740 Ontario, Canada

800 Sonora, Mexico

860 Ontario, Canada

900 Mexico, D. F.

990 Manitoba, Canada

1010 Alberta, Canada

1050 Nuevo Leon, Mexico

1220 Yucatan, Mexico

1540 Santa Clara, Cuba

1570 Nuevo Leon, Mexico

1580 Quebec, Canada

TABLE III

CLASS I-B STATION

Frequency	Location of Stations	Power Limitation	Requirements as to directional antennas

(kw)

810	New York, U.S.A.	-	None
810	California, U.S.A.	-	To be determined
940	Quebec, Canada	5 kw minimum permissible	Determine from operation
940	Mexico, D.F.	-	" " "
1000	Jalisco, Mexico	20	To be determined
1000	Washington, U.S.A.	-	" " "
1000	Illinois, U.S.A.	-	" " "
1010	Habana, Cuba	-	Determine from operation
1060	Mexico, D.F.	-	To be determined
1060	Pennsylvania, U.S.A.	-	" " "
1070	Maritime Provinces, Canada	-	None
1070	California, U.S.A.	-	None
1080	Connecticut, U.S.A.	-	To be determined
1080	Texas, U.S.A.	-	" " "

1090	Baja Calif., Mexico	-	" " "
1090	Maryland, U.S.A.	-	" " "
1090	Arkansas, U.S.A.	-	" " "
1110	North Carolina, U.S.A.	-	" " "
1110	Nebraska, U.S.A.	-	" " "
1130	British Columbia, Canada	5 kw minimum permissible	None
1130	New York - New Jersey, U.S.A.		"
1140	Chihuahua, Mexico	-	To be determined
1140	Virginia, U.S.A.	-	" " "
1170	Oregon, U.S.A.	-	" " "
1170	Oklahoma, U.S.A.	-	" " "
1170	West Virginia, U.S.A.	-	" " "
1190	Sinaloa, Mexico	-	" " "
1190	Indiana, U.S.A.	-	" " "
1550	Ontario, Canada	-	Determine from operation
1550	Vera Cruz, Mexico	20	" " "

1560 Habana, Cuba - _____

TABLE IV

CLASS II STATIONS

Frequency	Location of Stations	Power Limitation (kw)	Requirements as to directional antennas
640	Newfoundland	-	None
690	Kansas - Oklahoma, U. S. A.	-	To be determined [FN3]
740	Calif., U. S. A.	-	" " " [FN4]
800	Ontario, Canada	5	" " "
810	Tamaulipas (Tampico) Mexico	50	" " "

900	Quebec, Canada	5	" " "
990	Tennessee, U. S. A.	-	" " " [FN5]
1000	Oriente, Cuba	10	" " "
1050	New York, U. S. A.	-	" " "
1060	Alberta, Canada	10	" " "
1070	Alabama, U. S. A.	-	" " "
1080	Manitoba, Canada	15	" " "
1080	Haiti	10	" " "
1110	Mexico, D. F.	20	" " "
1130	Louisiana, U. S. A.	-	" " "
1170	Dominican Republic	10	" " "
1190	Habana, Cuba	15	" " "

FN3. Permissible to increase field intensity above 25 uv/m (10% skywave) west of Minnesota on Canadian border.

FN4. Same as a except west of North Dakota.

FN5. ?? " " " " east of Minnesota. Also 650 miles from border requirement

waived.

TABLE V

CLASS II STATION [FN6] ON REGIONAL CHANNELS

(Cuba and Newfoundland)

Frequency	Location of Stations	Maximum Power in kw.
560	Newfoundland	10
570	Santa Clara, Cuba	15
590	Habana, Cuba	15
630	Habana, Cuba	15
1270	Habana, Cuba	10

FN6. These stations shall use directional antennas to prevent objectionable

interference to the Class III stations on the channel in accordance with Appendix VII.

TABLE VI

SPECIAL CONDITIONS AFFECTING THE UNITED STATES

The 24 Class I and II stations in the United States which use clear channels with other countries party to this agreement are given in Tables III and IV.

The remaining 39 Class I and II stations of the United States will be assigned the following clear channels:

640 650 660 670 680 700 710 720 750 760 770 780

820 830 840 850 870 880 890 1020 1030 1040 1100

1120 1160 1180 1200 1210 1500 1510 1520 1530

It is recognized that the United States must make extensive adjustments in the assignments of its existing stations in order to make possible the carrying out of this Agreement, that these adjustments will require approximately a year, and that it is not possible for the United States at this time to specify on which of the said 32 channels it will have priority of use for Class I-A stations, Class I-B stations and Class II stations respectively, nor the locations of such stations,

power and other information with respect thereto. The United States may assign Class I-A stations to at least 25 of said channels. The United States agrees that ninety days before the effective date of this Agreement it will communicate this information to each of the other countries parties to this Agreement, and such information, when communicated, shall be considered part of this Agreement as if fully set forth herein.

Nothing stated in this Agreement shall be construed to preclude the United States of America from asserting, and enjoying recognition of, priority of use with reference to certain other Class II stations (not included in the 63 stations mentioned in Table I) which are now in actual operation in the band 640-1190 kcs and which are known under the Regulations of the Federal Communications Commission as "limited time stations" and "daytime stations" (having hours of operation limited to sunset taken either at their respective locations or at the locations of the respective dominant stations on clear channels and in some cases including hours not actually used by said dominant stations) which stations may, so far as permitted by the terms of this Agreement and the engineering standards herein set forth, be given assignments substantially equivalent to those they now enjoy.

TABLE VII

SPECIAL CONDITIONS REGARDING THE USE OF 1010 KC BY CUBA AND CANADA

With regard to the use of the clear channel of 1010 kc by a Class I-A station in Canada, and by a Class I-B station in Cuba, both countries mutually agree that the interfering signal shall not exceed for 10 per cent of the time or more the value of 50 microvolts per meter at the following points of measurement: in Cuba at any point east of the province of Camaguey, and in Canada at any point west of the province of Manitoba.

TABLE VIII

SPECIAL CONDITIONS AFFECTING CANADA

Nothing stated in this Agreement shall be construed to preclude Canada from asserting priority of use with reference to certain Class III and IV stations now in operation in Canada on existing clear and regional channels which through this Agreement will become of a class of channel which may not permit their use by Class III and IV stations.

APPENDIX II

TABLE I

55 Stat. 1005
1941 WL 38989 (U.S. Treaty), T.S. No. 962

PROTECTED SERVICE CONTOURS AND PERMISSIBLE INTERFERENCE SIGNALS FOR BROADCAST STATIONS

Class of station	Class of channel used	Permissible power	Boundary or signal intensity contour of area protected from objectionable interference [FN7]		Permissible interfering signal [FN8]	
			Day	Night	Day	Night [FN9]
I A	Clear	50 kw or more	Boundary of country in which station is located		5 uv/m	25 uv/m [FN10]
I B	Clear	10 kw to 50 kw	100 uv/m	500 uv/m (50% s k y wave)	5 uv/m	25 uv/m

II	Clear	0.25 kw to 50 kw [FN10]	500 uv/m [FN11]	2500 uv/m [FN11] (Ground wave)	25 uv/m [FN11]	125 uv/m [FN11]
III A	Regional	1 kw to 5 kw	500 uv/m	2500 uv/m (Ground wave)	25 uv/m	125 uv/m
III B	Regional	0.5 kw to 1 kw night and 5 kw day	500 uv/m	4000 uv/m (Ground wave)	25 uv/m	200 uv/m
IV	Local	0.1 kw to 0.25 kw	500 uv/m	4000 uv/m (Ground wave)	25 uv/m	200 uv/m

---

FN7. In accordance with other provisions in this Agreement this freedom of

interference does not apply outside the boundaries of the country in which the station is located.

FN8. From other stations on same channel only. For adjacent channels see Appendix III, Table I.

FN9. Sky wave field intensity exceeded for 10% of the time.

FN10. No Class II station shall be assigned to the same channel as a Class I A station for nighttime operation (from sunset to sunrise) less than 650 miles of the nearest border of the country in which the Class I A station is located.

FN11. These values are with respect to interference from all stations except Class I, which stations may cause interference to a field intensity contour of higher value. However, it is recommended that Class II stations be so located that the interference received from Class I stations will not exceed these values. If the Class II stations are limited by Class I stations to higher values, then such values shall be the standard established with respect to interference from all other classes of stations.

APPENDIX III

55 Stat. 1005
1941 WL 38989 (U.S. Treaty), T.S. No. 962

TABLE I

ADJACENT CHANNEL INTERFERENCE

Channel separation between desired and undesired stations.	Maximum ground wave field intensity of undesired station.
10 kc	0.25 mv/m
20 kc	5.0 mv/m
30 kc	25.0 mv/m

The undesired ground wave signal shall be measured at or within the 0.5 mv/m ground wave contour of the desired station. These values apply to all classes of stations both day and night and are based on ground waves only. No adjacent channel interference is considered on the basis of an interfering sky wave.

TABULAR OR GRAPHIC MATERIAL SET AT THIS POINT IS NOT DISPLAYABLE

TABULAR OR GRAPHIC MATERIAL SET AT THIS POINT IS NOT DISPLAYABLE

APPENDIX VI

MILEAGE SEPARATION TABLES

The required separations between broadcasting stations as tabulated below are based upon the following conditions:

1. The use of nondirectional antennas.

2. Antenna efficiencies (in mv/m at one mile for one kilowatt)

Class I - 225 mv/m

Class II and III - 175 mv/m

Class IV - 150 mv/m

3. Frequency, 1000 kc.
4. Soil conductivity, s = 10-13.
5. Soil dielectric constant, e = 15.
6. Groundwave transmission as shown on chart in Appendix IV.
7. Skywave transmission as shown on chart in Appendix V.
8. Protection to service areas as shown in Appendix II, Table I.
9. Ratio of desired to undesired signal:

Channel Separation	Ratio of Desired to Undesired
Same Frequency	20:1
10 kc	2:1
20 kc	1:10
30 kc	1:50

[Note: The following TABLE/FORM is too wide to be displayed on one screen. You must print it for a meaningful review of its contents. The table has been divided into multiple pieces with each piece containing information to help you assemble a printout of the table. The information for each piece includes: (1) a three line message preceding the tabular data showing by line # and character # the position of the upper left-hand corner of the piece and the position of the piece within the entire table; and (2) a numeric scale

following the tabular data displaying the character positions.]

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******** This is piece 1. -- It begins at character 1 of table line 1. ********

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100 w	143	165	172	192	213	265	285	310	335	390
250 w	165	173	180	200	221	273	293	318	343	415
0.25 kw	172	180	183	203	224	276	296	321	346	418
0.5 kw	192	200	203	210	231	283	303	328	353	446
1 kw	213	221	224	231	239	291	311	336	361	467
5 kw	265	273	276	283	291	313	333	358	383	520
10 kw	285	293	296	303	311	333	345	370	395	540
25 kw	310	318	321	328	336	358	370	389	414	565
50 kw	335	343	346	353	361	383	395	414	430	587
10 kw	390	415	418	446	467	520	540	565	587	556
25 kw	417	442	446	473	494	547	567	592	614	585

50 kw	437	462	465	493	514	567	587	612	634	605
100 kw	462	487	490	518	539	592	612	637	659	628
250 kw	486	511	514	542	563	616	636	661	683	655
500 kw	513	538	541	569	590	643	663	688	710	682

1...+...10....+...20....+...30....+...40....+...50....+...60....+...70....+.

****

******* This is piece 2. -- It begins at character 77 of table line 1. ********

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417	437	462	486	513
442	462	487	511	538

446	465	490	514	541
473	493	518	542	569
494	514	539	563	590
547	567	592	616	643

567	587	612	636	663
592	612	637	661	688
614	634	639	683	710

585	605	628	655	682
612	632	657	682	709
632	652	677	702	729
657	677	697	727	754
682	702	727	751	778
709	729	754	778	805

77.....+...90....+....0....+..

TABLE II

REQUIRED DISTANCE IN MILES FROM THE BOUNDARY OF A COUNTRY IN WHICH A CLASS I-A STATION IS LOCATED FOR DAYTIME OPERATION OF A CLASS II ON THE SAME CHANNEL

Class II

Power of Station	0.25 kw	0.5 kw	1 kw	5 kw	10 kw	25 kw	50 kw
Miles from boundary	237	261	282	335	355	380	402

[Note: The following TABLE/FORM is too wide to be displayed on one screen. You must print it for a meaningful review of its contents. The table has been divided into multiple pieces with each piece containing information to help you assemble a printout of the table. The information for each piece includes: (1) a three line message preceding the tabular data showing by line # and character # the position of the upper left-hand corner of the piece and the position of the piece within the entire table; and (2) a numeric scale following the tabular data displaying the character positions.]

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******** This is piece 1. -- It begins at character 1 of table line 1. ********

****

0.1 kw	73	37	32	82	45	40	86	47
0.25 kw	82	45	40	90	48	41	94	50
0.25 kw	86	47	42	94	50	43	96	51
0.5 kw	94	55	50	102	58	51	104	59
1 kw	105	63	58	113	66	59	115	67
5 kw	133	84	79	141	87	80	143	88
10 kw	149	98	93	157	101	94	159	102
25 kw	172	115	110	180	118	111	182	119
50 kw	190	131	126	198	134	127	200	135
10 kw	162	107	102	170	110	103	172	111
25 kw	183	126	121	191	129	122	193	130
50 kw	203	144	139	211	147	140	213	148
500 kw	277	211	206	285	214	207	287	215

1...+...10....+...20....+...30....+...40....+...50....+...

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******* This is piece 2. -- It begins at character 59 of table line 1. ********

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42	94	55	50	105	63	58	133	84	79	149	98	93
43	102	58	51	113	66	59	141	87	80	157	101	94
43	104	59	51	115	67	59	143	88	80	159	102	94
51	112	62	52	123	70	60	151	91	81	167	105	95
59	123	70	60	131	73	62	159	94	83	175	108	97
80	151	91	81	159	94	83	180	104	87	196	118	101
94	167	105	95	175	108	97	196	118	101	210	123	104
111	190	122	112	198	125	114	219	135	118	233	140	121
127	208	138	128	216	141	130	237	151	134	251	156	137
103	180	114	104	188	117	106	209	127	110	223	132	113
122	201	133	123	209	136	125	230	146	129	244	151	132

140	221	151	141	229	154	143	250	164	147	264	169	150
207	295	218	208	303	221	210	324	231	214	338	236	217

59....+...70....+...80....+...90....+....0....+...10....+...20....+...30....+

[Note: The following TABLE/FORM is too wide to be displayed on one screen. You must print it for a meaningful review of its contents. The table has been divided into multiple pieces with each piece containing information to help you assemble a printout of the table. The information for each piece includes: (1) a three line message preceding the tabular data showing by line # and character # the position of the upper left-hand corner of the piece and the position of the piece within the entire table; and (2) a numeric scale following the tabular data displaying the character positions.]

****

******** This is piece 1. -- It begins at character 1 of table line 1. ********

****

0.1 kw	172	115	110	190	131	126	162	107	102	183	126
0.25 kw	180	118	111	198	134	127	170	110	103	191	129

0.25 kw	182	119	111	200	135	127	172	111	103	193	130
0.5 kw	190	122	112	208	138	128	180	114	104	201	133
1 kw	198	125	114	216	141	130	188	117	106	209	136
5 kw	219	135	118	237	151	134	209	127	110	230	146
10 kw	233	140	121	251	156	137	223	132	113	244	151
25 kw	250	149	125	268	165	141	242	145	123	261	160
50 kw	268	165	141	284	172	145	260	161	139	279	163
10 kw	242	145	123	260	161	139	232	137	115	253	156
25 kw	261	160	136	279	168	144	253	156	134	272	163
50 kw	281	178	154	297	185	158	273	174	152	292	181
500 kw	355	245	221	371	252	225	347	241	219	366	248

1...+...10....+...20....+...30....+...40....+...50....+...60....+...70....+..

****

******* This is piece 2. -- It begins at character 78 of table line 1. ********

****

121	203	144	139	277	211	206
122	211	147	140	285	214	207
122	213	148	140	287	215	207
123	221	151	141	295	218	208
125	229	154	143	303	221	210
129	250	164	147	324	231	214
132	264	169	150	338	236	217
136	281	178	154	355	245	221
144	297	185	158	371	252	225
134	273	174	152	347	241	219
139	292	181	157	366	248	224
157	310	190	161	384	257	227
224	384	257	227	451	291	247

78.....+...90....+....0....+...10....+..

TABLE IV

REQUIRED NIGHT SEPARATION IN MILES BETWEEN BROADCAST STATIONS ON THE SAME CHANNELS

The following tables indicate the mileage protection each class must give all other classes.

Class I-A Not required to protect Class II stations on same channel at night.

TABLE IV A

Class I-B Must protect other Class I-B stations as shown below.

Class I-B	10 kw	25 kw	50 kw

10 kw	2665	3010	3280
25 kw	3010	3243	3500
50 kw	3280	3500	3660

TABLE IV B

Class II-Must protect other classes as shown below.

Class II	Class II stations					Class I-B stations			Class I-A stations
.25 kw	.5 kw	1 kw	5 kw	10 kw	25 kw	50 kw	10 kw	25 kw	50 kw	Distance from nearest border of country in which Class

											I-A station is located
.25 kw	451	602	732	1018	1136	1271	1529	1378	1610	1760	1038
.5 kw	602	606	736	1022	1140	1275	1533	1508	1735	1890	1180
1. kw	732	736	739	1025	1143	1280	1535	1658	1885	2040	1335
5. kw	1018	1022	1025	1039	1157	1292	1547	2165	2395	2550	1830
10. kw	1136	1140	1143	1157	1162	1298	1553	2450	2680	2830	2122
25. kw	1271	1275	1280	1292	1298	1310	1560	2880	3120	3260	2575
50. kw	1529	1533	1535	1547	1553	1560	1570	3090	3330	3480	2730

TABLE IV C

Class III-A [FN12]-Must protect other classes as shown below.

Class III-A	Class III-A	Class III-B

	1 kw	5 kw	.5 kw	1 kw
1 kw	739	1025	550	553
5 kw	1025	1039	847	851

FN12. See Appendix VII for protection Class III stations should give Class II stations on regional channels.

TABLE IV D

Class III B [FN13] Must protect other classes as shown below.

Class III B	Class III A		Class III B	
	1 kw	5 kw	.5 kw	1 kw
.5 kw	735	1020	383	550
1. kw	739	1025	550	553

FN13. See note a page 7 [ante, p. 1032].

TABLE IV E

Class IV-Must protect other classes as shown below.

Class IV	Class III A		Class III B	Class IV
	1 kw	5 kw .5 kw	10 kw	
.1 kw	300	300	Daytime separation determines	Daytime separation determines
.25 kw	395	407		

TABLE IV F

DISTANCE CLASS II STATION MUST BE FROM CLASS I A AND I B STATIONS TO OBTAIN RECOMMENDED PROTECTION TO CLASS II STATION (2.5 MV/M GROUND WAVE CONTOUR)

Class II [FN14]	Class I A and I B Stations			
	10kw.	25 kw.	50 kw.	500 kw.
.25 kw	1248	1462	1520	2767
.5 kw	1252	1470	1523	2771
1. kw	1256	1473	1528	2775
5. kw	1270	1484	1541	2789
10. kw	1275	1490	1546	2793
25. kw	1285	1498	1743	2803
50. kw	1293	1510	1750	2812

FN14. Must use directional antenna to protect dominant station or stations with these separations.

55 Stat. 1005
1941 WL 38989 (U.S. Treaty), T.S. No. 962

TABLE IV G

DISTANCE CLASS IV STATIONS MUST BE FROM CLASS III-A AND III-B STATION TO OBTAIN RECOMMENDED PROTECTION TO CLASS IV STATION (4.0 MV/MGROUND WAVE CONTOUR)

Class IV Power	Class III-A or III-B		
	.5	1.0	5.0
.10	377	547	847
.25	381	551	851

APPENDIX VII

ENGINEERING REQUIREMENTS FOR THE USE OF REGIONAL CHANNELS BY CLASS II STATION UNDER THE PROVISIONS OF SECTION C 5 C

A Class II station assigned to a regional channel in accordance with Section C 5 c shall use a directional antenna or other means to limit the interfering signal within the protected service area of any Class III station on the channel to the value set forth in Appendix II, Table I. The interfering signal in case of projected operation shall be determined from the characteristics of the antenna and appropriate curve in Appendix V. In case of actual operation the interfering signal shall be determined by the method described in Section E 4.

Class III stations, operating on a channel to which a Class II station is assigned, should limit the interference to the Class II station in conformity with the provisions of Appendix II, Table I.

[FOREIGN OFFICE SEAL]

MIGUEL ANGEL CAMPA

AND WHEREAS, it is provided in Part V of the said agreement that to be valid the agreement must be ratified by Canada, Cuba, Mexico and the United States of America, and further that the ratifications must be deposited through diplomatic channels in the archives of the Government of Cuba, and that the Government of Cuba shall, through diplomatic channels, notify the other signatory Governments of the ratifications as soon as they are received, and in Part VI thereof that except for the provisions of Section 1 of Part III, Section 1 of Part V and paragraph 3 of Table VI of Appendix I annexed to the agreement (which provisions shall go into effect immediately upon the agreement becoming valid), the said agreement shall become effective one year after the date on which it shall have been ratified by the fourth of those Governments whose ratification is requisite to the validity of the agreement;

AND WHEREAS, pursuant to Part V of the agreement, the Government of Cuba has notified the Government of the United States of America through diplomatic channels that the ratifications of the said agreement by Cuba, Haiti, the United States of America, Canada and Mexico were deposited in the archives of the Government of Cuba, on January 12, 1938, June 27, 1938, July 21, 1938, December 22, 1938 and March 29, 1940, respectively;

AND WHEREAS, in consequence of the deposit of the aforesaid ratifications and pursuant to the aforesaid provisions of Part V and Part VI of the said agreement, the said agreement became valid among the United States of America, Canada, Cuba, Haiti and Mexico, on March 29, 1940, the date of the deposit of the ratification of Mexico, which was the fourth of the ratifying Governments whose ratification was requisite to the validity of the agreement, and Section 1 of Part III and Section 1 of Part V of the said agreement, and paragraph 3 of Table VI of Appendix I annexed thereto became effective on March 29, 1940, and all other provisions of the said agreement will become effective on March 29, 1941, one year after the date of the deposit of the ratification of the said agreement by Mexico;

NOW, THEREFORE, I, Franklin D. Roosevelt, President ofthe United States of America, do hereby proclaim the said agreement and do call upon the United States of America and the citizens thereof to observe and fulfill the said agreement and every article and part thereof with good faith.

IN TESTIMONY WHEREOF, I have hereunto set my hand and caused the Seal of the United States of America to be affixed.

DONE at the city of Washington this twenty-third day of January in the year of our Lord one thousand nine hundred and forty-one and of the Independence of the United States of America the one hundred and sixty-fifth.

FRANKLIN D ROOSEVELT

[SEAL]

CORDELL HULL

Secretary of State.

55 Stat 1005, 1941 WL 38989 (U.S. Treaty), T.S. No. 962

END OF DOCUMENT

55 Stat. 1398
1941 WL 39028 (U.S. Treaty), E.A.S. No. 227

Multilateral

Arrangement between the United States of America, Canada, Cuba, the Dominican Republic, Haiti, and Mexico, comprising recommendations of the North American Regional Radio-Engineering Meeting (supplemental to North American Regional Broadcasting Agreement, Habana, 1937).

Signed at Washington January 30, 1941;
Effective March 29, 1941.

RECOMMENDATIONS

1. The representatives of the Governments of Canada, Cuba, the Dominican Republic, Haiti, Mexico, and the United States of America, having met in Washington, D. C., United States of America, in an Engineering Conference from January 14 to 30, 1941, for the purpose of resolving, so far as possible, all conflicts arising as a result of the listings of standard broadcast stations by these Governments communicated to the interested Governments pursuant to the provisions of Part III, Section 1, Paragraph d of the **North American Regional Broadcasting Agreement** (Habana, 1937), [FN1] having given appropriate recognition to the sovereign rights of all countries parties to the Agreement to the use of every channel in the standard broadcast band as provided for in Part I, Section 4 of the Agreement, and having reconciled, in their technical aspects, the conflicts

which have arisen as a result of the aforementioned listings, recommend that the appropriate radio administrations of these Governments take such action as may be necessary to accomplish the following:

FN1. [Treaty Series 962.]

End of Footnote(s).

(a) To make effective prior to March 29, 1941, such licenses, permits or authorizations as may be necessary under the laws, regulations or practices of the respective countries to place in effect the listings of broadcast stations as set forth in the appendices hereto; [FN2]

FN2. [Pp. 1407-1443. The appendices were drawn up in the English language only.]

End of Footnote(s).

(b) To adopt immediately adequate measures so that the crystals and associated frequency control apparatus as well as circuit tuning elements necessary for the proper operation of the stations in accordance with the listings included in the appendices hereto shall be installed prior to March 29, 1941;

(c) To place in effect at 0800 Greenwich Mean Time (3 a. m., E. S. T.) March 29, 1941, the actual operation of broadcast stations on frequencies and at locations in accordance with the listings set forth in the appendices hereto. When a directional antenna as required has not been installed, the operating power will be restricted to a value which will not cause any objectionable interference to stations of other countries. Each administration will take the necessary measures to prevent the operation of any station not conforming with these requirements and the listings included in the appendices hereto;

(d) To make adequate arrangements immediately in the manner provided for in Paragraph (a) for the erection and operation of the necessary antenna system or other special construction required by the listings of the broadcast stations as set forth in the appendices hereto;

(e) To refrain from making any new station assignments or changes in existing assignments as to location, power, frequency, or hours of operation, effective prior to March 29, 1941, which are not specifically for the purpose of complying with the listings of broadcast stations as set forth in the appendices hereto. This, however, does not preclude notification of additional assignments to be made effective after March 29, 1941.

2. In case the operation of any station in accordance with the listings of broadcast stations as set forth in the appendices hereto may, as a result of actual measurements, be found to cause objectionable interference in excess of the amount computed in accordance with the standards set forth in the Agreement,

negotiations may be instituted to reduce the interference in accordance with the appropriate technical principles thereof.

3. The radio administrations shall communicate to each other as soon as possible through the medium of the Inter-American Radio Office (O.I.R.) complete description of the directional antennas required by the listings as set forth in the appendices hereto.

4. The original of these Recommendations and their Appendices shall be deposited in the Ministry of State of the Republic of Cuba at Habana with the original of the **North American Regional Broadcasting Agreement** (Habana, 1937) to which it is supplemental, and certified copies of these Recommendations shall be transmitted to the Governments through their respective delegations.

5. The Governments shall communicate to each other as soon as possible by telegraph and mail through the medium of the Inter-American Radio Office (O.I.R.) their acceptance of these recommendations. In the absence of any notification to the Inter-American Radio Office (O.I.R.) prior to March 1, 1941, by any Government, it will be understood that the listings of broadcast stations set forth in the appendices hereto, together with all other recommendations contained in this instrument, are approved and accepted by such Government.

6. Prior to March 1, 1941, no Government shall make public the listings of broadcast stations of any other Government unless the latter shall have already made its own listings public.

IN WITNESS WHEREOF, the respective representatives sign these Recommendations, in triplicate, one copy in English, one copy in Spanish and one copy in French, each of which shall be deposited in the archives of the Government of Cuba through the Department of State of the United States of America.

DONE at Washington, D.C., January 30, 1941.

For Canada

J. W. L. BAIN

RONALD MACDONNELL

For Cuba

F. SUAREZ LOPETEQUI

ALFONSO HERNANDEZ CATA

G. MORALES

For the Dominican Republic

A. PASTORIZA

For Haiti

JACQUES C. ANTOINE

For Mexico

J. C. BUCHANAN

S. TAYABAS

For the United States of America

THOMAS BURKE

T. A. M. CRAVEN

A true copy of the signed original. AIA

dfb

47214-1

APPENDICES TO RECOMMENDATION NORTH AMERICAN REGIONAL RADIO-ENGINEERING MEETING
WASHINGTON, JANUARY 30, 1941

(SUPPLEMENTAL TO **NORTH AMERICAN REGIONAL BROADCASTING AGREEMENT**, HABANA, 1937)

47214-3

ASSIGNMENTS OF CANADIAN BROADCASTING STATIONS LISTED BY FREQUENCIES

ABBREVIATIONS

w ... watts

kw .. kilowatts

kc .. kilocycles

D ... daytime

N ... nighttime

DA .. directional antenna

CALL LETTER	LOCATION	POWER	RADIATION	CLASS
	540 kilocycles			
CBK	Watrous, Sask.	50kw	250	I-A
	550 kilocycles			
CFNB	Fredericton, N.B.	1kw	150	III-B
	560			

kilocycles

CJKL	Kirkland Lake, Ont.	1kw	160	III-B

This assignment is agreed to between the United States and Canada as listed. Canada agrees to interpose no objection to an increase in the operating power of WFIL to 5kw with the radiation to Kirkland Lake on the bearing 338 degrees not to exceed 392 mv/m unattenuated at one mile (that produced by a nondirectional 5kw station having 175 mv/m at one mile for 1kw). It is further agreed that the frequency 1220 kc will not be assigned within the United States for a reasonable time to permit assignment of CJKL to this frequency if the station should so elect. If subsequent investigations indicate the frequency 560 kc to be more desirable and CJKL elects to remain on this channel under the aforementioned conditions, further use of the frequency 1220 kc in the northeastern portion of North America will be the subject of further negotiations on the basis of established priorities.

580

kilocycles

CKUA	Edmonton, Alta.	1kw	125	III-A

CKPR	Port Arthur, Ont.	1kw	180	III-A
CKCL	Toronto, Ont.	1kw	DA	III-B

600

kilocycles

CJOR	Vancouver, B.C.	1kw145		III-A
CFQC	Saskatoon, Sask,	1kw	150	III-A
CFCF	Montreal, P.Q.	500w	125	III-B

610

kilocycles

CJAT	Trail, B.C.	1kw	185	III-B
CHNC	New Carlisle	1kw	150	III-A

620

kilocycles

CKCK	Regina, Sask.	1kw	175	III-B

630

kilocycles

CFCY	Charlottetown, P.E.I.	1kw	150	III-A

CFCO	Chatham, Ont.	100w	125	IV
CKOV	Kelowna, B.C.	1kw	150	III-A
CJRC	Winnipeg, Man.	1kw	175	III-A

690

kilocycles

CBF	Montreal, Que.	50kw	250	I-A

730

kilocycles

CKAC	Montreal, Que.	5kw	165	II

This assignment is accepted by Mexico subject to a directional antenna if objectionable interference exists on the Mexican border as a result of the operation of this station at night.

740

kilocycles

CBL	Toronto, Ont.	50kw	250	I-A

790

kilocycles

CKSO	Sudbury, Ont.	1kw	150	III-B

800

kilocycles

CKLW	Windsor, Ont.	5kw	190	II

860

kilocycles

CFRB	Toronto, Ont.	10kw	150	I-A

900

kilocycles

CJBR	Rimouski, Que.	1kw	180	II
CHML	Hamilton, Ont.	1kw	DA	II
CKBI	Prince Albert, Man.	1kw	165	II

910

kilocycles

CBO	Ottawa, Ont.	1kw	160	III-B
CFJC	Kamloops, B.C.	1kw	150	III-A

930

kilocycles

CJCA	Edmonton, Alta.	1kw	130	III-A
	940 kilocycles			
CBM	Montreal, Que.	5kw	172	I-B
	960 kilocycles			
CFAC	Calgary, Alta.	1kw	175	III-A
CHNS	Halifax, N.S.	1kw	160	III-A
	980 kilocycles			
CJRM	Regina, Sask.	1kw	160	III-B

"KMBC permitted to continue operation with 5kw power, unlimited time and the directional antenna now installed and on file with the Federal Communications Commission and the Department of Transport subject to the determination of actual interference to CJRM in accordance with the provision for such determination established by the Treaty. If interference is found to exist to greater than 4 mv/m, appropriate action by the Commission will be taken to

require KMBC to reduce the radiation on the bearing 331 degrees to such an amount that the limitation at Regina does not exceed 4 mv/m."

CBV	Quebec, Que.	1kw	185	III-A
CKWX	Vancouver, B.C.	1kw	125	III-A
	990 kilocycles			
CKY	Winnipeg, Man.	15kw	155	I-A
	1010 kilocycles			
CFCN	Calgary, Alta.	10kw	170	I-A
CBY	Toronto, Ont.	1kw	195	II
	1070 kilocycles			
CBA	Sackville, N.B.	50kw	250	I-B
	1130 kilocycles			
CBR	Vancouver, B.C.	5kw	220	I-B

Reclassification of KWKH, 50kw Class II station (Treaty provision) at Shreveport, Louisiana, to I-B acceptable so long as CBR, Class I-B station at Vancouver continues to operate with 5kw power as provided by the Treaty. When power of CBR is increased to 50kw, classification of KWKH to be dependent upon interference received from CBR. If CBR is operated with directional antenna which provides satisfactory service to the British Columbia area and protects the service of KWKH as a I-B station in accordance with the Treaty, this classification may be continued.

1150

kilocycles

CKX	Brandon, Man.	1kw	150	III-A
CKOC	Hamilton, Ont.	500w N	125	III-B
		1kw D		
CHSJ	St. John, N.B.	1kw	140	III-B

1220

kilocycles

CHAB	Mosse Jaw, Sask.	1kw	125	II

This assignment is accepted by Mexico subject to a directional antenna if objectionable interference exists on the Mexican border as a result of the operation of this station at night.

1230

kilocycles

CJCJ	Calgary, Alta.	100w	125	IV
CFCH	North Bay, Ont.	100w	125	IV
CKNX	Wingham, Ont.	100w	125	IV
CKTB	St. Catharines, Ont.	100w	190	IV
CHGB	Ste. Anne de la Pocatiere, Que.	100w	180	IV
CKVD	Val d'Or, Que.	100w	125	IV

1240

kilocycles

CFPR	Prince Rupert, B.C.	50w	125	IV
CBJ	Chicoutimi, Que.	100w	125	IV
CKMC	Cobalt, Ontario	50w	125	IV

CJCS	Stratford, Ont.	50w	125	IV
CKCH	Hull, Que.	100w	160	IV
CHLT	Sherbrooke, Que.	100w	165	IV
CKNB	Campbellton, N.B.	100w	125	IV

1260

kilocycles

CFRN	Edmonton, Alta.	1kw	150	III-A

1270

kilocycles

CJCB	Sydney, N.S.	1kw	190	III-A

1300

kilocycles

1310

kilocycles

1340

kilocycles

CKCO	Ottawa, Ont.	100w	125	IV
CKCV	Quebec, Que.	100w	135	IV

CHCK	Charlottetown, P.E.I.	50w	125	IV
CJLS	Yarmouth, N.S.	100w	160	IV
CFGP	Grande Prairie, Alta.	250w	190	IV
CHWK	Chilliwack, B.C.	100w	125	IV

1380

kilocycles

CKPC	Brantford, Ont.	100w	135	IV

1400

kilocycles

CJOC	Lethbridge, Alta.	100w	125	IV
CFAR	Flin Flon, Man.	100w	125	IV
CKRN	Rouyn, Que.	250w	125	IV
CHRC	Quebec, Que.	100w	125	IV
CKCW	Moncton, N.B.	100w	160	IV
CFOS	Owen Sound, Ont.	100w	125	IV

1410

kilocycles

CKMO	Vancouver, B.C.	1kw	130	III-A

1450

kilocycles

CKLN	Nelson, B.C.	100w	125	IV
CKCA	Kenora, Ont.	100w N	165	IV
		250w D		
CHLN	Three Rivers, Que.	100w	200	IV
CFLC	Prescott, Ont.	100w	125	IV

1460

kilocycles

CJGX	Yorkton, Sask.	1kw	160	III-A

1470

kilocycles

CKGB	Timmins, Ont.	1kw	150	III-B

1480

kilocycles

CFCT	Victoria, B.C.	500w	180	III-B

CHGS	Summerside, P.E.I.	50w	125	IV

1490

kilocycles

CKCR	Waterloo, Ont.	100w	130	IV
CFRC	Kingston, Ont.	100w	190	IV
CHLP	Montreal, Que.	100w	130	IV
CJIC	Sault Ste. Marie, Ont.	100w	160	IV

It was agreed between the delegates from the United States and Canada that if an increase in power beyond that of a local station is contemplated for either CJIC or WSOO, the Department of Transport will advise the Commission, or vice versa, in order that the increase in power of either station may be considered in conjunction with that of the other.

1570

kilocycles

CFPL	London, Ont.	1kw	DA	II

47214-5

ASSIGNMENTS OF BROADCASTING STATIONS IN CUBA LISTED BY FREQUENCIES

ABBREVIATIONS

w ... watts

kw .. kilowatts

kc .. kilocycles

D ... daytime

N ... nighttime

DA .. directional antenna

CALL LETTERS	LOCATION	POWER	RADIATION	CLASS
	550 kc.			
	Havana	2,500		III-A
	560 kc.			

Manzanillo, Orte.	250		IV
570 kc.			
Santa Clara	15,000	DA	II
590 kc.			
Havana	15,000	DA	II
600 kc.			
Holguin, Orte.	1,000		III-A
620 kc.			
Camaguey	250		IV
630 kc.			
Havana	15,000	DA	II
690 kc.			
Havana	25,000-15,000 Day Night	DA	II

This assignment of 25kw day and 15kw with directional antenna at night at Havana is accepted by Canada only on the distinct understanding that the

directional antenna used protects the Canadian I-A assignment strictly within the provisions of the NARB Agreement, failing which the night power must be reduced to effect such protection.

710 kc.

Camaguey	250	II

This 250w Class II assignment acceptable without directional antenna unless interference results with secondary service of the Class I station on channel. If interference exists or the power is increased above 250w, directional antenna to protect Class I stations in accordance with the engineering standards of the Treaty to be required.

740 kc.

Havana	250	II
Camaguey	1,000	II

790 kc.

Havana	5,000-1,000	III-A
	Day Night	

800 kc.

Santiago de Cuba	1,000		II

This 1kw Class II assignment acceptable to Mexico without directional antenna unless interference results with secondary service of the Class I station on channel. If interference exists or the power is increased above 1kw, directional antenna to protect Class I stations in accordance with the engineering standards of the Treaty to be required.

810 kc.

Santa Clara	5,000w	DA	II

830 kc.

Artemisa, P. Rio	250		II
	Daytime		

Assignment of 250 watt Class II station daytime only at Havana on a clear channel assigned to a Class I-A station in the U. S., acceptable to the U. S. without regard to signal of more than 5 uv daytime only at the nearest border.

860 kc.

Havana	5,000	DA	II

This assignment is accepted by Canada provided that the directional antenna used protects the Canadian I-A assignment as required by the terms of the NARB Agreement, failing which the night power must be reduced to effect such protection.

900 kc.

Guantanamo, Orte	250	II

This 250w Class II assignment acceptable to Mexico without directional antenna unless interference results with secondary service of the Class I station on channel. If interference exists or the power is increased above 250w, directional antenna to protect Class I stations in accordance with the engineering standards of the Treaty to be required.

910 kc.

Havana	5,000	III-A

920 kc.

Camaguey	5,000	III-A

930 kc.

Santiago de Cuba	1,000		III-A
950 kc.			
Havana	5,000-1,000		III-A
	Day Night		
960 kc.			
Santa Clara	1,000		III-A
970 kc.			
Santiago de Cuba	5,000		III-A
980 kc.			
Havana	5,000		III-A
990 kc.			
Trinidad, L.V.	250		II
1000 kc.			
Holguin, Orte.	10,000	DA	II
1010 kc.			
Havana	10,000	DA	I-B
1050 kc.			
Santiago de Cuba	250		II

This 250w Class II assignment acceptable to Mexico without directional antenna unless interference results with secondary service of the Class I station on channel. If interference exists or the power is increased above 250w, directional antenna to protect Class I stations in accordance with the engineering standards of the Treaty to be required.

1060 kc.

Havana	250	II

This 250w Class II assignment acceptable to the U. S. without directional antenna unless interference results with secondary service of the Class I station on channel. If interference exists or the power is increased above 250w, directional antenna to protect Class I stations in accordance with the engineering standards of the Treaty to be required.

Camaguey	250	II

This 250w Class II assignment acceptable to the U. S. without directional antenna unless interference results with secondary service of the Class I station on Channel. If interference exists or the power is increased above

250w, directional antenna to protect Class I stations in accordance with the engineering standards of the Treaty to be required.

1090 kc.

Banes, Orte.	250	II

This 250w Class II assignment acceptable to the U. S. without directional antenna unless interference results with secondary service of the Class I station on channel. If interference exists or the power is increased above 250w, directional antenna to protect Class I stations in accordance with the engineering standards of the Treaty to be required.

1110 kc.

Havana	250	II
	Daytime	

This 250w Class II assignment acceptable to the U. S. without directional antenna unless interference results with secondary service of the Class I station on channel. If interference exists or the power is increased above 250w, directional antenna to protect Class I stations in accordance with the

engineering standards of the Treaty to be required.

1130 kc.

Guantanamo, Orte.	250	II

This 250w Class II assignment acceptable to the U. S. without directional antenna unless interference results with secondary service of the Class I station on Channel. If interference exists or the power is increased above 250w, directional antenna to protect Class I stations in accordance with the engineering standards of the Treaty to be required.

1150 kc.

Havana	5,000-1,000 Day Night	III-A

1190 kc.

Havana	250	II

This 250w Class II assignment acceptable to the U. S. without directional antenna unless interference results with secondary service of the Class I station on Channel. If interference exists or the power is increased above

250w, directional antenna to protect Class I stations in accordance with the engineering standards of the Treaty to be required.

1220 kc.

Holguin, Orte.	250	II

This 250w Class II assignment acceptable to Mexico without directional antenna unless interference results with secondary service of the Class I station on channel. If interference exists or the power is increased above 250w, directional antenna to protect Class I stations in accordance with the engineering standards of the Treaty to be required.

1230 kc.

Havana	250	IV
Havana	250	IV
Camaguey	250	IV

1240 kc.

Matanzas	250	IV

1250 kc.

Santa Clara	250	IV

Santiago de Cuba	250	IV
1260 kc.		
Havana	5,000	III-A
1270 kc.		
Ciego de Avila,	1,000	II
Cam.		
1280 kc.		
Sagua la Gde.,	250	III-A
L. V.		
1290 kc.		
Havana	250	IV
Santiago de Cuba	1,000	III-A
1300 kc.		
P. del Rio	1,000	III-A
Camaguey	250	IV
1310 kc.		
Jovellanos,	1,000	III-A
Mtzas.		

	1320 kc.	
Placetas, L.V.	250	IV
Manzanillo, Orte.	250	IV
	1330 kc.	
Havana	1,500	III-A
Havana	250	IV
	1340 kc.	
Ciego de Avila, Cam.	250	IV
	1350 kc.	
Cienfuegos, L.V.	250	IV
Puerto Padre, Orte.	100	IV
	1360 kc.	
Havana	250	IV
Havana	250	IV

Assignments acceptable without regard to slight daytime interference with WKAT, 1kw, Class III-B station at Miami, Florida. If more than 250w power is proposed at any time, operation with a directional antenna or a different frequency assignment to be required giving protection to the U. S. stations in accordance with the engineering standards of the Treaty.

	1370 kc.	
Guanajay, P. del Rio	100	IV
Camaguey	250	IV
	1380 kc.	
Cruces, L.V.	250	IV
	1390 kc.	
Havana	250	IV
Havana	250	IV
Santiago de Cuba	250	IV
	1400 kc.	
Ciego de Avila, Cam.	250	IV

	1410 kc.	
Sancti Spiritus, L.V.	250	IV
	1420 kc.	
Havana	5,000	III-A
Havana	5,000	III-A
	1430 kc.	
Palma Soriano, Orte.	250	IV
	1440 kc.	
Matanzas	1,000	III-A
Ciego de Avila, Cam.	250	IV
	1450 kc.	
Pinar del Rio	250	IV
Cien Fuegos, L.V.	250	IV
	1460 kc.	

Havana	250	IV
Havana	250	IV
Santiago de Cuba	500	III-B
1470 kc.		
Cardenas, Mtzas.	250	IV
Nuevitas, Cam.	150	IV
1480 kc.		
Santa Clara	250	IV
1490 kc.		
Havana	250	IV
Havana	250	IV
Holguin, Orte.	250	IV
1520 kc.		
Havana	250	II
Daytime		
1540 kc.		
Caibarien, L.V.	250	II
1560 kc.		

	Havana	5,000	II
		1590 kc.	
	Havana	250	IV
	Havana	250	IV

47214-2

ASSIGNMENTS OF BROADCAST STATIONS IN DOMINICAN REPUBLIC LISTED BY FREQUENCY

CALL LETTERS	LOCATION	POWER	CLASS
	950 kilocycles		
HIX	Ciudad Trujillo	1000 Watts	III-A
	1090 kilocycles		
HIN	Ciudad Trujillo	150 Watts	II
	1350 kilocycles		
HIZ	Ciudad Trujillo	200 Watts	IV
	1470 kilocycles		
HI8Q	Ciudad Trujillo	25 Watts	IV

47214-4

ASSIGNMENTS OF BROADCAST STATIONS IN HAITI LISTED BY FREQUENCY

CALL LETTERS	LOCATION	POWER	CLASS
	1080 kilocycles		
HHK	Leogane	25 kw DA	II
	1230 kilocycles		
HHW	Port au Prince	100w DA	IV

47214-6

ASSIGNMENTS OF BROADCASTING STATIONS IN MEXICO LISTED BY FREQUENCIES

ABBREVIATIONS

w ... watts

kw .. kilowatts

kc .. kilocycles

D ... daytime

N ... nighttime

DA .. directional antenna

CALL LETTER	LOCATION	POWER	RADIATION	CLASS
	550 kilocycles			
XERZ	Leon, Gto.	250		IV
	560 kilocycles			
XEOF	Mexico, D.F.	1000		III-B
	570 kilocycles			
	580 kilocycles			
XEMU	Piedras Negras, Coah.	250		IV
	590 kilocycles			
XEPH	Mexico, D.F.	5000		III-A
	600 kilocycles			

XEZ	Merida, Yuc.	2000		III-A
XEOH	Torreon, Coah.	1000		III-B
XESF	Morelia, Mich.	250		IV
	610 kilocycles			
XEBX	Sabinas, Coah.	500		III-B
XERJ	Mazatlan, Sin.	600		III-B
	620 kilocycles			
XENK	Mexico, D.F.	5000		III-A
	630 kilocycles			
XEFB	Monterrey, N.L.	500		III-B
	640 kilocycles			
	650 kilocycles			
	660 kilocycles			
XEBZ	Mexico, D.F.	500	DA	II

Class II assignment with 500 watts in Mexico, D.F., on the clear channel 660 kilocycles, occupied by WEAF, a Class I-A station in the United States, acceptable subject to directional antenna to protect the border of the United

States in accordance with the engineering standards of the Treaty. It is recognized, under Part II, Section F, of the North American Regional Broadcasting Agreement, that "the engineering standards set forth in this Agreement are subject to revision when justified by technical advances in the art" and that advances in the art of designing directional antennas permit reduction of the safety distance of 650 miles provided by Part II, C, Article 4 (b) of the Agreement to 400 miles when the propagation will take place over mountainous regions near the station and will not take place over seawater or along ideal paths between the Class II station and border of the country to which the Class I-A station on the channel is assigned, and when the most modern engineering development of antenna design and antenna control are utilized to avoid and prevent interference. Accordingly, the United States, in spite of its priority and other rights of use for a Class I-A station on this frequency, agrees to this revision of the safety distance of 650 miles provided by Part II, C, Article 4 (b) solely for stations installed in Mexico City and its contiguous area, it being understood that the permissible interfering signal from such Mexican stations shall not at any time exceed the values specified in Table I of Appendix II of the Agreement and that the

United States may at any future time exercise its other rights under the Agreement with respect to the use of this frequency, without regard to any priorities resulting from the establishment of such Mexican stations.

		670 kilocycles		
		680 kilocycles		
XED	Guadalajara, Jal.	1000	DA	II
		690 kilocycles		
XEN	Mexico, D.F.	5000		II
XEAC	Tijuana, B.C.	5000		II

This assignment is accepted by Canada subject to a directional antenna if objectionable interference exists east of North Dakota on the Canadian border at night.

		700 kilocycles		
		710 kilocycles		
		720 kilocycles		
		730 kilocycles		
XEDP	Mexico, D.F.	150000		I-A

		740 kilocycles		
		750 kilocycles		
		760 kilocycles		
		770 kilocycles		
		780 kilocycles		
		790 kilocycles		
XERC	Mexico, D.F.	1000		III-A
XELJ	N. Laredo, Tams.	500		III-B
		800 kilocycles		
	Nogales, Son.	150000		I-A
		810 kilocycles		
XEFW	Tampico, Tams.	50000	DA	II
		820 kilocycles		
		830 kilocycles		
XELA	Mexico, D.F.	1000		II

Class II assignment with 1 kilowatt in Mexico, D. F., on the clear channel 830 kilocycles, occupied by WCCO, a Class I-A station in the United States,

acceptable subject to directional antenna to protect the border of the United States in accordance with the engineering standards of the Treaty. See note reference XEBZ, 660 kilocycles.

840 kilocycles

850 kilocycles

860 kilocycles

XEMO	Tijuana, B.C.	5000	II

This assignment is accepted by Canada subject to a directional antenna if objectionable interference exists east of North Dakota on the Canadian border at night.

XEXX	Mexico, D.F.	5000	II

870 kilocycles

880 kilocycles

890 kilocycles

900 kilocycles

XEW	Mexico, D.F.	100000	I-A

		910 kilocycles		
XEAO	Mexicali, B.C.	250		IV
		920 kilocycles		
XEMJ	Nueva Rosita, Coah.	200		IV
XEBH	Hermosillo, Son.	1000		III-B
		930 kilocycles		
		940 kilocycles		
XEQ	Mexico, D.F.	50000		I-B
		950 kilocycles		
XEGM	Tijuana, B.C.	1000	2500 DA	III-A
		960 kilocycles		
XEFE	Nuevo Laredo, Tam.	1000		III-A
XEOT	Hermosillo, Son.	500		III-B
XEU	Veracruz, Ver.	500		III-B
XEHK	Guadalajara, Jal.	250		IV
		970 kilocycles		
XEO	Matamoros, Tam.	750		III-B

XEK	Mexico, D.F.	500	III-B
XEJ	Cuidad Juarez, Chih.	5000	III-A

980 kilocycles

XEFQ	Cananea, Son.	500	III-B
XEXT	Tepic, Nay.	1000	III-A

990 kilocycles

XET	Monterrey, N.L.	5000	II
XECL	Mexicali, B.C.	5000	II

These assignments are accepted by Canada subject to a directional antenna if objectionable interference exists west of Minnesota on the Canadian border at night.

1000

kilocycles

XEPX	Mexico, D.F.	10000	I-B

1010

kilocycles

XEQN	Nogales, Son.	500	II

XEBG	Tijuana, B.C.	500		II
	1020			
	kilocycles			
	1030			
	kilocycles			
	1040			
	kilocycles			
	1050			
	kilocycles			
XEG	Monterrey, N.L.	150000		I-A
	1060			
	kilocycles			
XEST	Mexico, D.F.	50000	DA	I-B
	1070			
	kilocycles			
	1080			
	kilocycles			
	1090			

		kilocycles		
XERB	Rosarito, B.C.	50000	DA	I-B
XEHR	Puebla, Pue.	250		II
		1100		
		kilocycles		
		1110		
		kilocycles		
XEFO	Mexico, D. F.	20000		II
		1120		
		kilocycles		
		1130		
		kilocycles		
		1140		
		kilocycles		
XENT	Nuevo Leon	50000	DA	I-B
XEON	Tijuana, B.C.	2000		II
		1150		
		kilocycles		

XEJP	Mexico, D. F.	600	III-B
XEJS	Cananea, Son.	500	III-B

1160

kilocycles

1170

kilocycles

XECD	Puebla, Pue.	350	II

1180

kilocycles

1190

kilocycles

	Sonora, Son	50000 DA	I-B

The United States being the only country involved accepts the removal of the location of this Class I-B assignment from Sinaloa to Sonora on condition that the directional antenna protect the service of Station KEX, Portland, Oregon, as a Class I-B station in accordance with the list of assignments of broadcast stations in the United States.

1200

kilocycles

1210

kilocycles

1220

kilocycles

XEB	Mexico, D.F.	100000	I-A

1230

kilocycles

1240

kilocycles

1250

kilocycles

XEAT	Parral, Chih.	600	III-B
XEH	Monterrey, N.L.	250	IV
XETF	Veracruz, Ver.	500	III-B
XEDK	Guadalajara, Jal.	500	III-B

1260

kilocycles

XEL	Mexico, D.F.	750	III-B
XEBL	Mazatlan, Sin.	500	III-B
XEBM	San Luis Potosi, S.L.P.	150	IV
XEDW	Minatitlan, Ver.	250	IV
XEBU	Chihuahua, Chih.	100	IV
XEBP	Torreon, Coah.	250	IV
XEDF	Laredo, Tams.	250	IV

1270

kilocycles

XEDL	Navojoa, Son.	500	III-B
XEXH	Oaxaca, Oax.	500	III-B
XEFM	Leon, Gto.	100	IV
XEBC	Morelia, Mich.	100	IV
XEDN	C. Camargo, Chih.	250	IV
XEBA	C. Guzman, Jal.	250	IV
XEFV	C. Juarex, Chih.	100	IV

XEME	Merida, Yuc.	500	III-B

1280

kilocycles

XEX	Monterrey, N.L.	500	III-B
XEE	Durango, Dgo.	100	IV
XEOX	Los Mochis, Sin.	250	IV
XELK	Zacatecas, Zac.	100	IV
XEXJ	Tuxtle Gutierrez, Chis.	100	IV
XEBW	Chihuahua, Chih.	600	III-B
XERL	Colima, Col.	250	IV
XEAG	Cordoba, Ver.	250	IV

1290

kilocycles

XEDA	Mexico, D. F.	1000	III-A
XEAP	C. Obregon, Son.	100	IV

1300

kilocycles

XEP	C. Juarez, Chih.	500	III-B
XES	Tampico, Tams.	5000	III-A
XEGF	Culiacan, Sin.	100	IV

1310

kilocycles

XEC	Tijuana, B. C.	100	IV
XEMG	Monterrey, N. L.	250	IV
XEHB	Veracruz, Ver.	1000	III-A
XEAD	Guadalajara, Jal.	500	III-B

1320

kilocycles

XEAI	Mexico, D. F.	500	III-B
XESY	Nogales, Son.	200	IV

1330

kilocycles

XEKS	Saltillo, Coah.	100	IV
XEBO	Irapuato, Gto.	600	III-B

1340

kilocycles

XELW	Guadalajara, Jal.	250	IV
XEDH	Villa Acuna, Coah.	200	IV
XEBK	N. Laredo Tams.	100	IV
XEFZ	Coatzacoalcos, Ver.	250	IV
XECA	Tampico, Tams.	250	IV
XECW	Cordoba, Ver.	250	IV
XECF	Los Mochis, Sin.	150	IV
XEJK	Chihuahua, Chih.	100	IV
XEFC	Merida, Yuc.	250	IV
XEXS	Toluca, Mex.	100	IV
XEMA	Fresnillo, Zac.	100	IV
XEAA	Mexicali, B. C.	250	IV

1350

kilocycles

XEQK	Mexico, D. F.	1000	III-A
XETM	Naco, Son.	1000	III-B
XETB	Torreon, Coah.	500	III-B

1360

kilocycles

XEWG	C. Juarez, Chih.	1000	III-B
XEBI	Aguascalientes, Ags.	250	IV
XESA	Culiacan, Sin.	500	III-B

1370

kilocycles

XEMR	Monterrey, N. L.	500	III-B
XEAF	Nogales, Son.	1000	III-A
XEHL	Guadalajara, Jal.	500	III-B
XEA	Campeche, Cam.	250	IV

1380

kilocycles

XEMX	Mexico, D. F.	500	III-B
XELF	N. Laredo, Tams.	250	IV

1390

kilocycles

XEM	Chihuahua, Chih.	500	III-B

XEAZ	Reynosa, Tams.	250	IV

1400

kilocycles

XEAM	Matamoros, Tams.	250	IV
XEDE	Torreon, Coah.	100	IV.
XEF	C. Juarez, Chih.	100	IV
XEAJ	Navojoa, Son.	100	IV
XEMH	Merida, Yuc.	100	IV
XEXM	Guadalajara, Jal.	250	IV
XEWE	Silao, Gto.	100	IV
XEXQ	San Luis Potosi, S.L.P.	100	IV
XEI	Morelia, Mich.	250	IV
XEKJ	Acapulco, Gro.	250	IV
XEPF	Ensenada, B.C.	100	IV
XEJA	Jalapa, Ver.	100	IV

1410

kilocycles

XEBS	Mexico, D.F.	750	III-B
XELC	Laredo, Tams.	250	IV
XERY	Agua Prieta, Son.	500	III-B

1420

kilocycles

XEDS	Mazatlan, Sin.	500	III-B
XESJ	Saltillo, Coah.	1000	III-A

1430

kilocycles

XEAQ	Villa Acuna, Coah.	100	IV
XECZ	San Luis Potosi, S.L.P.	1000	III-A
XEOK	Progreso, Yuc.	100	IV

1440

kilocycles

XELZ	Mexico, D. F.	1000	III-A
XEFI	Chihuahua, Chih.	1000	III-B
XERT	Tijuana, B.C.	500	III-B

1450

kilocycles

XEY	S.L. Rio Colorado, Son.	250	IV
XEGC	Zamora, Mich.	100	IV
XEXP	Matamoros, Tam.	100	IV
XEBQ	Torreon, Coah.	100	IV
XEDJ	Magdalena, Son.	100	IV
XEFK	Merida, Yuc.	100	IV
XERK	Tepic, Nay.	100	IV
XEXE	Texcoco, Mex.	100	IV
XEBJ	C. Victoria, Tams.	100	IV
XEPP	Orizaba, Ver.	100	IV
XEJX	Aguascalientes, Ags.	250	IV

1460

kilocycles

XELH	N. Laredo, Tams.	100	IV
XETU	Tampico, Tams.	1000	III-A

1470

kilocycles

XEAU	Tijuana, B.C.	5000	III-A
XESM	Mexico, D.F.	1000	III-A

1480

kilocycles

1490

kilocycles

XEJR	H. del Parral, Chih.	100	IV
XETR	C. Madero, Tams.	100	IV
XEDR	Guaymas, Son.	100	IV
XEXU	Saltillo, Coah	100	IV
XECH	Toluca, Mex.	250	IV
XEXF	Veracruz, Ver.	100	IV
XEGT	Guadalajara, Jal.	100	IV

1500

kilocycles

XERH	Mexico, D.F.	500	III-B

		1510	
		kilocycles	
		1520	
		kilocycles	
		1530	
		kilocycles	
		1540	
		kilocycles	
		1550	
		kilocycles	
	Mexico, D.F.	2000	I-B
		1560	
		kilocycles	
		1570	
		kilocycles	
XEAW	Nuevo Leon	100000	I-A
		1580	
		kilocycles	

1590

kilocycles

XEMC	Mexico, D.F.	5000	III-A

1600

kilocycles

XEAB	Villa Acuna, Coah.	5000	III-A

47126

ASSIGNMENTS OF UNITED STATES STANDARD BROADCAST STATIONS LISTED BY FREQUENCY

ABBREVIATIONS

T ..... where transmitter location differs from main studio, same is shown below main studio location.

w ..... watts

kw .... kilowatts

LS .... power until local sunset

kc .... kilocycles

U ..... Unlimited time

L ..... limited time with dominant station

D ..... daytime

N ..... nighttime

S ..... shares time

S. H .. specified hours

DA .... directional antenna

CALL LETTERS	LOCATION	POWER	RADIATION	TIME DESIGNATION	CLASS
	550 kilocycles				
KOY	Phoenix, Arizona	1kw	175 mv/m	U	III-A
KSD	St. Louis, Missouri	1kw	200	U	III-B
		5kw-LS	DA-N		
WGR	Buffalo, New York	1kw	175	U	III-B
	T-Tonawanda	5kw-LS			
KFYR	Bismarck, North	5kw	210	U	III-A

	Dakota				
	T-nr. Menoken		DA-N		
WKRC	Cincinnati, Ohio	1kw	DA	U	III-B
		5kw-LS			
KOAC	Corvallis, Oregon	1kw	DA	U	III-A
	T-Granger	5kw-LS			
KTSA	San Antonio, Texas	1kw	175	U	III-A
		5kw-LS			
WDEV	Waterbury, Vermont	1kw	180	D	III
WSVA	Harrisonburg,	1kw	175	D	III
	Virginia				
	560 kilocycles				
KSFO	San Francisco,	1kw	175	U	III-A
	California				
		5kw-LS			
KLZ	Denver, Colorado	5kw	DA	U	III-A
WQAM	Miami, Florida	1kw	175	U	III-A

WIND	Gary, Indiana	5kw	DA	U	III-A
WGAN	Portland, Maine	5kw	175	U	III-A
			DA-N		
KWTO	Springfield, Missouri	5kw	190	D (5 am to local sunset)	III
		1kw (5 am to 6 am)			
WFIL	Philadelphia, Pennsylvania	1kw	175	U	III-A

This assignment is agreed to between the United States and Canada as listed. Canada agrees to interpose no objection to an increase in the operating power of WFIL to 5kw with the radiation to Kirkland Lake on the bearing 338 degrees not to exceed 392 mv/m unattenuated at one mile (that produced by a nondirectional 5kw station having 175 mv/m at one mile for 1kw). It is further agreed that the frequency 1220 kc will not be assigned within the United States for a reasonable time to permit assignment of CJKL

to this frequency if the station should so elect. If subsequent investigations indicate the frequency 560 kc to be more desirable and CJKL elects to remain on this channel under the aforementioned conditions, further use of the frequency 1220 kc in the northeastern portion of North America will be the subject of further negotiations on the basis of established priorities.

WIS	Columbia, South Carolina	5kw	175	U	III-A
			DA-N		
KFDM	Beaumont, Texas	1kw	175	U	III-A
	570 kilocycles				
KMTR	Los Angeles, California	1kw	175	U	III-A
WMCA	New York, N.Y.	1kw			
	T-Kearney, N.J.	5kw-LS	DA	U	III-A
WSYR	Syracuse, New York	1kw	DA	U	III-A

WWNC	Asheville, North Carolina	1kw	175	U	III-A
WOSU	Columbus, Ohio	1kw	175	S.H. (WKBN)	III-A
WKBN	Youngstown, Ohio	500w 1kw-LS	175 mv/m	S.H. (WOSU)	III-B
WNAX	Yankton, South Dakota	5kw	190 DA-N	U	III-A
KGKO	Fort Worth, Texas T-Arlington	5kw	180 DA-N	U	III-A
KUTA	Salt Lake City, Utah	1kw	DA	U	III-B
KVI	Tacoma, Washington	5kw	190	U	III-A
WMAM	Marinette, Wisconsin	250w	175	D	IV

580 kilocycles

KMJ	Fresno, California	5kw	175	U	III-A

WDBO	Orlando, Florida	5kw	175	U	III-A
			DA-N		
WILL	Urbana, Illinois	5kw	DA	D	III
	T-S. of Champaign				
KSAC	Manhattan, Kansas	500w	175	S-WIBW	III-B
		1kw-LS			
WIBW	Topeka, Kansas	5kw	190	S-KSAC	III-A
			DA-N		
WTAG	Worcester,	1kw	DA	U	III-A
	Massachusetts				
	T-Holden	5kw-LS			
WCHS	Charleston, West	5kw	175	U	III-A
	Virginia				
			DA-N		

590 kilocycles

KGMB	Honolulu, Hawaii	5kw	175	U	III-A
WEEI	Boston,	5kw	DA	U	III-A

	Massachusetts				
	T-Medford				
WKZO	Kalamazoo, Michigan	1kw	189	U	III-B
	T-nr. Parchment		DA-N		
WOW	Omaha, Nebraska	5kw	180	U	III-A
WMBS	Uniontown,	1kw	175	U	III-B
	Pennsylvania				
			DA-N		
KHQ	Spokane, Washington	5kw	235	U	III-A
	600 kilocycles				
KFSD	San Diego,	5kw	175	U	III-A
	California				
WICC	Bridgeport,	500W	DA	U	III-B
	Connecticut				
		1kw-LS			
WMT	Cedar Rapids, Iowa	5kw	180	U	III-A
	T-nr. Marion		DA-N		

WCAO	Baltimore, Maryland	500w	175	U	III-B
		1kw-LS			
WSJS	Winston-Salem,	1kw	DA-N	U	III-B
	North Car.				
WREC	Memphis, Tennessee	5kw	DA	U	III-A
	T-nr. Rugby Park				
KROD	El Paso, Texas	500w		U	III-B
		1kw-LS			

610 kilocycles

KFAR	Fairbanks, Alaska	1kw	175	U	III-A
KFRC	San Francisco,	5kw	175	U	III-A
	California				
WIOD	Miami, Florida	5kw	DA	U	III-A
WDAF	Kansas City,	5kw	185	U	III-A
	Missouri				
	T-Johnson County,				
	Kansas				

WMUR	Manchester, New Hampshire	1kw 5kw-LS	DA	U	III-B
WCLE	Cleveland, Ohio T-Village of Seven Hills	500w	175	D	III
WIP	Philadelphia, Pennsylvania T-Bellmawr, N.J. 620 kilocycles	5kw	DA	U	III-A
KTAR	Phoenix, Arizona	5kw	DA	U	III-A
WSUN	St. Petersburg, Florida T-Clearwater	5kw	183 DA-N	U	III-A
WLBZ	Bangor, Maine	500w 1kw-LS	180	U	III-B
WAGE	Salina, New York	1kw	175	U	III-B

	(near Syracuse)		DA-N		
KGW	Portland, Oregon	5kw	DA	U	III-A
	T-N. Portland				
WHJB	Greensburg,	250w	150	D	IV
	Pennsylvania				
WKAQ	San Juan, Puerto	5kw	195	U	III-A
	Rico				
WROL	Knoxville,	500w	175	U	III-B
	/				
	Tennessee				
		1kw-LS	DA-N		
KWFT	Wichita Falls,	1kw	DA	U	III-A
	Texas				
		5kw-LS			
WTMJ	Milwaukee,	5kw	190	U	III-A
	Wisconsin				
	T-Brookfield		DA-N		

630 Kilocycles

KVOD	Denver, Colorado	1kw	205	U	III-A
			DA-N		
WMAL	Washington, D. C.	5kw	DA	U	III-A
	T-Bethesda,				
	Maryland				
KXOK	St. Louis, Missouri	5kw	DA	U	III-A
	T-nr. Granite City,				
	Ill.				
KOH	Reno, Nevada	1kw	175	U	III-A
			DA-N		
WPRO	Providence, Rhode	5kw	210	U	III-A
	Island				
	T-E. Providence		DA-N		
KGFX	Pierre, South	200w	150	S.H.(D)	IV
	Dakota				

640 kilocycles

KFI	Los Angeles,	50kw	225	U	I-A

	California				
	T-Buena Park				
WOI	Ames, Iowa	5kw	180	D	II
WHKC	Columbus, Ohio	500w	175	L-KFI	II
	650 kilocycles				
WSM	Nashville,	50kw	225	U	I-A
	Tennessee				
	T-Franklin				
	660 kilocycles				
KOWH	Omaha, Nebraska	500w	175	D	II
WEAF	New York, N. Y.	50kw	DA	U	I-A
	T-Port Washington				
	670 kilocycles				
WMAQ	Chicago, Illinois	50kw	225	U	I-A
	T-Addison				
	680 kilocycles				

KPO	San Francisco, California	50kw	225	U	I-B
	T-nr. Belmont				
WLAW	Lawrence, Massachusetts	5kw	175	U	II
	T-Andover		DA-N		
KFEQ	St. Joseph, Missouri	500w	175	L-KPO	II
		2 1/2 kw-LS			
WPTF	Raleigh, North Carolina	50kw	187	U	II
	T-Cary		DA-N		

690 kilocycles

KGGF	Coffeyville, Kansas	1kw	DA	S.H.	II
	T-S. Coffeyville, Oklahoma			(WNAD)	

WNAD	Norman, Oklahoma	1kw	DA	S.H. (KGGF)	II
	700 kilocycles				
WLW	Cincinnati, Ohio	50kw	260	U	I-A
	T-Mason				
	710 kilocycles				
KMPC	Beverly Hills, California	5kw	DA	U	II
	T-Van Nuys				
WOR	New York, New York	50kw	DA	U	I-B
	T-Carteret, New Jersey				
KIRO	Seattle, Washington	10kw	DA	U	I-B
	T-Maury Is.				
	720 kilocycles				
WGN	Chicago, Illinois	50kw	250	U	I-A
	T-S. E. of				

	Schaumberg				
	740 kilocycles				
KQW	San Jose,	5kw	DA	U	II
	California				
	T-Alviso				
	750 kilocycles				
WSB	Atlanta, Georgia	50kw	225	U	I-A
KMMJ	Grand Island,	1kw	180	L-WSB	II
	Nebraska				
	T-E. of Phillips				
WHEB	So. of Portsmouth,	1kw	175	L-WSB	II
	New Hampshire				
	760 kilocycles				
KGU	Honolulu, Hawaii	2 1/2kw	175	L-WJR	II
WJR	Detroit, Michigan	50kw	225	U	I-A
	T-Wyandotte				
	770 kilocycles				

WLB	Minneapolis, Minnesota T-St. Paul	5kw	175	S-WCAL (2/3 daytime)	II
WCAL	Northfield, Minnesota	5kw	180	S-WLB (1/3 daytime)	II
WEW	St. Louis, Missouri	1kw	175	D	II
WJZ	New York, N.Y. T-Bound Brook, N.J.	50kw	235	U	I-A
KXA	Seattle, Washington	1kw	175	L-WJZ	II
	780 kilocycles				
WBBM	Chicago, Illinois T-Glenview	50kw	225	U	I-A
WJAG	Norfolk, Nebraska	1kw	175	L-WBBM	II

Note

Station to operate on 1090 kilocycles pending adjustment of domestic problems in the United States.

790 kilocycles

KFQD	Anchorage, Alaska	250w	150	S.H.	IV
KECA	Los Angeles, California	5kw	200 DA-N	U	III-A
KGHL	Billings, Montana	5kw	205 DA-N	U	III-A
WPIC	Sharon, Pennsylvania	1kw	175	D	III
WPRA	Mayaguez, Puerto Rico	1kw	175	U	III-A
		2 1/2 kw-LS			
WEAN	Providence, Rhode Island	5kw	DA	U	III-A
	T-E. Providence				

KFDY	Brookings, South Dakota	1kw	175	S.H. (D)	III
WMC	Memphis, Tennessee	1kw 5kw-LS	235 DA-N	U	III-A
WTAR	Norfolk, Virginia	5kw	181 DA-N	U	III-A
	810 kilocycles				
KGO	San Francisco, California T-Oakland	10kw	225	U	I-B
KOAM	Pittsburgh, Kansas	1kw	185	D	II
WGY	Schenectady, New York T-S. Schenectady	50kw	235	U	I-B
	820 kilocycles				
WTBO	Cumberland,	250w	175	L-WFAA	II

	Maryland				
				WBAP	
WFAA	Dallas, Texas	50kw	245	S-WBAP	I-A
	T-Grapevine				
WBAP	Fort Worth, Texas	50kw	245	S-WFAA	I-A
	T-Grapevine				
	830 kilocycles				
WCCO	Minneapolis,	50kw	245	U	I-A
	Minnesota				
	T-Anoka				
WNYC	New York, N. Y.	1kw	DA	L-WCCO	II
	T-Brooklyn				
	840 kilocycles				
WHAS	Louisville,	50kw	250	U	I-A
	Kentucky				
	T-N.E. of New				
	Eastwood				

	850 kilocycles				
KOA	Denver, Colorado	50kw	225	U	I-A
WRUF	Gainesville, Florida	5kw	175	L-KOA	II
WHDH	Boston, Massachusetts T-Saugus	1kw	175	L-KOA	II
KFUO	Clayton, Missouri	5kw	175	L-KOA	II
WEEU	Reading, Pennsylvania T-Spring Twp.	1kw	175	D	II
	860 kilocycles				
KTRB	Modesto, California	250w	175	D	II
	870 kilocycles				
KIEV	Glendale, California	250w	175	D	II

WWL	New Orleans, Louisiana T-N. of Kennerville	50kw	DA	U	I-A
WKAR	East Lansing, Michigan	5kw	175	D	II
WHCU	Ithaca, New York	1kw	175	L-WWL	II
	880 kilocycles				
WHB	Kansas City, Missouri T-N. Kansas City	1kw	175	D	II
WABC	New York, N.Y. T-New Rochelle, N.Y.	50kw	225	U	I-A
	890 kilocycles				
WENR	Chicago, Illinois T-Tinley Park	50kw	240	S-WLS	I-A
WLS	Chicago, Illinois	50kw	240	S-WENR	I-A

T-Tinley Park

910 kilocycles

KLX	Oakland, California	1kw	175	U	III-A
KPOF	nr. Denver, Colorado	1kw	175	S-KFKA	III-A
KFKA	Greeley, Colorado	1kw	175	S-KPOF	III-A
WSUI	Iowa City, Iowa	1kw	DA	U	III-A
		5kw-LS			
WFDF	Flint, Michigan	1kw	DA	U	III-B
WCOC	Meridian, Mississippi	1kw	190	U	III-A
WGBI	Scranton, Pennsylvania	500w	175	S-WQAN	III-B
		1kw-LS			
WQAN	Scranton, Pennsylvania	500w	175	S-WGBI	III-B
		1kw-LS			

WJHL	Johnson City, Tenn.	1kw	175	U	III-B
			DA-N		
KRRV	Sherman, Texas	1kw	DA	U	III-B
WRNL	Richmond, Virginia	1kw	DA	U	III-B
KVAN	Vancouver,	250w	175	D	IV
	Washington				
	920 kilocycles				
KARK	Little Rock,	5kw	212	U	III-A
	Arkansas				
	T-N. Little Rock		DA-N		
KTKC	Visalia, California	1kw	180	U	III-B
			DA-N		
WGST	Atlanta, Georgia	1kw	185	U	III-A
		5kw-LS			
WBAA	West Lafayette,	1kw	175	U	III-B
	Indiana				
		5kw-LS	DA-N		

KFNF	Shenandoah, Iowa	500w 1kw-LS	220	S-KUSD	III-B
WJAR	Providence, Rhode Island T-E. Providence	5kw	DA	U	III-A
KUSD	Vermillion, South Dakota	500w	175	S-KFNF	III-B
KFPY	Spokane, Washington	5kw	210	U	III-A
WMMN	Fairmont, West Virginia	5kw	177	U	III-A

DA-N

930 kilocycles

KGBU	Ketchikan, Alaska	500w	175	U	III-B
KHJ	Los Angeles, California	5kw	DA	U	III-A
WJAX	Jacksonville, Florida	1kw	190	U	III-A

		5kw-LS			
KSEI	Pocatello, Idaho	250w	175	U	III-B
		1kw-LS			
WTAD	Quincy, Illinois	1kw	185	U	III-B
			DA-N		
WFMD	Frederick, Maryland	500w	185	U	III-B
			DA-N		
WPAT	Paterson, New Jersey	1kw	175	D	III
	T-Clifton				
WBEN	Buffalo, New York		200	U	III-A
	T-Grand Island	5kw	DA-N		
WKY	Oklahoma City, Oklahoma		190	U	III-A
		5kw	DA-N		
WSAZ	Huntington, W. Virginia	1kw	DA	U	III-B
	T-nr. Burlington,				

	Ohio				
WLBL	Stevens Point,	5kw	200	D	III
	Wisconsin				
	T-S. W. of				
	Auburndale				
	940 kilocycles				
WMAZ	Macon, Georgia		175	U	II
		5kw	DA-N		
	950 kilocycles				
KFEL	Denver, Colorado	5kw	DA	U	III-A
WAAF	Chicago, Illinois	1kw	175	D	III
WORL	Boston,	1kw	185	D	III
	Massachusetts				
	T-Needham				
WWJ	Detroit, Michigan	5kw	210	U	III-A
	T-Oak Park		DA-N		
WPEN	Philadelphia,	5kw	175	U	III-A

	Pennsylvania				
			DA-N		
WSPA	Spartanburg, South	1kw	180	U	III-B
	Carolina				
			DA-N		
KPRC	Houston, Texas	5kw	200	U	III-A
	T-Deepwater		DA-N		
KOMO	Seattle, Washington	5kw	245	U	III-A
			DA-N		
	960 kilocycles				
WBRC	Birmingham, Alabama	5kw	175	U	III-A
			DA-N		
KROW	Oakland, California	1kw	175	U	III-A
WELI	New Haven,	1kw	184	U	III-B
	Connecticut				
	T-Hamden		DA-N		
WSBT	South Bend, Ind.	500w	DA	U	III-B

KMA	Shenandoah, Iowa	1kw 5kw-LS	225	U	III-A
WDBJ	Roanoke, Virginia	5kw	210 DA-N	U	III-A
	970 kilocycles				
WFLA	Tampa, Florida	1kw 5kw-LS	175 DA-N	U	III-B
WAVE	Louisville, Kentucky T-N. of Jeffersonville, Ind.	5kw	DA	U	III-A
WCSH	Portland, Maine T-Scarboro	5kw	DA	U	III-A
WAAT	Jersey City, New Jersey T-Kearney	1kw	175 DA-N	U	III-B
WDAY	Fargo, North Dakota	5kw	175	U	III-A

	T-West Fargo		DA-N		
WICA	Ashtabula, Ohio	1kw	175	D	III
KOIN	Portland, Oregon	5kw	224	U	III-A
			DA-N		
WHA	Madison, Wisconsin	5kw	175	D	III
	980 kilocycles				
KFWB	Los Angeles,	5kw	220	U	III-A
	California				
WRC	Washington, D. C.	5kw	185	U	III-A
	T-Chillum Twp., Md.		DA-N		
WHAL	Saginaw, Michigan	500w	175	D	III
KMBC	Kansas City,	5kw	224	U	III-A
	Missouri				Note
	T-Kansas City,		DA-N		
	Kansas				

"KMBC permitted to continue operation with 5kw power, unlimited time and the

directional antenna now installed and on file with the Federal Communications Commission and the Department of Transport subject to the determination of actual interference to CJRM in accordance with the provision for such determination established by the Treaty. If interference is found to exist to greater than 4 mv/m, appropriate action by the Commission will be taken to require KMBC to reduce the radiation on the bearing 331 degrees to such an amount that the limitation at Regina does not exceed 4 mv/m."

WTRY	Troy, New York T-Boght Corners 990 kilocycles	1kw	DA	U	III-B
WIBG	Glenside, Pennsylvania T-Hill Crest, Cheltenham Twp.	1kw	175	D	II Note

"This assignment available for Class II operation, unlimited time, Philadelphia, Pa., provided the signal at no place on the border between the

United States and Canada exceeds 0.025 mv/m 10 per cent of the time."

WNOX	Knoxville, Tennessee	1kw	235	U	II
		5kw-LS	DA-N		
	1000 kilocycles				
WCFL	Chicago, Illinois		225	U	
	T-York Twp.	10kw	DA		I-B
WINS	New York, New York	1kw	175	L-WCFL	II
	T-Carlstadt, N.J.				
KJR	Seattle, Washington		250	U	
		10kw	DA-N		I-B
	1020 kilocycles				
KFVD	Los Angeles, California	1kw	185	L-KDKA	II
KDKA	Pittsburgh, Pennsylvania	50kw	295	U	I-A

	T-Allison Park,				
	Hampton Twp.				
	1030 kilocycles				
WBZ	Boston,	50kw	DA	U-Synchroniz-	I-B
	Massachusetts			ed	
	T. Hull			with WBZA	
WBZA	Boston,	1kw	175	U-Synchroniz-	II
	Massachusetts			ed	
	T-East Springfield			with WBZ	
KOB	Albuquerque, New	50kw	225	U	II
	Mexico				
			DA-N		
	1040 kilocycles				
WHO	Des Moines, Iowa	50kw	225	U	I-A
	T-nr. Mitchellville				
	1050 kilocycles				
WDZ	Tuscola, Illinois	1kw	180	D	II

WHN	New York, N.Y.	1kw	175	U	II
	T-Astoria, Long Island	5kw-LS	DA-N		
	1060 kilocycles				
KYW	Philadelphia, Pennsylvania		DA	U	I-B
	T-Whitemarsh Twp.	50kw			
	1070 kilocycles				
WAPI	Birmingham, Alabama		225	U	II
					Note
		50kw	DA-N		

Station to operate on 1170 kilocycles pending adjustment of domestic problems in U. S.

KNX	Los Angeles, California	50kw	245	U	I-B

	T-Torrance				
WIBC	Indianapolis,	1kw	190	U	II
	Indiana				
	T-nr. New Augusta	5kw-LS	DA-N		
KFBI	Wichita, Kansas	1kw	175	U	II
		5kw-LS	DA-N		
WEAU	Eau Claire,	1kw	190	L-KFBI	II
	Wisconsin				
		5kw-LS	DA-N		
	1080 kilocycles				
KYOS	Merced, California	250w	175	D	II
WTIC	Hartford,	50kw	226	U	I-B
	Connecticut				
	T-Avon		DA-N		
WCAZ	Carthage, Illinois	250w	185	D	II
KWJJ	Portland, Oregon	500w	190	L-KRLD, WTIC	II

KRLD	Dallas, Texas	50kw	225	U	I-B
	T-S. of Garland		DA-N		
	1090 kilocycles				
KTHS	Hot Springs		225	U	I-B
	National Park,				
	Arkansas				
		50kw	DA-N		
WBAL	Baltimore, Maryland	50kw	225	U	I-B
	T-nr Reisterstown		DA-N		
	1100 kilocycles				
KJBS	San Francisco,	500w	175	L-WTAM	II
	California				
WTAM	Cleveland, Ohio	50kw	225	U	I-A
	T-Brecksville				
	Village				
	1110 kilocycles				

WCBD	Chicago, Illinois	5kw	225	L-WBT, KFAB	II
	T-Addison Twp.			S-WMBI	
WMBI	Chicago, Illinois	5kw	250	L-WBT, KFAB	II
	T-Addison			S-WCBD	
KFAB	Lincoln, Nebraska		225	U	I-B
					Note
	Proposed	50kw	DA-N		

Station to operate on 780 kilocycles pending adjustment of domestic problems in U.S.

WBT	Charlotte, North Carolina	50kw	225	U.	I-B
			DA-N		
	1120 kilocycles				
KMOX	St. Louis, Missouri	50kw	225	U	I-A
	1130 kilocycles				

KGDM	Stockton, California	1kw	175	D	II
KWKH	Shreveport, Louisiana	50kw Note	253	U	I-B
	T-nr. Dixie		DA-N		

Reclassification of KWKH, 50kw Class II station (Treaty provision) at Shreveport, Louisiana, to I-B acceptable so long as CBR, Class I-B station at Vancouver continues to operate with 5kw power as provided by the Treaty. When power of CBR is increased to 50kw, classification of KWKH to be dependent upon interference received from CBR. If CBR is operated with directional antenna which provides satisfactory service to the British Columbia area and protects the service of KWKH as a I-B station in accordance with the Treaty, this classification may be continued.

WCAR	Pontiac, Michigan	1kw	185	D	II
WDGY	Minneapolis, Minnesota	1kw	175	U	II
	T-Richfield Twp.	5kw LS	DA-N		

WOV	New York, N.Y.	10kw	DA	U	I-B
	T-Kearny, N.J.				
	1140 kilocycles				
KSOO	Sioux Falls, South	5kw	180	L-WRVA	II
	Dakota				
			DA-N		
WRVA	Richmond, Virginia	50kw	DA	U	I-B
	1150 kilocycles				
KFSG	Los Angeles,	1kw	175	S-KRKD	III-A
	California				
		2 1/2 kw-LS			
KRKD	Los Angeles,	1kw	175	S-KFSG	III-A
	California				
		2 1/2 kw-LS			
WDEL	Wilmington,	5kw	DA	U	III-A
	Delaware				

KSAL	Salina, Kansas	1kw	200	U	III-B
			DA-N		
WJBO	Baton Rouge,	5kw	DA	U	III-A
	Louisiana				
WCOP	Boston,	500w	185	U	III-B
	Massachusetts				
			DA-N		
KSWO	Lawton, Oklahoma	250w		D	IV
WKPA	New Kensington,	250w	150	D	IV
	Pennsylvania				
WAPO	Chattanooga,	1kw	195	U	III-B
	Tennessee				
	T. Pineville	5kw LS	DA-N		
KTBC	Austin, Texas	1kw	175	S.H.	III
				(D-WTAW)	
WTAW	College Station,	1kw	175	S.H.	III
	Texas				
				(D-KTBC)	

KRSC	Seattle, Washington	1kw	175	U	III-A
KFIO	Spokane, Washington	100w	150	D	IV
WISN	Milwaukee, Wisconsin	5kw	DA	U	III-A
	1160 kilocycles				
WJJD	Chicago, Illinois	20kw	175	L-KSL	II
	T-Des Plaines				
KSL	Salt Lake City, Utah	50kw	225	U	I-A
	T-Saltair				
	1170 kilocycles				
KVOO	Tulsa, Oklahoma		175	U	I-B
		50kw	DA-N		
WWVA	Wheeling, West Virginia		195	U	
	T-W. Liberty	50kw	DA		I-B
	1180 kilocycles				

WHAM	Rochester, New York	50kw	245	U	I-A
	T-Victor Twp.				
	1190 kilocycles				
WOWO	Fort Wayne, Indiana			U	I-B
		50kw	DA		
KEX	Portland, Oregon			U	
	T-N. Portland	50kw	DA		I-B
					Note

This assignment of a Class I-B station at Portland, Oregon is agreed to by Mexico on condition that the DA proposed protect the service of a Class I-B station in Sonora in accordance with the engineering standards of the Treaty.

	1200 kilocycles				
WOAI	San Antonio, Texas	50kw	225	U	I-A
	T-Selma				
	1210 kilocycles				

WCAU	Philadelphia, Pennsylvania	50kw	225	U	I-A
	T-Newton Square				
	1230 kilocycles				
WBHP	Huntsville, Alabama	250w	175	U	IV
WMOB	Mobile, Alabama	250w	150	U	IV
WJRD	Tuscaloosa, Alabama	250w	175	U	IV
KSUN	Lowell, Arizona	250w	185	U	IV
KPHO	Phoenix, Arizona	250w	150	U	IV
KBTM	Jonesboro, Arkansas	250w	180	U	IV
KGHI	Little Rock, Arkansas	250w	150	U	IV
KGFJ	Los Angeles, California	250w	150	U	IV
KVCV	S. of Redding, California	250w	150	U	IV

KVEC	San Luis Obispo, California	250w	185	U	IV
KWG	Stockton, California	250w	150	U	IV
KFXJ	Grand Junction, Colorado	250w	180	U	IV
KGEK	Sterling, Colorado	250w	150	U	IV
WTHT	Hartford, Connecticut	250w	150	U	IV
WLOF	Orlando, Florida	250w	150	U	IV
WDLP	Panama City, Florida	250w	150	U	IV
WJNO	West Palm Beach, Florida	250w	175	U	IV
WRBL	Columbus, Georgia	250w	180	U	IV
WBLJ	Dalton, Ga.	250w	-	U	IV
WAYX	Waycross, Georgia	250w	150	U	IV
KHBC	Hilo, Hawaii	250w	150	U	IV

KFXD	Nampa, Idaho	250w	150	U	IV
WJBC	Bloomington, Illinois T-Normal	250w	180	U	IV
WJOB	Hammond, Indiana	250w	150	U-D S-WFAM-N	IV
WBOW	Terre Haute, Indiana	250w	190	U	IV
KFJB	Marshalltown, Iowa	250w	180	U	IV
WHOP	N.W. of Hopkinsville, Ky.	250w	180	U	IV
KMLB	Monroe, Louisiana	250w	175	U	IV
WJBW	New Orleans, Louisiana	250w	185	U	IV
WABI	Bangor, Maine T-Brewer	250w	195	U	IV
WITH	Baltimore, Maryland	250w	150	U	IV
WESX	Salem,	250w	175	U	IV

	Massachusetts				
	T-Marblehead				
WMAW	Worcester, Massachusetts	250w	150	U	IV
WGRB	Grand Rapids, Michigan	250w	150	U	IV
WMPC	Lapeer, Michigan	250w	150	S.H.	IV
WSAM	Saginaw, Michigan	250w	150	S.H.	IV
WSOO	Sault Ste. Marie, Michigan	250w	150	U	IV Note

It was agreed between the delegates from the United States and Canada that if an increase in power beyond that of a local station is contemplated for either CJIC or WSOO, the Department of Transport will advise the Commission, or vice versa, in order that the increase in power of either station may be considered in conjunction with that of the other.

KGDE	Fergus Falls,	250w	150	U	IV

	Minnesota				
KYSM	Mankato, Minnesota	250w	200	U	IV
KWNO	Winona, Minnesota	250w	190	U	IV
WSKB	McComb, Mississippi	250w	190	U	IV
WIL	St. Louis, Missouri	250w	150	U	IV
KHAS	Hastings, Nebraska	250w	190	U	IV
WENY	Elmira, New York	250w	240	U	IV
WIBX	Utica, New York	250w	150	U	IV
	T-Town of Marcy				
WMFR	High Point, North	250w	150	U	IV
	Carolina				
WFTC	Kinston, North	250w	175	U	IV
	Carolina				
WCBT	Roanoke Rapids, N.	250w	150	U	IV
	C.				
WHBC	Canton, Ohio	250w	265	U	IV
WCPO	Cincinnati, Ohio	250w	150	U	IV
WCOL	Columbus, Ohio	250w	150	U	IV

WTOL	Toledo, Ohio	250w	150	U	IV
KADA	N. of Ada, Oklahoma	250w	175	U	IV
WBBZ	Ponca City, Oklahoma	250w	150	U	IV
KAST	Astoria, Oregon	250w	175	U	IV
KODL	The Dalles, Oregon	250w	150	U	IV
KOOS	Marshfield, Oregon	250w	150	U	IV
WCED	Du Bois, Pennsylvania	250w	150	U	IV
WKBO	Harrisburg, Pennsylvania	250w	150	U	IV
WAIM	Anderson, South Carolina	250w	150	U	IV
WOLS	Florence, South Carolina	250w	165	U	IV
WCAT	Rapid City, South Dakota	250w	180	U	IV
KELO	Sioux Falls, South	250w	150	U	IV

	Dakota				
KFDA	Amarillo, Texas	250w	150	U	IV
KVNU	N. of Logan, Utah	250w	150	U	IV
WCAX	Burlington, Vermont	250w	150	U	IV
WLVA	Lynchburg, Virginia	250w	150	U	IV
KVOS	Bellingham,	250w	175	U	IV
	Washington				
WLOG	Logan, West	250w	150	U	IV
	Virginia				
WAJR	Morgantown, West	250w	150	U	IV
	Virginia				
WHBY	Appleton, Wisconsin	250w	150	U	IV
WCLO	Janesville,	250w	195	U	IV
	Wisconsin				
WDSM	Superior, Wisconsin	250w	175	U	IV
KPOW	Powell, Wyoming	250w	-	U	IV
	1240 kilocycles				

WJBY	Gadsden, Alabama	250w	175	U	IV
WCOV	Montgomery, Alabama	250w	175	U	IV
KWJB	S. of Globe, Arizona	250w	180	U	IV
KYUM	Yuma, Arizona	250w	150	U	IV
KDON	Monterey, California	250w	150	U	IV
KPPC	Pasadena, California	250w	150	S-KFXM	IV
KROY	Sacramento, California	250w	175	U	IV
KFXM	San Bernardino, California	250w	150	S-KPPC	IV
WFTM	Fort Myers, Florida	250w	150	U	IV
WFOY	St. Augustine, Florida	250w	175	U	IV
WGAC	E. of Augusta, Georgia	250w	150	U	IV

WGGA	Gainesville, Georgia	250w	150	U	IV
WLAG	LaGrange, Georgia	250w	-	U	IV
WBML	Macon, Georgia	250w	150	U	IV
WPAX	Thomasville, Georgia	250w	150	U	IV
WCRW	Chicago, Illinois	250w	150	S.H. (WEDC, WSBC)	IV
WEDC	Chicago, Illinois	250w	150	S.H. (WCRW, WSBC)	IV
WSBC	Chicago, Illinois	250w	150	S.H. (WCRW, WSBC)	IV
WEBQ	Harrisburg, Illinois	250w	150	U	IV
WTAX	Springfield, Illinois	250w	150	U	IV
WHBU	Anderson, Indiana	250w	150	U	IV
KWLL	Decorah, Iowa	250w	150	U	IV

KBIZ	Ottumwa, Iowa	250w		U	IV
KIUL	Garden City, Kansas	250w	150	U	IV
KANS	Wichita, Kansas	250w	150	U	IV
WINN	Louisville, Kentucky	250w	150	U	IV
KALB	Alexandria, Louisiana	250w	150	U	IV
WCOU	Lewiston, Maine	250w	180	U	IV
WJEJ	Hagerstown, Maryland	250w	150	U	IV
WHAI	Greenfield, Massachusetts	250w	175	U	IV
WOCB	nr. Hyannis, Massachusetts	250w	150	U	IV
WJIM	Lansing, Michigan	250w	150	U	IV
WMFG	Hibbing, Minnesota	250w	150	U	IV
WGRM	Greenwood, Mississippi	250w	150	U	IV

WGCM	Gulfport, Mississippi	250w	150	U	IV
KPFA	Helena, Montana	250w	150	U	IV
KFOR	Lincoln, Nebraska	250w	150	U	IV
WSNJ	Nr. Bridgeton, New Jersey (Upper Deerfield Twp.)	250w	175	U	IV
WBRB	Red Bank, New Jersey	250w	150	S-WGBB	IV
KLAH	Carlsbad, New Mexico	250w	180	U	IV
WGBB	Freeport, New York	250w	150	S-WBRB, WFAS	IV
WJTN	Jamestown, New York	250w	175	U	IV
WSAY	Rochester, New York	250w	150	U	IV
WATN	Watertown, New York	250w	150	U	IV
WFAS	White Plains, New	250w	150	S-WGBB	IV

	York				
WSOC	Charlotte, North Carolina	250w	150	U	IV
WRAL	Raleigh, North Carolina	250w	175	U	IV
KDLR	Devils Lake, North Dakota	250w	180	U	IV
WJW	Akron, Ohio	250w	150	U	IV
WLOK	Lima, Ohio	250w	150	U	IV
WHIZ	Zanesville, Ohio	250w	150	U	IV
KVSO	Ardmore, Oklahoma	250w	150	U	IV
KASA	Elk City, Oklahoma	250w	150	U	IV
KHBG	Okmulgee, Oklahoma	250w	175	U	IV
KWIL	Albany, Oregon	250w	-	U	IV
KFJI	Klamath Falls, Oregon	250w	150	U	IV
WKOK	Sunbury, Pennsylvania	250w	150	U	IV

WBAX	Wilkes-Barre, Pennsylvania T-Plains Twp.	250w	175	U	IV
KWAT	Watertown, South Dakota	250w	150	U	IV
WBIR	Knoxville, Tennessee	250w	150	U	IV
WSIX	Nashville, Tennessee	250w	150	U	IV
KOCA	Kilgore, Texas	250w	170	U	IV
KXOX	Sweetwater, Texas	250w	180	U	IV
KOVO	Provo, Utah	250w	170	U	IV
WPID	Petersburg, Virginia T-Colonial Heights	250w	180	U-except Sunday when WBBLoperat-es	IV
WBBL	Richmond, Virginia	250w	150	S.H.	IV

KGY	Olympia, Washington	250w	150	U-except when KWT is operating	IV
WJLS	Beckley, West Virginia	250w	180	U	IV
WOMT	Manitowoc, Wisconsin	250w	150	U	IV
WIBU	Poynette, Wisconsin	250w	190	U	IV
WJMC	Rice Lake, Wisconsin	250w	180	U	IV
	1250 kilocycles				
KTMS	Santa Barbara, California	1kw	DA	U	III-B
	T-nr. Goleta				
WDAE	Tampa, Florida	5kw	DA	U	III-A
KFKU	Lawrence, Kansas	1kw	175	S-WREN	III-A
	T-Tonganoxie	5kw-LS			

WREN	Lawrence, Kansas	1kw	175	S-KFKU	III-A
	T-Tonganoxie	5kw-LS			
WCAD	Canton, New York	500w	175	S.H.(D)	III
WGNY	Newburgh, New York	250w	180	D	IV
WCAE	Pittsburgh, Pennsylvania	5kw	215	U	III-A
	T-Baldwin Twp.		DA-N		
WTMA	Charleston, South Carolina	1kw	215(DA-N)	U	III-B
KPAC	Port Arthur, Texas	500w	187.5 DA-N	U	III-B
KWSC	Pullman, Washington	5kw	180	S-KTW	III-A
KTW	Seattle, Washington	1kw	175	S-KWSC	III-A
	1260 kilocycles				
KYA	San Francisco, California	1kw	230	U	III-A
		5kw-LS			

WOL	Washington, D. C.	1kw	DA	U	
	T.-nr. Chillum, Md.				III-A
WFBM	Indianapolis,	5kw	245	U	III-A
	Indiana				
	T-nr. Millersville		DA-N		
WNAC	Boston,	5kw	DA	U	III-A
	Massachusetts				
	T-Quincy				
KGBX	Springfield,	5kw	175	U	III-A
	Missouri				
			DA-N		
KGGM	Albuquerque, New	1kw	190	U	III-A
	Mexico				
	1270 kilocycles				
KTFI	Twin Falls, Idaho	1kw	250	U	III-A
WHBF	Rock Island,	5kw	DA	U	III-A
	Illinois				

	T-Rock Island				
	County				
WSPR	Springfield, Mass.	500w	DA	U	III-B
WXYZ	Detroit, Michigan	5kw	227	U	III-A
			DA-N		
KGCU	Mandan, North	500w	180	U	III-B
	Dakota				
		1kw-LS			
KFJZ	Fort Worth, Texas	5kw	DA	U	III-A
	T-Birdville				
	1280 kilocycles				
KFOX	Long Beach,	1kw	175	U	III-A
	California				
WMRO	Aurora, Illinois	250w	175	D	IV
	T-N. Aurora				
WGBF	Evansville, Indiana	1kw	200	U	III-B
		5kw-LS	DA-N		

WDSU	New Orleans,	5kw	DA	U	III-A
	Louisiana				
WTCN	Minneapolis,	1kw	210	U	III-A
	Minnesota				
	T-Rose Twp.	5kw-LS			
WHBI	Newark, New Jersey	1kw	175	S-WNEW	III-A
		2 1/2 kw-LS			
WNEW	New York, N.Y.	5kw	DA	S-WHBI	III-A
	T-nr. Carlstadt,				
	New Jersey				
WKST	New Castle,	1kw	190	U	III-B
	Pennsylvania				
			DA-N		
KIT	Yakima, Washington	1kw	185	U	III-A
	1290 kilocycles				
KVOA	Tucson, Arizona	1kw	175	U	III-A
KUOA	Siloam Springs,	5kw	250	D	III

	Arkansas				
KHSL	Chico, California	500w	190	U	III-B
		1kw-LS			
WTOC	Savannah, Georgia	1kw	175	U	III-A
		5kw-LS	DA-N		
KGVO	Missoula, Montana	1kw	190	U	III-A
		5kw-LS			
KOIL	Omaha, Nebraska	5kw	210	U	III-A
	T-nr. Council		DA-N		
	Bluffs, Iowa				
WHLD	Niagara Falls, New	1kw	190	D	III
	York				
	T-Niagara				
WHIO	Dayton, Ohio	5kw	200	U	III-A
			DA-N		
KRGV	Weslaco, Texas	1kw	185	U	III-A
WKNE	Keene, New	5kw	DA	U	III-A
	Hampshire				

WFVA	Fredericksburg, Virginia	250w	180	D	IV
	1300 kilocycles				
KVOR	Colorado Springs, Colorado	1kw	190	U	III-A
KGLO	Mason City, Iowa	1kw	205	U	III-B
			DA-N		
WFBR	Baltimore, Maryland	5kw	DA	U	III-A
WASH	Grand Rapids, Michigan	5kw	175	S-WOOD	III-A
			DA-N		
WOOD	Grand Rapids, Michigan	5kw	175	S-WASH	III-A
			DA-N		
WJDX	Jackson, Mississippi	1kw	215	U	III-A
		5kw-LS			

WWNY	Watertown, New York	500w	175	D	III
KOL	Seattle, Washington	1kw	230	U	III-A
		5kw-LS			
	1310 kilocycles				
KLS	Oakland, California	1kw	175	U	III-A
WISH	Indianapolis,	1kw	DA-N	U	III-B
	Indiana				
		5kw-LS			
WORC	Worcester,	1kw	DA	U	III-B
	Massachusetts				
	T-Auburn				
KFBB	Great Falls,	5kw	250	U	III-A
	Montana				
			DA-N		
WCAP	Asbury Park, New	500w	175	S-WCAM,	III-B
	Jersey				
	T-Neptune Twp.			WTNJ	

WCAM	Camden, New Jersey	500w	175	S-WCAP, WTNJ	III-B
WTNJ	Trenton, New Jersey T-Falls Twp., S. of Morrisville, Pa.	500w	190	S-WCAM WCAP	III-B
WDOD	Chattanooga, Tennessee	5kw	215 DA-N	U	III-A
WRR	Dallas, Texas	5kw	194 DA-N	U	III-A
WIBA	Madison, Wisconsin	5kw	231 DA-N	U	III-A
	1320 kilocycles				
KLCN	Blytheville, Arkansas	100w	175	D	IV
WATR	Waterbury, Connecticut	250w	DA	U	IV

WJHP	Jacksonville, Florida	250w	150	U	IV
WEBC	Duluth, Minnesota T-Superior, Wisconsin	5kw	221 DA-N	U	III-A
WNBZ	Saranac Lake, New York	100w	150	D	IV
WJAS	Pittsburgh, Pennsylvania	5kw	180 DA-N	U	III-A
WNEL	San Juan, Puerto Rico T-Carolina	5kw	175	U	III-A
KTRH	Houston, Texas T-Deepwater	5kw	230 DA-N	U	III-A
KDYL	Salt Lake City, Utah	5kw	DA	U	III-A

1330 kilocycles

KFAC	Los Angeles, California	1kw	175	U	III-A
KFH	Wichita, Kansas	5kw	245 DA-N	U	III-A
WLOL	Minneapolis, Minnesota T-St. Paul	1kw	DA	U	III-B
WBBR	Brooklyn, New York T-Rossville	1kw	175	S-WEVD, WHAZ	III-A
WEVD	New York, N. Y. T-Brooklyn	1kw	175	S-WBBR, WHAZ	III-A
WHAZ	Troy, New York	1kw	175	S-WBBR, WEVD	III-A
KALE	Portland, Oregon	5kw	180 DA-N	U	III-A
WFBC	Greenville, South Carolina	5kw	185	U	III-A

			DA-N		
WHBL	Sheboygan, Wisconsin	500w	200	U	III-B
		1kw-LS			
	1340 kilocycles				
WSGN	Birmingham, Alabama	250w	150	U	IV
KCRJ	Jerome, Arizona	250w	150	U	IV
KWFC	Hot Springs, Arkansas	250w	150	U	IV
KARM	Fresno, California	250w	200	U	IV
KHUB	nr. Watsonville, California	250w	175	U	IV
KMYR	Denver, Colorado	250w	150	U	IV
WINX	Washington, D. C.	250w	150	U	IV
WPER	DeLand, Florida	250	-	U	IV
WLAK	Lakeland, Florida	250w	180	U	IV
WTAL	Tallahassee,	250w	150	U	IV

	Florida				
WGAU	Athens, Georgia	250w	175	U	IV
WSAV	Savannah, Georgia	250w	175	U	IV
WDAK	West Point, Georgia	250w	150	U	IV
WSOY	Decatur, Illinois	250w	180	U	IV
WJPF	Herrin, Illinois	250w	150	U	IV
WCLS	Joliet, Illinois	250w	185	U	IV
	T-Joliet Twp.				
WTRC	Elkhart, Indiana	250w	180	U	IV
WLBC	Muncie, Indiana	250w	150	U	IV
KCKN	Kansas City, Kansas	250w	150	U	IV
WCMI	Ashland, Kentucky	250w	150	U	IV
WLBJ	nr. Bowling Green,	250w	180	U	IV
	Kentucky				
KVOL	Lafayette,	250w	175	U	IV
	Louisiana				
KRMD	Shreveport,	250w	150	U	IV
	Louisiana				

WNBH	New Bedford, Massachusetts T-Crow Is. (near Fairhaven)	250w	150	U	IV
WBRK	Pittsfield, Massachusetts	250w	150	U	IV
WLAV	Grand Rapids, Michigan	250w	150	U	IV
WDMJ	Marquette, Michigan	250w	150	U	IV
WEXL	Royal Oak, Michigan	250w	150	U	IV
KVOX	Moorehead, Minnesota	250w	175	U	IV
KROC	Rochester, Minnesota	250w	180	U	IV
KWLM	Willmar, Minnesota	250w	175	U	IV
WJPR	Greenville, Mississippi	250w	185	U	IV
WAML	Laurel, Mississippi	250w	180	U	IV

KWOS	Jefferson City, Missouri	250w	185	U	IV
KWOC	Poplar Bluff, Missouri	250w	150	U	IV
KGEZ	Kalispell, Montana (See 1460kc)	250w	190	U	IV
KRJF	Miles City, Montana	250w	150	U	IV
KGFW	Kearney, Nebraska	250w	175	U	IV
WLNH	Laconia, New Hampshire	250w	180	U	IV
	T-Sanbornton				
KVSF	Santa Fe, New Mexico	250w	150	U	IV
WMBO	Auburn, New York	250w	175	U	IV
WEBR	Buffalo, New York	250w	150	U	IV
WMFF	Plattsburg, New York	250w	150	U	IV
WGTM	Wilson, North	250w	150	U	IV

	Carolina				
WAIR	Winston-Salem, North Carolina	250w	-	U	IV
WIZE	Springfield, Ohio	250w	150	U	IV
WSTV	Steubenville, Ohio	250w	150	S.H. (WSAJ)	IV
KOCY	Oklahoma City, Oklahoma	250w	150	U	IV
KOME	Tulsa, Oklahoma	250w	195	U	IV
KBND	Bend, Oregon	250w	180	U	IV
KUIN	Grants Pass, Oregon	250w	150	U	IV
WFBG	Altoona, Pennsylvania	250w	150	U	IV
WSAJ	Grove City, Pennsylvania	250w	150	S.H.	IV
WHAT	Philadelphia, Pennsylvania	250w	150	S-WTEL	IV
WTEL	Philadelphia, Pennsylvania	250w	150	S-WHAT	IV

WRAW	Reading, Pennsylvania	250w	150	U	IV
WBRE	Wilkes-Barre, Pennsylvania T-Kingston	250w	180	U	IV
WFIG	Sumter, South Carolina	250w	150	U	IV
KAND	Corsicana, Texas	250w	175	U	IV
KFPL	Dublin, Texas	250w	175	U	IV
KFYO	Lubbock, Texas	250w	150	U	IV
KRBA	Lufkin, Texas	250w	175	U	IV
KPDN	Pampa, Texas	250w	175	U	IV
KVIC	N. of Victoria, Texas	250w	175	U	IV
KSUB	Cedar City, Utah	250w	170	U	IV
WGH	Newport News, Virginia	250w	170	U	IV
KXRO	Aberdeen,	250w	180	U	IV

	Washington				
WBRW	Welch, West Virginia	250w	150	U	IV
WEMP	Milwaukee, Wisconsin	250w	150	U	IV
WFHR	Wisconsin Rapids, Wisconsin	250w	150	U	IV
	1350 kilocycles				
KSRO	Santa Rosa, California	1kw	DA	U	III-B
KGHF	Pueblo, Colorado	500w	175	U	III-B
KID	Idaho Falls, Idaho	500w	200	U	III-B
		5kw-LS			
KRNT	Des Moines, Iowa	5kw	210	U	III-A
			DA-N		
WSMB	New Orleans, Louisiana	5kw	228	U	III-A

			DA-N		
WADC	Akron, Ohio	5kw	DA	U	III-A
WORK	York, Pennsylvania	1kw	175	U	III-B
	T-W, Manchester		DA-N		
	Twp.				
	1360 kilocycles				
KGB	San Diego,	1kw	175	U	III-A
	California				
WDRC	Hartford,	5kw	DA	U	III-A
	Connecticut				
	T-Bloomfield				
WKAT	Miami Beach,	1kw	175	U	III-B
	Florida				
KSCJ	Sioux City, Iowa	5kw	214	U	III-A
			DA-N		
WSAI	Cincinnati, Ohio	5kw	250	U	III-A
			DA-N		

KRIS	Corpus Christi, Texas	1kw	204	U	III-A
KMO	Tacoma, Washington	5kw	175	U	III-A
WTAQ	Green Bay, Wisconsin T-West De Pere 1370 kilocycles	5kw	DA	U	III-A
WCOA	Pensacola, Florida	500w 1kw-LS	175	U	III-B
KDTH	Dubuque, Iowa T-East Dubuque, Illinois	1kw	175 DA-N	U	III-B
KGNO	Dodge City, Kansas	500w 1kw-LS	175	U	III-B
KGIR	West of Butte, Montana	5kw	175	U	III-A
WFEA	Manchester, New	5kw	DA	U	III-B

	Hampshire				
	T-Merrimack				
WFNC	Fayetteville, North Carolina	250w	150	D	IV
WSPD	Toledo, Ohio	5kw	175	U	III-A
	T-Perrysburg		DA-N		
WPAB	Ponce, Puerto Rico	1kw	175	U	III-A
	T-Playa				
KFRO	Longview, Texas	1kw	185	U	III-B
			DA-N		
	1380 kilocycles				
WTSP	St. Petersburg, Florida	500-1kw		U	III-B
		LS			
KIDO	Boise, Idaho	1kw	190	U	III-A
		2 1/2 kw-LS			
KWK	St. Louis, Missouri	5kw	DA	U	III-A

WAWZ	Zarephath, New Jersey	1kw	DA	S-WBNX	III-A
WBNX	New York, N.Y. T-Borough of Carlstadt, N. J.	5kw	DA	S-WAWZ	III-A
KBWD	Brownwood, Texas	500w		U	III-B
KTSM	El Paso, Texas	500w	175	U	III-B
WMBG	Richmond, Virginia	1kw	DA	U	III-B
		5kw-LS			
	1390 kilocycles				
KGER	Long Beach, California	1kw	175	U	III-A
WGES	Chicago, Illinois	500w	175		III-B
		1kw-LS		SH	
		(Sundays)			
WQBC	Vicksburg, Mississippi	1kw	175	D	III

WFBL	Syracuse, New York	5kw	235	U	III-A
	T-nr. Collamer		DA-N		
KLPM	Minot, North Dakota	1kw	185	U	III-A
KCRC	Enid, Oklahoma	1kw	175	U	III-B
KSLM	Salem, Oregon	1kw	180	U	III-A
WCSC	Charleston, South Carolina	1kw	175	U	III-A
WTJS	Jackson, Tennessee	1kw	DA-N	U	III-B
	1400 kilocycles				
WMSL	Decatur, Alabama	250w	150	U	IV
WAGF	Dothan, Alabama	250w	150	U	IV
WJHO	Opelika, Alabama	250w	150	U	IV
KTUC	Tucson, Arizona	250w	150	U	IV
KELD	N. of El Dorado, Arkansas	250w	150	U	IV
KFPW	Fort Smith, Arkansas	250w	150	U	IV

KRE	Berkeley, California	250w	175	U	IV
KIUP	Durango, Colorado	250w	150	U	IV
KOKO	La Junta, Colorado	250w	185	U	IV
WFTL	Ft. Lauderdale, Florida	250w	180	U	IV
WMBR	Jacksonville, Florida	250w	175	U	IV
WATL	Atlanta, Georgia	250w	150	U	IV
WMGA	N.E. of Moultrie, Georgia	250w	225	U	IV
KRLC	Lewiston, Idaho	250w	215	U	IV
WDWS	Champaign, Illinois	250w	150	U	IV
WGIL	Galesburg, Illinois	250w	150	U	IV
WEOA	Evansville, Indiana	250w	150	U	IV
WKMO	Kokomo, Indiana	250w	-	U	IV
WGRC	New Albany, Indiana	250w	195	U	IV
KFGQ	Boone, Iowa	250w	150	S.H. (D)	IV

KVFD	Fort Dodge, Iowa	250w	215	S.H.	IV
KTSW	Emporia, Kansas	250w	180	U IV	
KVGB	Great Bend, Kansas	250w	185	U	IV
WRDO	Augusta, Maine	250w	150	U	IV
WCBM	Baltimore, Maryland	250w	150	U	IV
WHYN	Holyoke, Massachusetts	250w	-	U	IV
WLLH	Lowell, Massachusetts	250w	150	U	IV
WELL	Battle Creek, Michigan	250w	150	U	IV
WHDF	Calumet, Michigan T-Larium	250w	185	U	IV
WMBC	Detroit, Michigan	250w	150	U	IV
WTCM	Traverse City, Michigan	250w	150	U	IV
WMIN	St. Paul, Minnesota	250w	175	U	IV
WHLB	Virginia, Minnesota	250w	175	U	IV

WCBI	Columbus, Mississippi	250w	150	U	IV
WFOR	Hattiesburg, Mississippi	250w	150	U	IV
KFVS	Cape Girardeau, Missouri	250w	150	U	IV
KFRU	Columbia, Missouri	250w	150	U	IV
KORN	Fremont, Nebraska	250	190	U	IV
KENO	Las Vegas, Nevada	250	150	U	IV
KICA	Clovis, New Mexico	250w	175	U	IV
KGFL	Roswell, New Mexico	250w	150	U	IV
WABY	Albany, New York T-Colonie	250w	150	U	IV
WBNY	Buffalo, New York	250w	150	All hours except those WSVS operates	IV
WSVS	Buffalo, New York	250w	150	S.H.	IV

(D. WBNY)

WSLB	Ogdenburg, New York	250w	150	U	IV
WISE	Asheville, North Carolina	250w	150	U	IV
WCNC	Elizabeth City, North Carolina	250w	175	U	IV
WGBR	W. of Golsboro, North Carolina	250w	180	U	IV
WHKY	Hickory, North Carolina	250w	150	U	IV
WMFD	Wilmington, North Carolina	250w	150	U	IV
KRMC	Jamestown, North Dakota	250w	180	U	IV
WMAN	Mansfield, Ohio	250w	175	U	IV
WPAY	Portsmouth, Ohio	250w	150	U	IV
KTOK	Oklahoma City, Oklahoma	250w	175	U	IV

WEST	Easton, Pennsylvania	250w	150	U	IV
WJAC	Johnstown, Pennsylvania	250w	150	U	IV
WDAS	Philadelphia, Pennsylvania	250w	185	U	IV
WARM	Scranton, Pennsylvania	250w	150	U	IV
WRAK	Williamsport, Pennsylvania	250w	180	U	IV
WCOS	Columbia, South Carolina	250w	190	U	IV
WORD	Spartanburg, South Carolina	250w	150	U	IV
KOBH	Rapid City, South Dakota	250w	150	U	IV
WDEF	Chattanooga, Tennessee	250w	150	U	IV

WHUB	Cookeville, Tennessee	250w	150	U	IV
WKPT	Kingsport, Tennessee	250w	150	U	IV
WHBQ	Memphis, Tennessee	250w	150	U	IV
KLUF	nr. Galveston, Texas	250w	175	U	IV
KIUN	Pecos, Texas	250w	150	U	IV
KGKL	San Angelo, Texas	250w	175	U	IV
KMAC	San Antonio, Texas	250w	175	S-KONO	IV
KONO	San Antonio, Texas	250w	150	S-KMAC	IV
KTEM	Temple, Texas	250w	175	U	IV
WBTM	Danville, Virginia	250w	150	U	IV
KRKO	Everett, Washington	250w	150	S-KEVR	IV
KWLK	Longview, Washington	250w	150	U	IV
KEVR	Seattle, Washington	250w	150	S-KRKO	IV
WBLK	Clarksburg, West	250w	200	U	IV

	Virginia				
WKWK	Wheeling, West	250w	-	U	IV
	Virginia				
WBTH	Williamson, West	250w	150	U	IV
	Virginia				
WATW	Ashland, Wisconsin	250w	150	U	IV
WRJN	Racine, Wisconsin	250w	175	U	IV
	T-Mt. Pleasant				
WSAU	Wausau, Wisconsin	250w	150	U	IV
KYAN	Cheyenne, Wyoming	250w	190	U	IV
KVRS	Rock Springs,	250w	175	U	IV
	Wyoming				
KWYO	Sheridan, Wyoming	250w	185	U	IV
	1410 kilocycles				
WALA	Mobile, Alabama	5kw	190	U	III-A
			DA-N		
KERN	Bakersfield,	1kw	175	U	III-A
	California				

WNBC	New Britain, Connecticut	1kw	DA	U	III-B
	T-Newington	5kw LS			
WING	Dayton, Ohio	5kw	175	U	III-A
			DA-N		
KQV	Pittsburgh, Pennsylvania	1kw	185	U	III-B
			DA-N		
WKBH	La Crosse, Wisconsin	5kw	200	U	III-A
			DA-N		
	1420 kilocycles				
KLRA	Little Rock, Arkansas	5kw	215	U	III-A
	T-nr. N. Little Rock		DA-N		
WHK	Cleveland, Ohio	5kw	205	U	III-A

	T-Seven Hills		DA-N		
WFCI	Pawtucket, Rhode Island	1kw	DA	U	III-B
	T-Lincoln				
KABR	Aberdeen, South Dakota	5kw	194	U	III-A
			DA-N		
WQDM	St. Albans, Vermont	1kw	175	D	III
KUJ	Walla Walla, Wash.	1kw	175	U	III-A
	1430 kilocycles				
WIRE	Indianapolis, Indiana	5kw	244	U	III-A
			DA-N		
WARD	Brooklyn, New York	500w	180	S-WBBC, WLTH, WVFW	III-B
WBBC	Brooklyn, New York	500w	175	S-WARD,	III-B

				WLTH,	
				WVFW	
WVFW	Brooklyn, New York	500w	175	S-WARD,	III-B
				WBBC	
				WLTH	
WLTH	New York, New York	500w	175	S-WARD,	III-B
	T-Brooklyn			WBBC,	
				WVFW	
KTUL	Tulsa, Oklahoma	5kw	238	U	III-A
	T-E. of Turley		DA-N		
KLO	Ogden, Utah	5kw	DA	U	III-A
	T-Kanesville				
	1440 kilocycles				
WSFA	Montgomery, Alabama	500w	190	U	III-B
		1kw-LS			
WROK	Rockford, Illinois	500w	200	U	III-B
		1kw-LS			

WAAB	Boston, Massachusetts T-Quincy	1kw	250	U	III-A
WBCM	Bay City, Michigan T-Hampton Twp.	500w 1kw-LS	175	U	III-B
KFJM	Grand Forks, North Dakota	500w 1kw-LS	175	U	III-B
KMED	Medford, Oregon	1kw	175	U	III-A
KGNC	Amarillo, Texas	1kw 5kw LS	175	U	III-A
WHIS	Bluefield, West Virginia	500w 1kw-LS	175	U	III-B
	1450 kilocycles				
WHMA	Anniston, Alabama	250w	150	U	IV
WMSD	Muscle Shoals City,	250w	150	U	IV

	Alabama				
KGLU	Safford, Arizona	250w	175	U	IV
KMYC	Marysville,	250w	150	U	IV
	California				
KFMB	San Diego,	250w	-	U	IV
	California				
KSAN	San Francisco,	250w	150	U	IV
	California				
KGIW	Alamosa, Colorado	250w	150	S.H.(KIDW)	IV
KIDW	Lamar, Colorado	250w	150	S.H.(KGIW)	IV
WNAB	Bridgeport,	250w	150	U	IV
	Connecticut				
WILM	Wilmington,	250w	150	U	IV
	Delaware				
WWDC	Washington, D. C.	250w		U	IV
WMFJ	Daytona Beach,	250w	150	U	IV
	Florida				
WSPB	Sarasota, Florida	250w	180	U	IV

WGPC	Albany, Georgia	250w	150	U	IV
WMWH	Augusta, Georgia	250w	150	U	IV
WKEU	Griffen, Georgia	250w	150	U	IV
WRLC	Toccoa, Georgia	250w	-	U	IV
WGOV	Valdosta, Georgia	250w	150	U	IV
KWAL	Wallace, Idaho	250w	185	U	IV
	T-between Wallace & Kellogg				
WHFC	Cicero, Illinois	250w	150	U	IV
WCBS	Springfield, Illinois	250w	150	U	IV
WGL	Fort Wayne, Indiana	250w	150	U	IV
WAOV	Vincennes, Indiana	250w	150	U	IV
WOC	Davenport, Iowa	250w	150	U	IV
KTRI	Sioux City, Iowa	250w	150	U	IV
KVAK	Atchison, Kansas	250w	175	U	IV
	T-Buchanan County, Missouri				

KWBG	Hutchinson, Kansas	250w	150	U	IV
WHLN	Harlan, Ky.	250w	-	U	IV
WLAP	Lexington, Kentucky	250w	150	U	IV
WPAD	Paducah, Kentucky	250w	185	U	IV
WNOE	New Orleans, Louisiana	250w	180	U	IV
WAGM	Presque Isle, Maine	250w	150	U	IV
WMAS	Springfield, Massachusetts	250w	240	U	IV
WJMS	Ironwood, Michigan	250w	150	U	IV
WIBM	Jackson, Michigan	250w	150	U	IV
WHLS	Port Huron, Michigan T-Port Huron Twp.	250w	190	U	IV
KATE	Albert Lea, Minnesota	250w	150	U	IV
KFAM	St. Cloud, Minnesota	250w	185	U	IV

WSLI	Jackson, Mississippi	250w	180	U	IV
WMBH	Joplin, Missouri	250w	200	U	IV
KRBM	Bozeman, Montana	250w	175	U	IV
KFUN	Las Vegas, Nevada	250w	150	U	IV
WFPG	Atlantic City, New Jersey	250w	150	U	IV
WHDL	Olean, New York	250w	210	U	IV
WKIP	Poughkeepsie, New York	250w	150	U	IV
WGNC	Gastonia, North Carolina	250w	150	U	IV
WEED	nr. Rocky Mount, North Carolina	250w	175	U	IV
WFMJ	Youngstown, Ohio	250w	150	U	IV
KGFF	Shawnee, Oklahoma	250w	200	U	IV
KORE	Eugene, Oregon	250w	150	U	IV
KLBM	La Grande, Oregon	250w	185	U	IV

KBPS	Portland, Oregon	250w	150	S-KXL	IV
KXL	Portland, Oregon	250w	150	S-KBPS	IV
WLEU	Erie, Pennsylvania	250w	150	U	IV
WAZL	Hazleton, Pennsylvania	250w	150	U	IV
--------	Greenwood, S.C.	250w	150	U	IV
KRBC	Abilene, Texas	250w	175	U	IV
KRIC	Beaumont, Texas	250w	175	U	IV
KDNT	Denton, Texas	250w	150	U	IV
KRLH	Midland, Texas	250w	150	U	IV
KNET	Palestine, Texas	250w	150	U	IV
KABC	San Antonio, Texas	250w	150	U	IV
KCMC	Texarkana, Texas	250w	150	U	IV
WACO	Waco, Texas	250w	150	U	IV
KEUB	Price, Utah	250w	175	U	IV
WCHV	Charlottesville, Virginia	250w	175	U	IV
WMVA	Martinsville,	250w	150	U	IV

	Virginia				
WLPM	Suffolk, Virginia	250w	180	U	IV
WPAR	Parkersburg, West	250w	150	U	IV
	Virginia				
KFIZ	Fond du Lac,	250w	150	U	IV
	Wisconsin				
KFBC	Cheyenne, Wyoming	250w	150	U	IV
	1460 kilocycles				
KINY	Juneau, Alaska	1kw	200	U	III-A
KSO	Des Moines, Iowa	1kw	234	U	III-A
		5kw-LS	DA-N		
KGEZ	Kalispell, Montana	1kw	DA	U	III-B
	(See 1340kc)				Note

Conditional grant as to directive antenna on 1460 kilocycles.

KGNF	North Platte,	1kw	175	D	III
	Nebraska				

WOKO	Albany, New York	500w	175	U	III-B
		1kw-LS			
WHEC	Rochester, New York	500w	220	U	III-B
		1kw-LS			
WBNS	Columbus, Ohio	1kw	190	U	III-B
		5kw-LS	DA-N		
WHP	Harrisburg,	1kw	193	U	III-B
	Pennsylvania				
	T-Swatara Twp.	5kw-LS	DA-N		
WMPS	Memphis, Tennessee	500w	175	U	III-B
		1kw-LS			
	1470 kilocycles				
WMBD	Peoria, Illinois	1kw	205	U	III-B
	T-between Peoria	5kw-LS			
	and Pekin				
WBIG	Greensboro, North	5kw	225	U	III-A
	Carolina				
			DA-N		

WCBA	Allentown, Pennsylvania	1kw	180	S-WSAN	III-B
WSAN	Allentown, Pennsylvania	1kw	180	S-WCBA	III-B
KXYZ	Houston, Texas	1kw	175	U	III-A
KELA	between Centralia and Chehalis, Washington	1kw	190	U	III-A
KDFN	Casper, Wyoming	1kw	210	U	III-B
	1480 kilocycles				
KIEM	Eureka, California	500w 1kw-LS	175	U	III-B
WAGA	Atlanta, Georgia	500w 1kw-LS	240	U	III-B
KTBS	Shreveport, Louisiana	1kw	175	U	III-B
WSAR	Fall River,	1kw	DA	U	III-B

	Massachusetts				
	T-S. Somerset				
KCMO	Kansas City,	1kw	179	U	III-B
	Missouri				
		5kw-LS	DA-N		
KGCX	Wolf Point, Montana	1kw	175	U	III-A
WHOM	Jersey City, New	500w	230	U	III-B
	Jersey				
		1kw-LS	DA-N		
WGAR	Cleveland, Ohio	1kw	233	U	III-B
	T-Cuyahoga Heights	5kw-LS	DA-N		
	1490 kilocycles				
WHBB	Selma, Alabama	250w	150	U	IV
KYCA	Prescott, Arizona	250w	150	U	IV
KOTN	Pine Bluff,	250w	150	U	IV
	Arkansas				
KXO	El Centro,	250w	150	U	IV
	California				

KVOE	Santa Ana, California	250w	175	U	IV
KDB	Santa Barbara, California	250w	150	U	IV
WNLC	New London, Connecticut	250w	175	U	IV
WTMC	Ocala, Florida	250w	175	U	IV
WRDW	Augusta, Georgia T-N. Augusta, South Carolina	250w	190	U	IV
WMOG	Brunswick, Georgia	250w	180	U	IV
WMJM	Cordele, Georgia	250w	180	U	IV
WRGA	Rome, Georgia	250w	150	U	IV
KTOH	Lihue, Hawaii	250w	150	U	IV
WKRO	Cairo, Ill.	250w	-	U	IV
WDAN	Danville, Illinois	250w	230	U	IV
WTMV	East St. Louis, Illinois	250w	150	U	IV

WKBV	Richmond, Indiana	250w	150	U	IV
WKBB	Dubuque, Iowa	250w	200	U	IV
WOMI	Owensboro, Kentucky	250w	180	U	IV
KPLC	Lake Charles, Louisiana	250w	150	U	IV
WBOC	Salisbury, Maryland	250w	150	U	IV
WJBK	Detroit, Michigan	250w	150	U	IV
WDBC	Escanaba, Mich.	250w	-	U	IV
WKBZ	Muskegon, Michigan	250w	190	U	IV
KDAL	Duluth, Minnesota	250w	150	U	IV
KDRO	Sedalia, Missouri	250w	180	U	IV
KONB	Omaha, Nebraska	250w	150	U	IV
KGKY	Scottsbluff, Nebraska	250w	150	U	IV
WBAB	Atlantic City, N. J.	250w	150	U	IV
KAWM	Gallup, New Mexico	250w	150	U	IV
KWEW	Hobbs, New Mexico	250w	180	U	IV

WBTA	Batavia, N. Y.	250w		U	IV
WNBF	Binghamton, New York	250w	200	U	IV
WOLF	Syracuse, New York	250w	150	U	IV
WKNY	Kingston, New York T-Ulster Twp.	250w	185	U	IV
WDNC	Durham, North Carolina	250w	225	U	IV
WGTC	Greenville, North Carolina	250w	220	D	IV
WSTP	Salisbury, North Carolina	250w	225	U	IV
KOVC	Valley City, North Dakota	250w	150	U	IV
WMRN	Marion, Ohio	250w	150	U	IV
KBIX	Muskogee, Oklahoma	250w	150	U	IV
KBKR	nr. Baker, Oregon	250w	180	U	IV
KRNR	Roseburg, Oregon	250w	150	U	IV

WERC	Erie, Pennsylvania	250w	150	U	IV
WGAL	Lancaster, Pennsylvania	250w	150	U	IV
WWSW	Pittsburgh, Pennsylvania	250w	175	U	IV
WMRC	Greenville, South Carolina	250w	150	U	IV
WOPI	Bristol, Tennessee T-N.E. of Bristol, Va.	250w	150	U	IV
KNOW	Austin, Texas	250w	150	U	IV
KBST	Big Spring, Texas	250w	180	U	IV
KNEL	Brady, Texas	250w	150	U	IV
KGFI	Brownsville, Texas	250w	150	U	IV
KEYS	Corpus Christi, Texas	250w		U	IV
KSAM	Huntsville, Texas	250w	150	U	IV
KPAB	Laredo, Texas	250w	175	U	IV

KPLT	Paris, Texas	250w	175	U	IV
KGKB	Tyler, Texas	250w	175	U	IV
KVWC	Vernon, Texas	250w	175	U	IV
WSYB	Rutland, Vermont	250w	175	U	IV
WSLS	Roanoke, Virginia	250w	150	U	IV
KPQ	Wenatchee, Washington	250w	195	U	IV
WGKV	Charleston, West Virginia	250w	175	U	IV
WIGM	Medford, Wisconsin	250w		U	IV
	1500 kilocycles				
WJSV	Washington, D. C. T-E. of Wheaton, Md.	50kw	DA	U	I-B
KSTP	St. Paul, Minnesota	50kw	DA	U	I-B
	1510 kilocycles				

WMEX	Boston, Massachusetts T-Montclair (Quincy)	5kw	DA	U	II
WLAC	Nashville, Tennessee	50kw	DA-N	U	I-B
KGA	Spokane, Washington	10kw	DA	U	I-B
	1520 kilocycles				
WHIP	Hammond, Indiana	5kw	DA	6 a.m. to L.S. Buffalo, N.Y.	II
WKBW	Buffalo, New York T-Tonawanda	50kw	DA	U	I-B
KOMA	Oklahoma City, Oklahoma	50kw	DA-N	U	I-B
WPRP	Ponce, Puerto Rico	1kw	175	U	II

5kw-LS

1530 kilocycles

KFBK	Sacramento, California	10kw	235	U	I-B
		Proposed	DA		
WCKY	Cincinnati, Ohio T-Crescent Springs, Ky.	50kw	DA	U	I-B

1560 kilocycles

WQXR	New York, New York	10kw	DA	U	II

1590 kilocycles

WBRY	Waterbury, Connecticut T-Prospect Twp.	5kw	DA	U	III-A
WALB	Albany, Georgia	1kw	DA-N	U	III-A
KITE	Kansas City,	1kw	175	U	III-A

	Missouri				
WAKR	Akron, Ohio	1kw	175	U	III-A
	1600 kilocycles				
KPMC	Bakersfield,	1kw	175	U	III-A
	California				
WCNW	Brooklyn, New York	500w	175	S-WWRL	III-B
WWRL	Woodside, New York	500w	175	S-WCNW	III-B

Certified to be true and complete textual copies of the original Recommendations in all the languages in which they were signed, and of the Appendices annexed thereto.

EDWARD YARDLEY

Director of Personnel

55 Stat 1398, 1941 WL 39028 (U.S. Treaty), E.A.S. No. 227

END OF DOCUMENT

FOURTH ANNUAL REPORT

FEDERAL COMMUNICATIONS COMMISSION

FISCAL YEAR ENDED JUNE 30, 1938

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON, 1938

LEGISLATION AND TREATIES

LEGISLATION

New legislation.—The basic law under which the Commission functions is reviewed in our Third Annual Report at page 5. There was one amendment to the Communications Act during this fiscal year.[14] Section 201 (b) was amended so as to allow carriers to furnish information regarding the positions of ships at sea to newspapers of general circulation at a nominal charge or without charge.

Proposed legislation.—Upon the request of various congressional committees, the Commission furnished comments in regard to proposed legislative measures introduced before either House of Congress.[15]

A number of situations have been studied by the Commission which may eventually result in recommendations for additional or amendatory legislation.

One of the most important of these is the difficulty of prosecuting cases involving the unlicensed operation of radio equipment by young persons of school age. We find that both United States attorneys and grand juries are loath to bring indictments in these cases, as is the Commission itself, since the maximum penalty involved is 2 years' imprisonment or a fine of ten thousand dollars ($10,000), or both. The conclusion is almost inevitable that a different type of penalty must be imposed, such as forfeiture, seizure of equipment, fine, or other punishment, so that the offense would be a misdemeanor under Federal law, rather than a felony.

During the year a bill was proposed by the Commission to add a new section 330 to the Communications Act which would have the effect of bringing within the jurisdiction of the Commission apparatus that utilize radio-frequency electric currents and thus have the possibility of interference with radio service, although not intended primarily for radio purposes. The proposed legislation is designed primarily to authorize the Commission to deal with a source of interference to radio communication arising from the operation of diathermy apparatus. This interference seriously impairs radio communication service at the present time and is rapidly growing in intensity. In advocating this legislation, the Commission expressed the opinion that unless measures for suppression or mitigation can be promptly undertaken, there is real danger that the usefulness of a large part of the radio spectrum for communication purposes will be destroyed. A discussion of the investigation of two such types of apparatus, the diathermy machine and the carrier telephone intercommunicating system, is found at pages 13 and 14 of our Third Annual Report.

TREATIES

The treaties that govern certain functions of the Commission are reviewed in our Third Annual Report at page 5. The international conferences held during the year looking toward the adoption of new treaties are discussed in the following section of this report.

[14] Public Law No. 561, 75th Cong., approved May 31, 1938.
[15] These proposed bills are identified in appendix A.

INTERNATIONAL CONFERENCES

The Commission has assisted this Government in carrying on its international relations in respect to radio, wire, and cable by supplying experts to the United States delegations attending the various international conferences and by constant study of the many problems arising in those relations. For example, the Commission in the last fiscal year adjusted 464 radio-station complaints involving international aspects.

A vast amount of correspondence relative to international problems has been handled and an accurate record of all international communications statistics is maintained so that information upon international matters is available upon request. This Commission maintains up-to-date records of Canadian, Mexican, and Cuban broadcasting stations. Lists of these stations are published from time to time. The Commission also compiles and issues lists of the international broadcast stations of the world.

A number of important conferences were held during the year which required a large amount of preparatory work.

INTER-AMERICAN TECHNICAL AVIATION CONFERENCES

The first Inter-American Technical Aviation Conference was held in Lima, Peru, September 15 to 25, 1937, and considered an agenda, which was formulated by the Government of Peru after consultation with the various American Republics and was based upon the resolutions of the Seventh International Conference of American States, the Pan-American Commercial Conference, and the Inter-American Conference for the Maintenance of Peace.

As a result of the conferences, there was formed a Permanent American Aeronautical Commission composed of plenipotentiary delegates appointed by each Government to unify and codify public and private air laws and to formulate the laws and customs of aerial warfare.

In the field of radio and meteorology as well as in the other diversified activities of the Conference much was accomplished in coordinating the divergent views of the various American Republics. In addition to arriving at an agreement in regard to international aviation services, it is felt that one of the most important accomplishments of this conference was the promotion of good relations among the republics represented.

INTER-AMERICAN RADIO CONFERENCE

The First Inter-American Radio Conference was held at Habana, Cuba, November 1 to December 13, 1937. As a result of the careful detailed consideration of the agenda the following documents were signed: (1) Final Act of the First Inter-American Radio Conference, including (a) Resolutions, Motions, and Agreements, and (b) Recommendations to the International Telecommunications Conferences to be held at Cairo, Egypt, commencing February 1, 1938; (2) Inter-American Radio Communications Convention; (3) Inter-American Arrangement Concerning Radio Communications; and (4) North

American Regional Broadcasting Agreement. As a result of the formulation of these documents, the American Republics were practically in accord at the Cairo Telecommunications Conferences. Here was established, at least temporarily, in the city of Habana and under the auspices of the Government of Cuba an Inter-American Radio Office, which is intended to provide for closer cooperation among the member States and for a fuller and more rapid dissemination of technical, legal, and other data of interest in the field of communications, all for the purpose of an improvement of engineering practices and a better understanding of the legal problems in the field of communications in the participating countries.

The Inter-American Arrangement Concerning Radiocommunications seeks to effect a standardization throughout the Americas of technical matters involved in the art of radiocommunications, particularly with respect to allocations, tolerances, spurious emissions, and interference, use, and nonuse of certain air calling and distress frequencies, amateurs, and receipt and transmission by them of third-party messages, an international police radio system, and radio aids to air navigation.

The North American Regional Broadcasting Agreement undertakes to establish in that region, which consists of Canada, Cuba, Dominican Republic, Haiti, Mexico, Newfoundland, and the United States, frequency assignments to specified classes of stations in the broadcast band on clear, regional, and local channels with a view to avoiding interference which, in this region, has caused great inconvenience to radio listeners. It is believed that the principles laid down in this convention, if carried into effect, will result in general satisfaction, not only to the listening public but to the broadcasters as well.

The agreement is of primary importance to Canada, Cuba, Mexico, and the United States of America. If and when three of the four mentioned countries shall have ratified and the fourth signified its readiness pending notification as an administrative measure to put the provisions of the agreement into effect, then such countries may, by administrative agreement, fix a date upon which they shall give effect to the provisions, which date is preferably but one year from the date of such administrative agreement. The agreement has been ratified by the Government of the Republic of Cuba, and on June 30, 1938, it was ratified by the United States. Additional information with respect to this agreement is found hereinafter at p. 53.

The establishment of broad general principles on a sure basis, agreement on many technical matters involved in sound engineering practice, the conclusion of an arrangement for more effective frequency allocation and avoidance of interference in the North American region, the establishment of a centralized consultative office, the agreement of the American States upon recommendations for the forthcoming Cairo conference, and the common understanding evidenced by the Inter-American Resolutions are believed to afford an adequate basis for the more effective functioning of radiocommunications in the Americas and the better service of the public and of the Governments concerned. The maintenance of friendly relations among the American States and the effectuation of the "good neighbor" policy, as evidenced by the many expressions of good will on the part of

foreign representatives, make this conference one of extreme importance to the United States and to the other Governments participating therein.

INTERNATIONAL TELECOMMUNICATIONS CONFERENCES

The International Telecommunications Conferences were held at Cairo, Egypt, February 1 to April 8, 1938. These were divided into two conferences: The International Radio Conference and the International Telegraph and Telephone Conference.

Cairo International Radio Conference.—The General Radio Regulations annexed to the International Telecommunications Convention of Madrid have in general been satisfactory to the United States. However, the ever-increasing demands for additional radio frequencies due to a never-ceasing expansion of the mobile, fixed, and broadcasting services necessitated a further tightening of existing rules to make the most economical use possible of facilities at present available, as well as a reconsideration of the existing allocation of frequencies in the light of experience gained since the Madrid conference.

The following are some of the more important decisions of the Cairo Radio Conference which have been incorporated in the Revised Regulations adopted at that conference:

1. Adoption of a plan for radio channels for the world's seven main intercontinental air routes, including calling and safety service channels.
2. Widening of the high frequency broadcast bands to a total of 300 kilocycles and the adoption of special bands for tropical regions for regional use.
3. The limitation of the use of spark sets to three channels and the outlawing of spark sets except below 300 watts output.
4. Improved tolerance and bandwidth tables.
5. The extension of the allocation table to 200 megacycles for the European region. Other regions were given the right to effect their own arrangements above 30 megacycles.
6. Establishment of further restrictions on the use of 500 kilocycles frequency for traffic.
7. The bringing up to date of regulations relative to the maritime and aeronautical services.

The Commission participated actively in organizing the preparatory work for the Cairo Radio Conference, and furnished the secretariat, which turned out voluminous documents, finally leading to the adoption of the American proposals for this conference. It also furnished the Secretary-General for all the Cairo Radio Preparatory Committees. It is believed that, due to the thorough and adequate preparation of the United States Government at this conference, which lasted from February 1 to April 8, 1938, in Cairo, Egypt, no action was taken which was in any way prejudicial to the interests of the United States, and the results of the radio conference were on the whole extremely satisfactory. It may be mentioned in passing that the preparatory work with the other nations of the Americas, done at the Habana Inter-American Radio Conference, was of inestimable value in providing a united front among the Americas in connection with the problems in which they were particularly and vitally interested because of their common interests.

The final results of the conference are found in the General Radio Regulations of Cairo, which will no doubt be submitted to the Senate for its advice and consent to ratification early in the next session, inasmuch as the effective date of the treaty is January 1, 1939, except

Where it was not clear from an examination of these applications and the material submitted in connection therewith that public interest, convenience, and necessity would be served through a grant thereof, the matter was set for hearing and the applicant was given an opportunity to offer proof with respect to the merits of his application. Over 350 such hearings were held during the year. The vast majority of such cases were heard before a member of the Examining Department of the Commission, who submitted a written report of the facts appearing of record, together with his recommendations as to the action to be taken thereon by the Commission. Applicants or parties who received an unfavorable recommendation were allowed to file exceptions to such report and to have oral argument before the Commisison, pursuant to the provisions of section 409 (a) of the act. After a full and complete consideration of the entire record, the Commission then entered its Statement of Facts, Grounds for Decision, and Order in the premises. More than 250 such formal decisions on broadcast applications were approved by the Commission during this fiscal year.

New stations.—Forty-seven new standard broadcast stations were authorized by the Commission in the last fiscal year. The following table shows the class and the hours of operation of these newly authorized stations.

Class of station	Hours of operation	Number
Local channel	Unlimited	20
Do	Daytime, sharing, and specified hours	20
Regional channel	Unlimited	3
Do	Daytime	3
Clear channel	Unlimited	0
Do	Daytime	1
Total		47

Stations deleted.—There were five oustanding authorizations for standard broadcast stations which were either not renewed by the Commission or were forfeited or surrendered by the holder of the authorization.

The renewal applications of stations KWTN (Watertown, S. Dak.) and KGDY (Huron, S. Dak.) were denied by the Commission on May 25, 1938, because the stations were found to have been operated in violation of the Commission's rules governing the technical operation of broadcast stations, because the licensees thereof, through formal action of their officers and directors, were parties to a violation of section 310 (b) of the Communications Act, and because the licensees had demonstrated an unfitness to continue further in the operation of these stations. An appeal from the denial of KWTN's renewal application was pending at the close of the fiscal year.

An authorization granted to J. B. Roberts for a new broadcast station at Gastonia, N. C., was defaulted by the holder thereof through his failure to take affirmative action leading to the construction and the initial operation of the station. Station WMBQ at Brooklyn, N. Y., was denied its application for renewal of license because of the failure of the licensee corporation to show itself legally

qualified to continue the operation of the station. The facilities of this station were in the same proceeding granted to the Long Island Broadcasting Corporation and increased the facilities of station WWRL. The authorization granted to S. George Webb to construct a new station at Newport, R. I., was canceled by the Commission because of the holder's failure to take affirmative steps to start the construction and operation of the station.

The authorization held by station WRAX, Philadelphia, was transferred, by means of a formal proceeding, to station WPEN at Philadelphia for the purpose of effecting a consolidation of those two stations.

NORTH AMERICAN REGIONAL BROADCASTING AGREEMENT

Scope.—The purpose and scope of the North American Regional Broadcasting Agreement[8] as set forth in the document "is to regulate and establish principles covering the use of the standard broadcast band in the North American region so that each country may make the most effective use thereof with the minimum technical interference between broadcast stations."

The part of the agreement which has to do with standard broadcasting will materially affect domestic broadcasting in the United States and is therefore discussed in detail.

Allocation of facilities.—The agreement provides a complete working basis for the allocation of facilities among the countries of North America. The 106 channels in the standard broadcast band between 550 and 1600 kilocycles are divided into three classes in order to enable the governments concerned to render service to the various types of people found throughout the North American region and at the same time to permit a maximum of service with a minimum of technical interference among the stations that share channels.

Classes of channels.—Three classes of channels are established, namely, local, regional, and clear. The purpose of a local channel is to accommodate low-power stations to serve centers of population and the immediately surrounding rural areas. Regional channels accommodate stations of medium power to serve large centers of population and extensive surrounding areas. The clear channels provide for high-power stations, which are primarily intended to serve large centers of population and the vast remote rural areas and the small urban communities scattered throughout North America that can be served in no other way with the limited physical facilities available. The agreement allocates the 106 channels as follows:

Local channels	6
Regional channels	41
Clear channels	59

The local channels are designed to accommodate numerous stations, and their use is shared by all of the governments that are parties to the agreement, provided the standards of allocation established by the agreement are complied with. The regional channels accommodate fewer stations than the local channels, and the clear channels in the main accommodate only a few stations.

[8] See also previous discussions of the conference and agreement at p. 8 of this report.

Classes of stations.—The agreement provides for the establishment of four classes of stations to be assigned to the three classes of channels described above. First, class IV stations (with low power, 0.1 to 0.25 kw), assigned to local channels; second, class III stations (with medium power, 0.5 to 5 kw), assigned to regional channels; third, class II stations (with a wide range of permissible power, 0.25 to 50 kw, depending on considerations of interference, service to be rendered, etc.), which are "secondary" stations operating on clear channels; and fourth, class I stations (with power of not less than 50 kw), operating on clear channels.

Service and interference.—The agreement provides for the protection of the service of the various classes of stations to established limits from interference due to stations operating on the same and adjacent channels. It provides for the protection of the primary service of class IV and class III stations and for the protection of the primary and secondary services of class I stations. To effectuate this reclassification of stations will require no drastic changes in the present allocation of, or service rendered by, stations in the United States. While the four classes of stations are new, all of these stations are now in existence as local, regional, daytime or limited-time, and clear-channel stations, and no new principles are established except that the stations operating experimentally on clear channels and the existing daytime or limited-time stations, which will become class II stations, are given a recognized status on the clear channels among the various countries. The class II station will enable the various governments to make the best possible use of clear channels without in any way impairing the rural service of the class I station.

Allocation of clear channels.—Under the provisions of the agreement "each country may use all of the 106 channels when technical conditions with respect to interference to established stations are such as to render such use practicable." However, priority of use on specified clear channels is recognized for the following number of class I and class II stations in each country:

Canada	[9] 14
Cuba	9
Dominican Republic	1
Haiti	1
Mexico	[9] 15
Newfoundland	2
United States	63

[9] Class II stations are to be operated on certain regional channels on condition that directional antennas to prevent objectionable interference to the existing class III stations are installed.

The agreement provides that in case of conflict between the allocations of broadcast stations proposed by or now existing within any two nations, these differences may be resolved prior to the effective date of the agreement.

Effect on United States stations.—Within the United States at the close of the fiscal year 1938 there were 747 licensed broadcast stations. Of this number 114 are provided for on the 59 clear channels established by the agreement. The remaining 633 stations are accommodated on the 41 regional and the six local channels. It will not be necessary to affect materially the service rendered by any one existing station in order to put into operation the allocation provided for in the agreement. The principles of allocation and the engineering standards established are in the main those used at present within the United States or proposed by new rules governing broadcast stations. The agreement provides for possible increases in the maximum authorized power of most existing classes of broadcast stations in order that improved service may be rendered.

Effect of agreement.—At the present time there is no agreement for the allocation of broadcast facilities among the countries of North America, other than the bilateral treaty between Canada and the United States reserving certain channels for Canada that are not used by the United States. Heretofore the countries to the south have not been bound by any agreement that required them to respect the allocations and the service rendered by stations within the United States or Canada. This situation has resulted in a very serious problem of interference to numerous American stations. The North American Regional Broadcasting Agreement provides an equitable solution for these serious international problems without its being incumbent upon the United States to give up a single station, to change its plan of allocation, or to reassign operating frequencies in such a manner as to result in a material loss of service. The Commission has published the frequency changes that will result when the agreement is put into operation. Until the agreement is ratified by Canada and Mexico the date upon which it will become effective cannot be fixed.

NEW RULES AND STANDARDS

New broadcast rules.—The Commission, considering the continual and rapid advance in the art of broadcasting that has been brought about by the introduction of improved technical standards of operation, the refinements in equipment as applied to both transmitting and receiving installations, and the ever-expanding knowledge of the behavior of the transmission medium, has prepared and promulgated proposed new rules to govern the operation of standard broadcast stations. The existing rules, since their adoption by the Federal Radio Commission on October 3, 1933, have been modified only in certain details as the development of the art necessitated such action. The proposed new rules were prepared after an exhaustive study of the present technical state of the broadcast art. The Commission had the assistance during the preparation of the proposed rules of the voluminous testimony and the many exhibits presented at the broadcast-allocation hearing in Washington, D. C., from October 5 to 31, 1936. The purpose of this hearing was to afford the broadcast industry an opportunity to make recommendations concerning rules that it believed necessary for the good of the industry. The scope of the hearing, the types of data presented, and the specific recommendations made with respect to allocation problems were set forth in the Third Annual Report of the Commission.[10] The proposed rules will continue in effect most of the principles that are embodied in the

[10] See p. 41 of that report. For a detailed discussion of the social and economic aspects of radiobroadcasting as developed at this hearing, see the report thereon submitted to the Broadcast Division of the Commission by the engineering department, released July 1, 1937.