

Communications

FEDERAL RADIO COMMISSION RULES AND REGULATIONS

PART I. GENERAL RULES AND REGULATIONS APPLICATIONS

1. Each application for an instrument of authorization shall be made in writing on the appropriate form prescribed by the Commission for the purpose. Separate application shall be filed for each instrument of authorization. The required forms, except as provided in paragraph 408 for amateur applicants, may be obtained from the Commission or from the office of any inspector. For a list of such offices and related geographical districts, see paragraph 30.

Prescribed application forms.

2. Each application for station license shall be submitted as follows:

Filing of application.

Class of station	Number of application forms required and method of filing
a. All classes of Alaskan stations, except broadcast and amateur.	3 copies via inspector in charge, radio district no. 14, Seattle, Wash.
b. Aircraft	1 copy direct to Washington, D.C.
c. Broadcast pick-up	Do.
d. Geophysical	Do.
e. Portable (all classes, except amateur)	Do.
f. Ship	Do.
g. All other classes, except amateur	2 copies direct to Washington, D.C.
h. Each application for amateur facilities shall be filed in accordance with the following instructions:	
(1) Applications for amateur station and/or operators' licenses from applicants residing within 125 miles of Washington, D.C., a radio district office of the Commission, or an examining city (see par. 30).	1 copy to the inspector in charge of the radio district in which the applicant resides.
(2) Applications for amateur station and/or operators' licenses from applicants residing more than 125 miles from Washington, D.C., a radio district office of the Commission, or an examining city (see par. 30).	1 copy direct to the Federal Radio Commission, Washington, D.C., in accordance with the instructions specifically set forth on the application form.

3. If an applicant is required to file any document by specific request of the Commission, in its prescribed application forms or otherwise, a failure to file such document shall constitute a defect in the application within the meaning of the rules governing practice and procedure before the Commission (par. 43).

Necessity for filing documents incidental to applications.

Amendments.

4. Any amendment of a pending application shall be executed under oath in the same manner as was the original application and shall be sent direct to the Commission.

Specification of frequency, etc.

5. Each application shall be specific with regard to frequency or frequencies, power, hours of operation, and all other terms of the instrument of authorization requested. An application for facilities in the broadcast band shall be limited to one specific frequency. An application for a radio broadcast station requesting alternative facilities will not be accepted or considered.

X Allocation of broadcast facilities.

6. In order to bring about an equalization of radio broadcast facilities (i.e., frequency, power, and/or hours of operation) among the States in the zones, in accordance with the unit and quota figures adopted by the Commission, the following shall apply with reference to applications therefor:

a. Where a zone has already in use its pro rata share of facilities the Commission will not allocate any further radio facilities to that zone, which would increase its quota.

b. Applications from underquota States in zones which have already allocated to them their pro rata share of radio facilities should be for a facility already in use in that zone by an overquota State.

c. Likewise, where a State is already overquota, the Commission will not allocate any further radio facilities to that State which would increase its quota.

d. Applications from States which now have their quotas or from States which are overquota should be for facilities already in use in that State.

e. An applicant from an underquota State in an underquota zone may apply either for facilities in use in an overquota State in that zone or an overquota State in an overquota zone.

f. When the application is from an underquota State and is for facilities which, if granted, would not cause additional interference with any station or stations now licensed, then the above paragraphs (a to e inclusive) may be disregarded.

g. Since the act provides for the equalizing of radio facilities among zones and among States, "as nearly as possible" the Commission may allow a slight departure, plus or minus, from an exact mathematical estimate.

- * 7. With the exceptions hereinafter noted, no license will be granted by the Commission for the operation of any station unless a permit for its construction has been granted previously by the Commission upon written application therefor. The exceptions to the foregoing are:
- a. Amateur stations.
 - b. Stations upon mobile vessels.
 - c. Stations upon railroad rolling stock.
 - d. Stations upon aircraft.
 - e. Stations, the construction of which was completed prior to February 23, 1927.
8. Applications for construction permit or modification thereof involving removal of transmitting apparatus and/or installation of new transmitting apparatus must be filed at least 60 days prior to the contemplated removal and/or construction.
9. Each construction permit, subject to such conditions as the Commission may impose, will specify the following:
- a. Time within which construction of the station shall begin and the time within which construction shall be completed and the station ready for operation.
 - b. Location and description of the proposed transmitting apparatus.
 - c. Location of the proposed main studio (if a broadcast station).
 - d. Frequency or frequencies.
 - e. Maximum power and operating power of the transmitting apparatus.
 - f. Periods of time during which the station may be operated.
 - g. The station or stations, if any, with which the station may communicate.
 - h. Such other conditions as may be prescribed.
 - i. Call signals.
10. Unless otherwise determined by the Commission in any particular case, each construction permit will specify a maximum of 60 days from the date of granting thereof as the time within which construction of the station shall begin and a maximum of 6 months thereafter as the time within which construction shall be completed and the station ready for operation.
11. Any application for extension of time within which to commence and/or complete construction of the station shall be filed at least 30 days prior to the expiration date of such permit. No application for extension of a permit already forfeited will be granted except upon a satisfactory

Necessity for construction permit and the filing of applications therefor.

Nature of construction permit.

Period of construction.

Extension of construction permit.

showing to the Commission of sufficient reasons for the delay in filing such application.

Forfeiture of construction permit.

12. Any construction permit shall be automatically forfeited if the station is not ready for operation within the time specified unless prevented by causes not under the control of the grantee.

X License to cover construction permit.

13. In all cases where a construction permit is required for the construction of a station (see rule 7), the application for station license (or for station license or modification thereof if for station other than broadcast) shall be filed prior to service or program tests only by permittee, or by its lawful assignee if the permit has been assigned with the consent of the Commission.

License where construction permit is not required.

14. Each application for new license, where a construction permit is not a prerequisite thereto, shall be filed at least 60 days prior to the contemplated operation of the station.

Modification of license.

15. An application for modification of license may be filed for change in frequency, change in operating power where no construction is necessary, change in hours of operation, change in location of main studio (if a broadcast station), change in points of communication, and/or change in nature of authorized service and (in case of stations other than broadcast) to cover construction permit issued to authorize the addition to, modification, or replacement of equipment in an existing licensed station. Except when filed to cover construction permit each application for modification of license must be filed at least 60 days prior to the contemplated modification of license.

Renewal of license.

16. Unless otherwise directed by the Commission, each application for renewal of license shall be filed at least 60 days prior to the expiration date of the license sought to be renewed.

Application called for by Commission.

17. Whenever the Commission regards an application for a renewal of license as essential to the proper conduct of a hearing or investigation and specifically directs that the same be filed by a date certain, such application shall be filed within the time thus specified. If the licensee fails to file such application within the prescribed time, or such extension thereof as the Commission may grant upon proper showing, the hearing or investigation shall proceed as if such renewal application had been received.

Extension of license.

18. When there is pending before the Commission any application or proceeding that after hearing might lead

to or make necessary the modification of, revocation of, or the refusal to renew an existing license the Commission may, at its discretion, grant an extension of such license. No extension shall be construed as a finding by the Commission that would prejudice or restrict the Commission's liberty of action on any pending application or proceeding.

*19. An application for consent to the assignment of a construction permit or license shall be filed at least 60 days prior to the contemplated effective date of transferring control of station. If the assignment is voluntary, the application shall be executed by both assignor and assignee; if involuntary, it shall be executed by the assignee.

Requirements
for transfer of
instrument of
authorization.

Each application for consent to assignment of a broadcasting station license shall be accompanied by a statement executed under oath containing the following information:

- a. A complete list of all assets to be transferred including intangibles and a description of all equipment.
- b. An itemized statement showing actual cost of replacement of individual items transferred.
- c. An itemized statement showing present value of the individual items transferred.
- d. A financial statement executed by the proposed assignor showing receipts and disbursements, also profit or loss for the three months preceding the month in which the assignment is requested.
- e. A financial statement executed by the proposed assignee showing individual items of assets and liabilities.
- f. Where assignment is voluntary, an executed copy of the contract or lease agreement shall be attached which must provide:

- (1) That the assignee shall have complete control of station equipment and operation, including unlimited supervision of programs to be broadcast from the station;
- (2) Transfer shall be subject to the consent of the Commission;
- (3) The price, whether paid or promised, and include all terms and conditions of the proposed sale or transfer.

g. Where the assignment is involuntary, there shall be attached a certified copy of the court order, or legal instrument, effectuating the transfer and showing all the terms and conditions under which the transfer was made.

h. A copy of the articles of incorporation of assignee, if a corporation, showing its power to engage in radio broadcasting, certified by the Secretary of State of the State in which assignee is incorporated.

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Penalty for transfer of license without the consent of Commission.

20. The transfer of a construction permit or any of the rights granted thereunder without consent of the Commission shall be sufficient ground for refusal of a station license. Likewise, the transfer of a station license or any of the rights granted thereunder without consent of the Commission shall be sufficient ground for revocation of such license or denial of any application for its renewal.

Insolvency of licensee.

21. Insolvency of a licensee of a station shall be grounds for the revocation of the station license and/or the refusal to renew it. The appointment of receivers upon grounds of insolvency and preliminary adjudication of bankruptcy will be considered by the Commission as prima facie proof of insolvency. Final adjudication will be accepted as conclusive.

Special authorizations.

22. The Commission may grant special authority to the licensee of an existing station authorizing the operation of such station for a limited time in a manner, to an extent, or for a service other or beyond that authorized in the license; provided, however, if application is for a broadcast station to utilize additional hours of operation, approval will not be granted if another broadcast station is licensed to operate in the same locality during the hours requested. Such an application will not be considered unless the following provisions are met: (1) Application must be filed by licensee. (2) Application must be received in the Commission at least 10 days previous to date for which authorization is requested. (3) If filed by any other than an unlimited time station, application must be supported by the consent of the dominant station or station with which applicant divides time. Consent must be forwarded direct to the Commission by station granting it and show whether consent is for simultaneous operation or whether consenting station is giving up the time sought by applicant. (4) Applicant must show the need for such authorization.

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Emergencies.

23. Where an emergency exists affecting safety to life or property, the Commission may, in its discretion, waive any part or all of its regulations governing the filing of applications.

The licensee of any radio transmitting station may, during a period of emergency in which the normal com-

munication facilities are disrupted as a result of hurricane, flood, earthquake, or similar disaster, utilize such station for emergency communication service in communicating with points other than those specified in the station license, provided (1) that at the beginning of such emergency use immediate notice be sent to the Federal Radio Commission and the inspector in charge of the district in which the station is located stating the nature of the emergency and the use to which the station is being put, and (2) that the emergency use of the station shall be discontinued as soon as substantially normal communication facilities are again available and the Commission and the inspector in charge be notified immediately when such special use of the station is terminated. The Commission may at any time order the discontinuance of such service.

24. Any licensee receiving official notice of a violation of Federal laws, the Commission's rules and regulations, or the terms and conditions of a license shall, within 3 days from such receipt, send a written reply direct to the Federal Radio Commission at Washington, D.C. The answer to each notice shall be complete in itself and shall not be abbreviated by reference to other communications or answers to other notices. If the notice relates to some violation that may be due to the physical or electrical characteristics of the transmitting apparatus, the answer shall state fully what steps, if any, are taken to prevent future violations, and if any new apparatus is to be installed, the date such apparatus was ordered, the name of the manufacturer, and promised date of delivery. Answering notice of violation.

25. If the installation of such apparatus requires a construction permit, the file number of the application shall be given, or if a file number has not been assigned by the Commission, such identification as will permit of ready reference.

26. If the notice of violation relates to some lack of attention or improper operation of the transmitter, the name and license number of the operator in charge shall be given.

27. All station licenses will be issued so as to expire at the hour of 3 a.m., eastern standard time. The normal license periods and expiration dates are as follows: Normal license periods.

a. Broadcast station licenses will be issued for a normal license period of 6 months, expiring as follows:

(1) For stations operating on the frequencies 640, 650, 660, 670, 680, 700, 710, 720, 740, 750, 760, 770, 790, 800,

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810, 820, 830, 850, 860, 870, 970, 980, 990, 1,000, 1,020, 1,040, 1,050, 1,060, 1,070, 1,080, 1,090, 1,100, 1,110, 1,130, 1,140, 1,150, 1,160, 1,170, 1,180, 1,190 kilocycles August 1 and February 1.

(2) For stations operating on the frequencies 550, 560, 570, 580, 590, 600, 610, 620, 630, 780, 880, 890, 900, 920 kilocycles September 1 and March 1.

(3) For stations operating on the frequencies 930, 940, 950, 1,010, 1,120, 1,220, 1,230, 1,240, 1,250, 1,260, 1,270, 1,280, 1,290 kilocycles October 1 and April 1.

(4) For stations operating on the frequencies 1,300, 1,320, 1,330, 1,340, 1,350, 1,360, 1,380, 1,390, 1,400, 1,410, 1,430, 1,440, 1,450, 1,460, 1,470, 1,480, 1,490 kilocycles November 1 and May 1.

(5) For stations operating on the frequencies 1,200, 1,210, 1,310 kilocycles December 1 and June 1.

(6) For stations operating on the frequencies 1,370, 1,420, 1,500 kilocycles January 1 and July 1.

b. The normal license period for stations of the following classification will be 1 year, and licenses will be issued so as to expire on the dates hereinafter designated:

- (1) All classes of stations in Alaska with the exception of broadcast and amateur..... June 1.
- (2) General experimental..... October 1.
- (3) Geophysical.....
- (4) Motion picture.....
- (5) Broadcast pick-up.....
- (6) Point-to-point telegraph.....
- (7) Point-to-point telephone.....
- (8) Coastal telegraph.....
- (9) Coastal telephone.....
- (10) Coastal harbor.....
- (11) Marine relay.....
- (12) Ship (above 1,500 kilocycles).....
- (13) Mobile press.....
- (14) Aeronautical.....
- (15) Aeronautical point to point.....
- (16) Airport.....
- (17) Aircraft.....
- (18) Municipal police.....
- (19) State police.....
- (20) Marine fire.....
- (21) Experimental visual broadcast, including syn-chronized sound track.....
- (22) Experimental relay broadcast.....
- (23) Special emergency.....

} November 1.

} December 1.

} February 1.

} March 1.

} April 1.

} May 1.

c. The licenses for special experimental stations, except those authorizing experimental synchronized sound transmission in connection with experimental visual broadcasting, will be issued for a normal license period of 3 months from the date of expiration of the old license or the date of granting a new license.

d. The licenses for ship stations below 1,500 kilocycles will be issued for a normal license period of 1 year from the date of granting of a new license.

e. The licenses for amateur stations will be issued for a normal license period of 3 years from the date of expiration of old license or the date of granting a new license or modification of a license.

f. The licenses for experimental broadcast stations will be issued for a normal license period of 6 months from the date of expiration of the old license, or the date of granting a new license.

28. Insofar as practicable, call signals of radio stations will be designated in alphabetical order from groups available for assignment, depending upon the class of station to be licensed. Because of the large number of amateur stations, calls will be assigned thereto in regular order and requests for particular calls will not be considered. Designation of call signals.

29. Call signals of stations will be deleted in each of the following cases: Deletion of call signals.

a. Where an existing instrument of authorization has expired and no application for renewal or extension thereof has been filed.

b. Where a license has been revoked.

c. Where a license is surrendered or canceled.

d. Other cause, such as death, loss of citizenship, or adjudged insanity of the station licensee. Such occurrences coming to notice should be reported to the Commission, preferably accompanied by the station license for cancelation, if available.

Radio districts. 30. The following list of the radio districts gives the address of each field office of the Federal Radio Commission and the territory embraced in each district:

Radio district	Address of the Inspector in charge	Territory within district	
		States	Counties
1	Customhouse, Boston, Mass.	Connecticut..... Maine..... Massachusetts..... New Hampshire..... Rhode Island..... Vermont.....	All counties. Do. Do. Do. Do. Do.
2	Federal Building, 641 Washington St., New York, N. Y.	New York..... New Jersey.....	Albany, Bronx, Columbia, Delaware, Dutchess, Greene, Kings, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Schenectady, Suffolk, Sullivan, Ulster, and Westchester. Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union, and Warren.
3	Gimbel Building, 35 South 9th St., Philadelphia, Pa.	Pennsylvania..... New Jersey.....	Adams, Berks, Bucks, Carbon, Chester, Cumberland, Dauphin, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Perry, Philadelphia, Schuylkill, and York. Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Ocean, and Salem.
4	Fort MeHenry, Baltimore, Md.	Delaware..... Maryland..... District of Columbia..... Virginia.....	Newcastle. All counties. Do. Arlington, Clark, Fairfax, Fauquier, Frederick, Loudoun, Page, Prince William, Rappahannock, Shenandoah, and Warren.
5	Customhouse, Norfolk, Va.	Delaware..... Virginia..... North Carolina.....	Kent and Sussex. All except district 4. All except district 6.
6	528 Post Office Building, Atlanta, Ga.	Alabama..... Georgia..... South Carolina..... Tennessee..... North Carolina.....	All counties. Do. Do. Do. Do. Ashe, Avery, Buncombe, Burke, Caldwell, Cherokee, Clay, Cleveland, Graham, Haywood, Henderson, Jackson, McDowell, Macon, Madison, Mitchell, Polk, Rutherford, Swain, Transylvania, Watauga, and Yancey.
7	223 Post Office Building, Miami, Fla.	Florida..... Puerto Rico..... Virgin Islands.....	All counties. Do. Do.
8	Customhouse, New Orleans, La.	Arkansas..... Louisiana..... Mississippi..... Texas.....	Do. Do. Do. Do.
9	209 Prudential Building, Galveston, Tex.	Texas.....	City of Texarkana only. Aransas, Brazoria, Brooks, Calhoun, Cameron, Chambers, Fort Bend, Galveston, Goliad, Harris, Hidalgo, Jackson, Jefferson, Jim Wells, Kenedy, Kleberg, Matagorda, Nueces, Refugio, San Patricio, Victoria, Wharton, and Wilbacy.
10	464 Federal Building, Dallas, Tex.	Texas..... Oklahoma..... New Mexico.....	All except district 9 and the city of Texarkana. All counties. Do.
11	1105 Rives-Strong Building, Los Angeles, Calif.	Arizona..... Nevada..... California.....	Do. Do. Clarke. Imperial, Kern, Kings, Los Angeles, Monterey, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, Tulare, and Ventura.

Radio district	Address of the Inspector in charge	Territory within district	
		States	Counties
12	Customhouse, San Francisco, Calif.	California..... Nevada..... Hawallan Islands..... Guam..... American Samoa..... Oregon..... Idaho.....	All except district 11. All except Clarke. All counties. Do. Do. Do. All except district 14.
13	227 New Post Office Building, Portland, Oreg.	Idaho.....	All except district 14.
14	808 Federal Office Building, Seattle, Wash.	Alaska..... Washington..... Idaho..... Montana.....	All counties. Do. Benewah, Bonner, Boundary, Clearwater, Idaho, Kootenai, Latah, Lewis, Nez Perce, and Shoshone. Beaverhead, Broadwater, Cascade, Deerlodge, Flathead, Gallatin, Glacier, Granite, Jefferson, Lake, Lewis and Clark, Lincoln, Madison, Meagher, Mineral, Missoula, Pondera, Powell, Ravalli, Sanders, Silver Bow, Teton, and Toole.
15	538 Customhouse, Denver, Colo.	Colorado..... Utah..... Wyoming..... Montana.....	All counties. Do. Do. Except district 14.
16	413 Federal Building, St. Paul, Minn.	North Dakota..... South Dakota..... Minnesota..... Michigan.....	All counties. Do. Do. Alger, Baraga, Chippewa, Delta, Dickinson, Gogebic, Houghton, Iron, Keweenaw, Luce, Mackinac, Marquette, Menominee, Ontonagon, and Schoolcraft.
17	231 Federal Building, Kansas City, Mo.	Wisconsin..... Nebraska..... Kansas..... Missouri..... Iowa.....	All except district 18. All counties. Do. Do. All except district 18.
18	2022 Engineering Building, Chicago, Ill.	Indiana..... Illinois..... Iowa..... Wisconsin.....	All counties. Do. Allamahee, Buchanan, Cedar, Clayton, Clinton, Delaware, Des Moines, Dubuque, Fayette, Henry, Jackson, Johnson, Jones, Lee, Linn, Louisa, Muscatine, Scott, Washington, and Winnebuck. Columbia, Crawford, Dane, Dodge, Grant, Green, Iowa, Jefferson, Kenosha, Lafayette, Milwaukee, Ozaukee, Racine, Richland, Rock, Sauk, Walworth, Washington, and Waukesha.
19	2909 David Scott Building, Detroit, Mich.	Michigan..... Ohio..... Kentucky..... West Virginia.....	All except district 16. All counties. Do. Do.
20	514 Federal Building, Buffalo, N. Y.	New York..... Pennsylvania.....	All except district 2. All except district 3.

FEDERAL RADIO COMMISSION RULES AND REGULATIONS

* PART II. PRACTICE AND PROCEDURE

GENERAL

31. The principal office of the Commission shall be located at Washington, D.C. Except for Sundays and legal holidays throughout the year and except for Saturdays after 1 o'clock p.m., the office will be open every day from 9 a.m. to 4.30 p.m. Office of the Commission.

32. All meetings of the Commission, unless otherwise determined by a majority of its members, shall be held at the principal office of the Commission. The Commission will, however, meet at another place if so determined by a majority of its members and may, by one or more of its members, or by such examiner or other employee as it may designate, hold hearings, conduct investigations, and prosecute any inquiry necessary to its duties at any other place. Meetings of the Commission.

33. All instruments of authorization granted by the Commission and all orders issued by it shall, unless otherwise specifically provided by order of the Commission, be signed by the secretary in the name of the Commission. Secretary to sign instruments of authorization and orders.

34. The official record of any action of the Commission, other than in connection with or as the result of hearings on applications or revocation proceedings, shall be the minutes of such session, kept by and in the custody of the secretary. The official record of any action by the Commission made in connection with or as the result of any such a hearing shall be the order of the Commission entered and filed in the appropriate hearing docket file. Such official records shall be subject to inspection at the office of the secretary during business hours. Official record.

35. The files of the Commission shall not be open to inspection by the public except as follows: Files.

a. Hearing docket files shall be open to inspection by anyone.

b. Copies of current permits, licenses, and other instruments of authorization shall be open to inspection by anyone having a legitimate interest therein.

c. Applications shall be open to inspection by the applicant himself or by any parties interested in the grant or denial of said applications.

d. Official reports of any governmental department or agency or other record maintained by or in the custody of the Commission, not subject to inspection under paragraphs a to c, inclusive, and not confidential in their nature, may be inspected by any party to a hearing in which said documents may be used as evidence: *Provided, however,* That such inspection must be pursuant to a written application therefor, addressed to the Commission and specifying the exact report or record desired, and such facts as may be necessary to show the right of such party to inspect the documents in question.

Seal. 36. The seal of the Commission shall be affixed to all permits, licenses, and other instruments of authorization granted, and all orders issued by the Commission.

Certified copies. 37. Copies of any documents which are subject to inspection under the provisions of paragraph 35 hereof will be prepared and certified by the secretary of the Commission, under its seal, on the written application of any person who has the right to inspect such documents, specifying the exact document, the number of copies desired, and the date upon which the same will be required: *Provided, however,* That such application must be made so as to permit a period of three days for the preparation of such copies: *And provided further,* That any cost incurred in the preparation of such copies shall be prepaid by the person making application therefor.

Official reporter. 38. The Commission will designate from time to time an official reporter for the taking down and transcribing of its proceedings. No transcript of the testimony taken or argument had at any hearing held by the Commission will be furnished to any party or to any other person by the Commission; such transcript must be obtained directly from the official reporter.

Copies. 39. Where, under these regulations, any document is permitted or required to be filed in connection with any hearing, it shall be necessary to file the same in duplicate unless otherwise expressly provided. Every motion, protest, and other document in the nature of a pleading when filed in the Commission, shall be accompanied by an

affidavit setting forth that a true copy of such document has been served upon or mailed to each known party in interest.

40. Wherever days are mentioned in these regulations as limitations of time they shall be construed to exclude Sundays and legal holidays in the District of Columbia, but to include Saturdays. When the time fixed for taking any procedural step elapses on Sunday or a legal holiday, such time shall extend to and include the next succeeding day that is not a Sunday or legal holiday. Computation of time.

41. Where, under these regulations, any limitation is made as to the time within which any document is required to be filed, or any other procedural step is required to be taken in connection with any hearing, parties who are residents of the fifth zone shall have an additional period of five days and parties who reside beyond the confines of the continental United States shall have an additional period of 20 days within which to file such document or take such other procedural step. Additional time to parties in certain cases.

42. Any party to a proceeding before the Commission may appear in person or by an attorney. Any person so appearing must conform to the standard of ethical conduct required of practitioners before the courts of the United States. Attorneys.

ACTION ON APPLICATIONS

43. Any application which is not filed in accordance with the Commission's regulations or, if properly filed, does not comply with the regulations with respect to the form used, manner of execution, completeness of answer to questions, or any other information required will not be considered by the Commission. Each such application shall be returned to the applicant by the secretary of the Commission together with a brief statement of the respect in which the application is defective. Applications returned without action.

44. Any application which is properly filed and conforms to the regulations of the Commission with respect to the form used, manner of execution, completeness of answers to questions, and other information required, may be granted by the Commission without a hearing if it appears conclusive to the Commission from the face of such application, from documents submitted therewith, and from such other information as the Commission may have (a) that the granting of such application, either in whole or in part, would serve public interest, convenience, Applications conditionally granted without hearing.

and necessity, and (b) that the granting of such application, either in whole or in part, would not aggrieve or adversely affect the interest of any person, firm, company, or corporation holding a permit, license, or other instrument of authorization from the Commission, or having an application therefor pending before the Commission, *Provided, however,* That any such grant shall be conditional and may be suspended and reconsidered by the Commission as hereinafter provided.

Hearings in cases where conditional grants are protested.

45. In any case where an application is granted in whole or in part without a hearing as provided in paragraph 44, any person, firm, or corporation aggrieved or whose interests are adversely affected by such grant, may obtain a hearing upon said application by adhering to the following procedure:

a. Such parties shall, within 20 days from the date on which public announcement of such grant is made at the principal office of the Commission, or from its effective date if a later date is specified by the Commission file with the Commission and serve upon or mail to the applicant a protest in writing directed to the action of the Commission making such grant.

b. Such protest shall be executed and sworn to by a person having knowledge of the facts therein stated and shall contain:

- (1) A statement of protestant's interest in the matter.
- (2) A terse, yet complete, statement of the facts which protestant expects to prove upon hearing, and
- (3) Proof of service upon the applicant.

c. Upon receipt by the Commission of such protest the application involved will be set for hearing in the same manner in which other applications are set for hearing and the applicant and other parties in interest notified thereof: *Provided, however,* That upon such hearing the verified protest shall be taken as a pleading limiting the issues to be tried, but not as evidence of the facts therein stated.

46. Pending such hearing the effective date of the Commission's action with respect thereto shall be postponed to the date of the Commission's decision after hearing, unless the authorization involved in such grant is necessary to the maintenance or conduct of an existing service, in which event the Commission may, in its discretion, authorize the applicant to utilize the facilities or authorization in question pending the Commission's decision

after hearing. After hearing, in accordance with the foregoing, the Commission may affirm, revoke, or modify its conditional grant. If no protest is filed in accordance with the foregoing and within the time limited, the action of the Commission in granting the application in question shall become absolute and final without further action of the Commission.

47. Where any application is granted by the Commission in part or with any privileges, terms, or conditions other than those requested pursuant to paragraph 44 and without a hearing thereon, the action of the Commission shall be considered as the granting of such application unless the applicant shall, within 20 days from the date on which public announcement of such grant is made at the principal office of the Commission or from its effective date if a later date is specified by the Commission, file with the Commission a written request for a hearing with respect to the part or with respect to the privileges, terms, or conditions not granted. The request for hearing shall be accompanied by a statement in writing of the facts which the applicant expects to prove upon such hearing. Upon the receipt of such request and statement in proper form, the application will be set for hearing in the same manner as other applications are set for hearing and the applicant and other parties in interest notified thereof. Within a period of 10 days from the receipt of such notice of hearing the applicant shall deliver or mail a copy of the statement of facts to be proved by it to all other parties notified of the hearing and shall file with the Commission an affidavit stating that this requirement has been met. The evidence to be offered by any applicant upon such hearing shall be limited to the matter contained in the applicant's written statement of facts to be proved by it. Pending such hearing the effective date of the Commission's action with respect to such application shall be postponed to the date of the Commission's decision after hearing.

Hearings in cases where applications are granted in part.

48. In cases where the application is proper upon its face but the Commission is unable to determine, without a hearing on the merits, that the granting of such application either in whole or in part would serve public interest, convenience, or necessity, and that the granting of such application either in whole or in part would not aggrieve or adversely affect the interest of any person firm, company, or corporation holding a permit, license,

All other applications designated for hearing.

or other instrument of authorization from the Commission, or having an application therefor pending before the Commission, the Commission will designate the same for hearing and the following procedure will govern:

a. The secretary shall forthwith mail a written notice to the applicant setting forth the action of the Commission (together with such statement of the Commission's reasons therefor as shall be appropriate to the nature of the application), the time and place for hearing, and a list of the other parties notified thereof.

b. In order to avail himself of the opportunity to be heard, the applicant shall, within 20 days of the mailing of the notice by the secretary, file with the Commission a written appearance consisting of a statement of his desire to be heard together with a terse yet complete statement in writing of the facts which he expects to prove at such hearing, accompanied by an affidavit showing that copies thereof have been served upon or mailed to all other parties notified of the hearing. Such statements shall be considered as a pleading and not as evidence of the facts therein stated. The evidence adduced by the applicant at the hearing shall be limited to the applicant's statement of facts and a statement of reasons appearing in the Commission's notice of hearing.

c. In case of no appearance or statement in writing of the facts to be proved upon such hearing is filed by the applicant within the time so specified (or any extension thereof as the Commission may grant upon proper showing), the applicant will be defaulted and the application denied without a hearing and the secretary shall so notify the other parties to the hearing.

d. In case the appearance and statement in writing of the facts to be proved is duly and seasonably filed, the application will be entered upon the hearing docket.

e. If at the date set for hearing, either originally or as a result of continuances, the applicant does not appear and offer evidence in support of his said application, a default will be entered and the Commission will deny the application.

f. After a hearing has been held in accordance with the foregoing, the Commission may grant the application, deny it, or grant it in part, or deny it in part.

g. A partial denial of any application after hearing thereon shall be considered as a denial of the application.

49. Where an applicant has more than one application ^{Repetitions of applications.} pending for essentially the same instrument of authorization, with respect to the character of station, type of service, and the territory sought to be served, the Commission shall determine which of such applications shall be first considered by it. Where an applicant has an application pending and undecided by the Commission, no other inconsistent or conflicting application filed by or upon behalf of the same party will be accepted for consideration by the Commission. Where an applicant has been afforded an opportunity to be heard with respect to a particular application and the Commission has, after hearing or default, denied the application, the Commission will not consider or designate for hearing another application by the same applicant, or for his successor or assignee, until after the lapse of periods of time as follows:

a. Where the second application is for exactly or substantially the same instrument of authorization with respect to class of station, the privileges, terms, and conditions requested, and the territory sought to be served, a period of 12 months must elapse from and after the date of the Commission's denial of the first application.

b. Where the second application is for the same kind of instrument of authorization but differs materially from the first application as to class of station, the privileges, terms, and conditions requested, or the territory sought to be served, a period of 6 months must elapse from and after the date of the Commission's denial of the first application.

Provided, however, That the foregoing provisions shall have no application where, since the Commission's denial of the first application, there has been a material change in the facilities available for designation to the particular service sought to be established in the territory sought to be served.

50. Where an appeal has been taken from the action ^{Applications pending appeal from decisions of the commission.} of the Commission in denying a particular application, the Commission will not consider or designate for hearing another application for the same kind of instrument of authorization, with respect to the type of service and territory sought to be served, filed by the same applicant, his successor or assignee, until the final disposition of such appeal, provided, however, that where, pursuant to paragraph 48, an application is granted in part and denied in part and the applicant desires to utilize the

partial grant and to contest the partial denial, any such applicant shall be permitted during the pendency of such appeal, and without prejudice thereto, to file such application or applications as shall be necessary or requisite to the utilization, extension, or renewal, but not for a modification of the instrument in the particulars theretofore denied, and the Commission will consider and dispose of these applications.

Application in-
volving conflict-
ing claims, etc.

51. In fixing dates for hearings the secretary will, so far as possible, endeavor to fix the same date for hearings on all related matters which involve the same applicant and for hearings on all applications which by reason of the privileges, terms, or conditions requested present conflicting claims.

Depositions.

52. In proper cases the Commission may, either on its own motion or on written request by a party setting forth the names of witnesses, the facts which he expects to prove and the causes or reasons for the taking thereof, issue an order directing the time, place, and manner in which the testimony of a witness shall be taken by deposition. Such order shall be served upon all parties to the proceeding in which the deposition is to be used at least 5 days before the date for the taking thereof unless the parties in interest agree upon a shorter time, and such deposition, when not otherwise directed, shall be taken, transcribed, and executed in the usual manner before any officer having power to administer oaths. All depositions shall be filed with the Commission not later than 5 days before the date of hearing of said cause.

Witnesses and
subpœnas.

53. Subpœnas may be issued by the Commission or any member thereof or by an examiner appointed by the Commission to compel the attendance of any witness at any hearing or at the taking of any deposition, or to compel the production of any document. Service of any such subpœna may be made by any United States marshal or by his deputy or by any citizen of the United States competent to be a witness. If service is made by a United States marshal or by his deputy, his service shall be evidenced by his return thereon; if made by any other person, by his affidavit stating the manner in which service was made, which affidavit shall be attached to and returned with the original subpœna. Witnesses who attend any hearing or the taking of any deposition in answer to a subpœna are entitled to and shall receive the same fees and mileage as are paid for like services in

the courts of the United States, such sum to be paid by the party at whose instance the testimony is taken.

54. In each formal hearing held on an application for an instrument of authorization, the applicant shall have the opening and closing of the evidence and argument, if any. In each formal hearing held on an order of revocation the Commission shall have the opening and closing. In cases where the foregoing rules are inapplicable under the issues to be presented, the Commission or the person conducting the hearing may fix the order of procedure.

Opening and closing.

55. Where no prejudice results to other parties, a party will be permitted to amend his application, answer, or other pleading at any time prior to the conclusion of hearing provided, however, that no amendment of an application for an instrument of authorization as to the frequency, power, hours of operation, equipment, approximate location of station, or points of communication (in case of stations other than broadcasting) will be permitted unless such amendment is filed with the Commission not later than 20 days before the hearing date. In all cases where an amendment is made to any application contrary to the foregoing provisions, such amendment shall have the effect of setting aside the assignment for hearing and any such application so amended shall be treated in all respects as an application originally filed. In any case where an application is amended in the particulars above enumerated the secretary shall notify all parties affected thereby.

a. Amendments.

REVOCATION AND SUSPENSION PROCEEDINGS

56. Revocation proceedings under section 14 and suspension proceedings under section 5 of the Radio Act shall be governed by the following procedure:

Revocation and suspension proceedings and the conduct thereof.

a. Such proceedings shall in all cases be initiated by an order of revocation served upon or mailed by the Commission to the holder of the license in question directing him to appear upon a date certain not less than 30 days after receipt of such notice and show cause why such order of revocation should not be made effective. This order of revocation shall be accompanied by a written statement of the cause for such proposed revocation.

b. Either the respondent or any person in interest who would be aggrieved by any such revocation will be accorded an opportunity to appear and be heard in opposition to such order if, prior to the hearing date therein

fixed, such respondent or other person shall deliver to the Commission a written application therefor.

c. Upon the filing of any such application the order of revocation shall stand suspended until the conclusion of the hearing herein provided for and the decision of the Commission thereon; and the Commission will forthwith fix the date for hearing and shall immediately mail a written notice of the time and place for such hearing to respondent and to all parties known to be interested in such license. The date fixed for hearing shall not be earlier than 30 days from the mailing of the notice thereof as herein provided.

d. Not later than 20 days after date of mailing of the notices of hearing, respondent shall file with the Commission an answer executed and sworn to by a person having knowledge of the facts, in which answer the allegations of the statement of cause for revocation shall be specifically and in detail denied or explained as the case may be. Any person other than the respondent may likewise file an answer within the same time and upon the same terms and conditions. Evidence to be introduced upon such hearing will be limited to the issues formed by the Commission's statement of cause for revocation and the answers filed thereto, and in case no such answer is filed within the period herein fixed or such extension thereof as the Commission may allow, an order of default will be entered, no hearing will be held, and an absolute order of revocation will be issued forthwith.

e. After hearing has been held in accordance with the foregoing, the Commission may affirm or revoke such order of revocation.

f. Proceedings for the suspension of an operator license shall in all cases be initiated by the entry of an order of suspension, a copy of which shall be served upon or mailed to the holder of the license involved. The order shall set forth the name of the operator, class and grade of license, the period of suspension, and the effective date, as well as a statement of the cause or causes for suspension. The holder of the license shall, on the effective date of the order of suspension, deliver the license to the inspector in charge of the district in which he is located. In the event the holder of the license desires to contest the order of suspension, he shall, within 30 days from the date of entry thereof, file with the Commission at Washington, D.C., a written applica-

tion for hearing. Such application shall be accompanied by a statement, executed under oath by the holder of the license or other person having knowledge of the facts, specifically and in detail denying or explaining the charges set forth in the order of suspension as causes therefor. Upon compliance with the provisions of the preceding paragraph, the Commission will forthwith fix a date and place for the hearing and notify the holder of the license thereof. The Commission may, in its discretion, suspend or extend the effective date of the order pending the hearing and its further action thereon.

FORMAL HEARINGS AND THE CONDUCT THEREOF

57. All persons who are permitted to be heard in support of any application made by them shall be referred to as "applicants." All persons who are permitted to be heard in opposition to any application or licensees against whom revocation proceedings are instituted shall be referred to as "respondents." All persons, firms, companies, or corporations holding permits, licenses, or other instruments of authorization from the Commission, or who have applications pending before the Commission who would be aggrieved, or whose interests would be adversely affected by the granting of any application designated for hearing, shall constitute proper parties respondent and shall be notified of any such hearing.

Parties to
hearings.

58. The Commission, represented by its general counsel or such assistants as he may designate, shall be a party to every formal hearing to the extent that in its judgment such participation is necessary to carry out the intent of the laws and treaties of the United States and of these regulations.

Commission a
party.

59. Any governmental department or officer, any person, firm, company, or corporation, or any State or political subdivision thereof may, at any time, more than 10 days prior to the date of any hearing, file with the Commission a petition to intervene therein in support of or in opposition to any application designated for hearing. If the petition discloses a substantial interest in the subject matter of the hearing the Commission will grant the same and permit the petitioner to be heard at such hearing subject to regulations hereinafter imposed.

Intervention.

Taking of testi-
mony and argu-
ment.

60. In case of any formal hearing herein provided for, the testimony may be taken before a quorum of the Commission, before less than a quorum of the Commission or before an examiner appointed by the Commission in the discretion of the Commission, as follows:

a. In the event that the testimony is taken before the Commission it may be followed by oral argument by the parties or by the filing of briefs, or both, at the discretion of the Commission, and the case shall thereafter be decided by the Commission on the basis of the testimony heard and the proceedings had.

b. In the event that the testimony is taken before less than a quorum of the Commission, or before an examiner, the testimony, duly transcribed, shall be reported back to the Commission by the person, or persons, conducting such hearing, together with a written report containing recommendations as to the decision to be made thereon and the facts and grounds upon which such recommendation is based. A copy of such report shall be mailed by the secretary to each party participating in the hearing and such party, or parties, shall have the right, providing the same is exercised within a period of 15 days from the mailing of such report, to file exceptions thereto. Such exceptions shall point out with particularity the alleged error in said report and shall contain specific reference to the page, or pages, of the transcript of hearing or report referred to. Ten copies of such exceptions, accompanied by an affidavit stating that a copy thereof has been mailed to, or served upon, each party participating in the hearing, shall be filed with the Commission. Any party who is eligible under the foregoing provisions to file exceptions to the report of an examiner and who desires oral argument in support of, or in opposition to, any such exceptions, shall file with the Commission a written request for oral argument before a quorum of the Commission. In the case of any party filing exceptions the request for oral argument must accompany and be filed with the exceptions; in the case of any party who desires to oppose exceptions filed by another, the request for oral argument must be filed with the Commission not later than 5 days after the receipt of such exceptions. In all cases the request for oral argument must be accompanied by an affidavit to the effect that the request for oral argument has been filed in conformity with the requirements of this paragraph and that a copy of such request has been served

upon, or mailed to, every other party participating in the hearing. Upon receipt of any such requests and affidavits, the Commission may, in its discretion, fix a time for oral argument to be held at its office in Washington, D.C., and give adequate notice to all parties participating in the hearing, or it may consider and decide such matter without argument.

61. Continuances of date of hearing, extensions of time Continuances. for filing documents required to be filed, or for the taking of any other step in connection with any hearing, may be granted for reasons such as are usually considered sufficient for analogous continuances and extensions in the courts of the United States, providing, however, that request for such shall be made in writing setting forth the reasons therefor, and the additional time required, and provided, further, that such requests shall be made at a time and in such manner as to avoid unnecessary hardship or expense to other parties to the proceeding.

62. Whenever consent is given to the filing of any Briefs. briefs in connection with any hearing, 10 copies shall be filed with the Commission within 20 days from the date on which hearing of testimony is concluded unless upon an affirmative showing the Commission fixes a different period. Each other party shall have 10 days from the filing of such brief within which to file an answer brief to any brief filed by such party. At or prior to the date fixed for filing any brief, the party filing the same shall serve or mail at least one copy thereof to every other party to the proceeding and no briefs will be accepted or considered by the Commission unless accompanied by an affidavit to the effect that this requirement has been met.

63. All pleadings, briefs, or other documents filed in Documents to be typewritten or printed. connection with any hearing shall be printed or typewritten in such manner, with such type, and on such quality of paper as shall be easily legible. The Commission reserves the right to refuse to receive or consider any document that does not meet this requirement.

64. Except as hereinafter stated the rules of evidence Evidence. governing civil proceedings in the courts of the United States shall govern formal hearings before the Commission, any commissioner or examiner, provided, however, that the Commission reserves the right to relax such rules in any case where in its judgment the ends of justice will be better served by so doing.

a. In any hearing on an application for an instrument of authorization the following records of the Commission shall be considered as a part of the record without special request or offer by any party unless otherwise stated in the transcript:

(1) A list of all stations, together with their authorized power, frequency, and hours of operation, licensed in the band of frequencies ¹ in which authorization to operate is sought;

(2) A list of all applications pending at the date of said hearing with respect to any station seeking to operate in said band;

(3) Such of the Commission's published rules and regulations as have to do with the band of frequencies in question and with the services permitted in such band.

b. Copies of reports of any governmental department or agency made by an employee thereof in the course of his duties insofar as they are material shall be admissible in evidence without further authentication than a statement from the proper custodian of any such record or from the person compiling the same that the copy in question is a true copy of such record and that the record is what it purports to be.

c. Where relevant and material matter offered in evidence is embraced in a document containing other matter not material or relevant and not intended to be put in evidence, such document will not be received but the party offering the same shall present to opposing counsel and to the Commission the original document together with true copies of such material and relevant matter taken therefrom as it is desired to introduce. Upon presentation of such matter in proper form it may be received in evidence and become a part of the record, provided, however, that opposing counsel shall be afforded an opportunity to introduce in evidence, in like manner, other portions of such document if found to be material and relevant.

d. Except as herein otherwise expressly provided no document or exhibit or a part thereof shall be received as or admitted in evidence unless the offer in evidence is accompanied by a tender of the original and a full, true,

¹ "Band" or "band of frequencies" as used herein shall be taken as referring to the major bands, namely, low (10 to 100 kilocycles), medium (100 to 550 kilocycles), broadcast (550 to 1,500 kilocycles), medium high (1,500 to 6,000 kilocycles), high (6,000 to 30,000 kilocycles), and very high (above 30,000 kilocycles).

and correct copy or a full, true, and correct copy of such document or exhibit in duplicate.

e. Except as herein expressly stated, unsworn documents and oral declarations will not be received in evidence.

f. The introduction of merely cumulative evidence shall be avoided and the Commission reserves the right to limit the number of witnesses that may be heard in behalf of a party on any issue.

INFORMAL HEARINGS AND THE CONDUCT THEREOF

65. The Commission may upon petition by any person or upon its own motion hold such informal hearings as it may deem necessary from time to time in connection with the investigation of any matter which it has power to investigate under the law, or for the purpose of obtaining information necessary or helpful in the determination of its policies, the carrying out of its duties, or the formulation or amendment of its rules and regulations. For such purposes it may summon witnesses and require the production of testimony as in formal hearings but the procedure to be followed shall be informal and such as in the opinion of the Commission will best serve the purposes of such hearing.

Method of obtaining and procedure.

PREPARATION OF RECORD ON APPEAL

66. Where an appeal is taken from a decision of the Commission to the Court of Appeals of the District of Columbia, the record required to be filed in such court by section 16 of the Radio Act of 1927 as amended shall be prepared under the supervision of the general counsel of the Commission and shall be certified by the secretary of the Commission. The general counsel shall have power to stipulate with the appellant to such extent as may be necessary to omit unnecessary matter from the record provided that the interests of neither the Commission nor of any other party to the record is adversely affected by such omission.

Preparation and stipulation by general counsel.

67. Where the case has been in its essential nature a controversy between two or more parties and no interest of the Commission or of the public is involved, the general counsel will observe and give effect to any stipulation entered into between the parties as to what matters shall not be included in the record.

Stipulation between parties.

**THE ADOPTION OR AMENDMENT OF
REGULATIONS**

Scope, promulga-
tion, and
effective date.

68. Such action by the Commission as affects a large number of persons and does not arise out of a formal hearing, such as the enactment of further regulations or as an amendment to these regulations, shall be made by orders which shall be promptly promulgated by the secretary, bearing both the date of adoption and the effective date, and refer to the existing regulations, if any, on the same subject.

X FEDERAL RADIO COMMISSION RULES AND REGULATIONS

PART III. BROADCAST SERVICE

✓69. The band of frequencies extending from 550 to 1,500 kilocycles, both inclusive, is allocated for use by broadcast stations. This band of frequencies is referred to herein as the "broadcast band."¹

CLASSES OF BROADCAST STATIONS

✓70. For the purposes of allocation of frequencies, power, and time of operation, broadcast stations are classified as follows:

A. FREQUENCY AND POWER DESIGNATIONS

- ✓a. Clear channel.
- ✓b. High power regional.
- ✓c. Regional.
- d. Local.

Frequency and power.

B. TIME DESIGNATION

- a. Unlimited time.
- b. Limited time.
- c. Daytime.
- d. Sharing time.
- e. Part time.
- f. Specified hours.

Hours of operation.

DEFINITIONS

✓71. The term "broadcast station" means a station used for the dissemination of radiotelephone emissions intended to be received by the public.

Broadcast station.

✓72. The term "clear channel station" means a station licensed to operate on a frequency designated as a clear channel. (See par. 116.)

Clear channel station.

¹ Relay broadcast service and visual broadcast service (television) are not included in this band and are covered in part IV, Services Other Than Broadcast.

- High power regional station.** 73. The term "high power regional station" means a station licensed to operate simultaneously with one or more stations assigned to the same frequency designated for such use and with an authorized power of not less than 5 kilowatts. (See par. 119.)
- Regional station.** 74. The term "regional station" means a station licensed to operate simultaneously with one or more stations assigned to the same frequency designated for such use, and with an authorized power of not less than 250 watts nor more than 1,000 watts at night, and not more than 2,500 watts during daytime. (See par. 120.)
- Local station.** 75. The term "local station" means a station licensed to operate with other stations assigned to the same frequency designated for such use, and with an authorized power of 100 watts at night and not more than 250 watts during daytime. (See par. 121.)
- Unlimited time station.** 76. The term "unlimited time station" means a station licensed to operate without a maximum limit as to time.
- Limited time station.** 77. The term "limited time station" means a station licensed to operate, on a frequency designated as a clear channel, during daytime, and until local sunset, or until sunset at the dominant clear channel station, and in addition during night hours, if any, not used by the dominant clear channel station.
- Daytime station.** 78. The term "daytime station" means a station licensed to operate during the hours between 6 a.m. and local sunset, or until sunset at the dominant station if farther west than the daytime station.
- Sharing time station.** 79. The term "sharing time station" means a station the operating hours of which are so restricted by the station license as to require a division of time with one or more other stations using the same frequency in the same geographical area.
- Part-time station.** 80. The term "part-time station" means a station, the operating hours of which are specified in the station license as a fraction of the total hours of the broadcast day, and the use of the same frequency during the remainder of the time not assigned to any other station in the same geographical area.
- Specified hours station.** 81. The term "specified hours station" means a station the exact operating hours of which are specified in the license.
- Canadian exclusive frequency.** 82. The term "Canadian exclusive frequency" means a frequency in the broadcast band which is reserved for

exclusive use by stations located in the Dominion of Canada.

83. The term "Canadian shared frequency" means a ^{Canadian shared frequency.} frequency in the broadcast band used simultaneously by broadcast stations located in the Dominion of Canada and the United States, its Territories and possessions.

84. The term "daytime" means that period of time ^{Daytime.} between 6 a.m. and local sunset.

85. The term "nighttime" means that period of time ^{Nighttime.} between local sunset and 12 midnight.

86. The term "sunset" means, for each particular ^{Sunset.} location and during any particular month, the average time of sunset as specified in the license of a broadcast station. For a tabulation of average sunset time for each month at various points in the United States see paragraph 181.

87. The term "broadcast day" means that period of ^{Broadcast day.} time between 6 a.m. and 12 midnight, local standard time.

88. The term "experimental period" means that period ^{Experimental period.} of time between 12 midnight and 6 a.m. This period may be used for experimental purposes by the licensee of any broadcast station, on its assigned frequency and with its authorized power, provided no interference is caused to other stations maintaining a regular operating schedule within such period and provided further that no "daytime" station or "specified hours" station may broadcast any commercial or sponsored program during this period.

89. The term "main studio" means, as to any station, ^{Main studio.} the studio from which the majority of its local programs originate, and/or from which a majority of its station announcements are made of programs originating at remote points.

90. The term "portable transmitter" means a trans- ^{Portable transmitter.} mitter so constructed that it may be moved about conveniently from place to place, and is in fact so moved about from time to time, but not ordinarily used while in motion. In the broadcast band, such a transmitter is used for making field intensity measurements in locating a satisfactory site before the erection of a permanent transmitter. A portable broadcast station will not be licensed for regular transmission of programs intended to be received by the public.

Auxiliary transmitter.

✓ 91. The term "auxiliary transmitter" means a transmitter maintained only for transmitting the regular program of a station in case of failure of the main transmitter.

Authorized power.

✓ 92. The term "authorized power" or "licensed power" means the power assigned to a station by the Commission, and specified in the instrument of authorization.

Maximum rated carrier power.

✓ 93. The term "maximum rated carrier power" means the power determined by the design of a transmitter and type and number of vacuum tubes used in the last radio stage. This power is to be distinguished from the operating power; in general it is the maximum power at which the transmitter can be operated satisfactorily.

Operating power.

94. The term "operating power" means the power that is actually transmitted by the station. This power is determined by one of several methods hereinafter set out. (See par. 134.) The operating power shall be the same as the licensed power.

Plate input power.

95. The term "plate input power" means the product of the direct plate voltage applied to the tubes in the last radio stage and the total direct current flowing to these tubes, measured without modulation.

Last radio stage.


✓ 96. The term "last radio stage" means the oscillator or radio-frequency power amplifier stage that supplies power to the antenna.

Antenna input power.

✓ 97. The term "antenna input power" or "antenna power" means the product of the total antenna resistance and the square of the antenna current at the operating frequency.

Modulation.

98. The term "modulation" means the process whereby the frequency or amplitude of a radio wave is varied in accordance with a sound wave.

Modulator. 

99. The term "modulator" means the last audio frequency amplifier stage which modulates a radio stage.

Modulated stage.

100. The term "modulated stage" means the radio-frequency amplifier stage to which the modulator is coupled, and which is modulated.

Percentage modulation.

101. The term "percentage modulation" means the ratio of half the difference between the maximum and minimum amplitudes of a modulated wave to the average amplitude, expressed in percentage.

Maximum percentage of modulation.

✓ 102. The term "maximum percentage of modulation" means the greatest percentage of modulation that may be obtained by a transmitter without producing in its output more than 10 percent combined audio harmonics.

103. The term "combined audio harmonics" means the ^{Combined audio harmonics.} sum of the amplitudes of all the various harmonic components.

104. The term "high level modulation" means that the ^{High level modulation.} plate circuit of the last radio stage is modulated.

105. The term "low level modulation" means that a ^{Low level modulation.} radio stage before the last one is modulated, and the last radio stage operates only as a linear power amplifier.

106. The term "grid bias modulation in the last radio ^{Grid bias modulation.} stage" means that the grid bias of the last radio stage is varied by the audio-frequency power supplied by the modulator. If such modulation is employed in other than the last radio stage it is low-level modulation.

107. The term "antenna resistance" means the total ^{Antenna resistance.} resistance of the transmitting antenna system at the operating frequency and at the point at which the antenna current is measured.

108. The term "antenna current" means the radio- ^{Antenna current.} frequency current in the antenna with no modulation.

QUOTAS OF FACILITIES

109. For the purpose of calculating the quota assigned ^{Unit values.} to each zone and to States within each zone, in accordance with the act of Congress approved March 28, 1928, entitled "An Act Continuing for One Year the Powers and Authority of the Federal Radio Commission under the Radio Act of 1927, and for Other Purposes", stations of various classes are assigned values in quota units as follows:

Classes of stations	Units per station
A. Unlimited-time stations:	
a. Power 5 kilowatts or more, only 1 station operating on the channel during nighttime.....	5
b. Power 5 kilowatts or more, 2 stations operating simultaneously on a common frequency and separated by 2,000 miles or more.....	4
c. Power 5 kilowatts or more, 2 or more stations operating simultaneously on a common frequency and separated by less than 2,000 miles.....	2
d. Power 1 kilowatt, 2 or more stations operating simultaneously on a common frequency.....	1
e. Power 500 watts, more than 2 stations operating simultaneously on a common frequency.....	. 6
f. Power 250 watts, more than 2 stations operating simultaneously on a common frequency.....	. 4

RULES AND REGULATIONS

Classes of stations	Units per station
A. Unlimited-time stations—Continued.	
g. Power 100 watts or less, 2 or more stations per zone operating simultaneously on a common frequency-----	0. 2
B. Daytime stations:	
a. Power 5 kilowatts, operating during daylight hours only, and simultaneously with stations of class A (a) above-----	1. 5
b. Power 2.5 kilowatts, operating during daylight hours only-----	. 75
c. Power 1 kilowatt, operating during daylight hours only-----	. 50
d. Power 500, 250, or 100 watts, operating during daylight hours only—one half of the values given above for unlimited-time stations of like power.	
C. Unlimited-time stations having excess day power:	
Each station has a value of one half the units for an unlimited-time station of the same power as the station has at night, plus the value in units for a day station of the same power as the station has in daytime.	
a. Power 1,000 watts, night, and 2,500 watts, day---	1. 25
b. Power 500 watts, night, and 1,000 watts, day-----	. 8
c. Power 250 watts, night, and 500 watts, day-----	. 5
d. Power 100 watts, night, and 250 watts, day-----	. 3
D. Limited-time stations:	
For a station having power assigned more than 5 kilowatts the value is based on 5 units and will be 2.5 for day operation, plus 2.5 times the number of hours used between 6 p.m. and 12 p.m. (local standard time), divided by 6.	
a. Station over 5 kilowatts operating—	
1 night hour-----	2. 9
2 night hours-----	3. 3
3 night hours-----	3. 75
For a station having power assigned of 5 kilowatts the value is 1.5 units for day operation plus 1.5 times the number of hours used between 6 p.m. and 12 p.m. (local standard time), divided by 6.	
b. Station of 5 kilowatts operating—	
1 night hour-----	1. 75
2 night hours-----	2. 0
3 night hours-----	2. 25
For a station having power assigned of 1,000, 500, or 250 watts, the value is the same as for a day station of the same power, plus the value in units of such day station times the number of hours used between 6 p.m. and 12 p.m. (local standard time), divided by 6.	
c. Station of 1,000 watts operating—	
1 night hour-----	. 58
2 night hours-----	. 66
3 night hours-----	. 75

Classes of stations	Units per station
D. Limited-time stations—Continued.	
d. Station of 500 watts operating—	
1 night hour.....	0. 35
2 night hours.....	. 40
3 night hours.....	. 45
e. Station of 250 watts operating—	
1 night hour.....	. 23
2 night hours.....	. 27
3 night hours.....	. 30

E. For sharing-time stations on the same frequency the quota units charged are divided between them in proportion to the time assigned in the station licenses. If no ratio is specified in the licenses, the quota units charged will be in accordance with the ratio set out in the time-sharing agreement.

F. Each new assignment of broadcast facilities, whether temporary or permanent, will be charged to quota according to the foregoing and to the total hours of operation per broadcast day authorized by the license and regulations of the Commission. A station at present assigned as a "part-time station" is charged in accordance with the proportionate part of the broadcast day assigned by the Commission.

110. In determining the quota charge for a given assignment, or in computing for such purpose a ratio in accordance with a time division, the average time of local sunset shall be taken to be 6 p.m., local standard time, and one hour of nighttime operation shall be considered equivalent to two hours of daytime operation. This rule does not apply to the minimum operating schedule required by paragraph 151.

111. Each of the five zones created by section 2 of the Radio Act of 1927 is entitled to have broadcast stations, the total value of the units of which shall be equal and the units shall be fairly and equitably distributed among and allocated to the States in each such zone in the ratio that the population of each of said States bears to the population of the zone. The total number of quota units of broadcast facilities to which each zone, and to

RULES AND REGULATIONS

which each State within the zone is entitled, based on the Fifteenth Census of the United States, 1930, is as follows:

FIRST ZONE

State, etc.	Population	Percent	Quota
New York.....	12,588,066	43.83	35.07
Massachusetts.....	4,249,614	14.80	11.84
New Jersey.....	4,041,334	14.07	11.26
Maryland.....	1,631,526	5.68	4.55
Connecticut.....	1,606,003	5.60	4.48
Puerto Rico.....	1,543,913	5.35	4.30
Maine.....	797,423	2.78	2.22
Rhode Island.....	887,497	2.99	1.91
District of Columbia.....	486,869	1.69	1.35
New Hampshire.....	465,293	1.62	1.29
Vermont.....	359,611	1.25	1.00
Delaware.....	238,350	.83	.67
Virgin Islands.....	22,012	.08	.06
Subtotal.....	28,718,441	100.00	80.00

SECOND ZONE

Pennsylvania.....	9,631,350	34.54	27.63
Ohio.....	6,646,697	23.84	10.07
Michigan.....	4,842,325	17.36	13.89
Kentucky.....	2,614,589	9.38	7.50
Virginia.....	2,421,851	8.68	6.95
West Virginia.....	1,729,205	6.20	4.90
Subtotal.....	27,886,017	100.00	80.00

THIRD ZONE

Texas.....	5,824,715	20.27	16.22
North Carolina.....	3,170,276	11.03	8.82
Georgia.....	2,908,566	10.12	8.10
Alabama.....	2,646,248	9.21	7.37
Tennessee.....	2,616,556	9.11	7.29
Oklahoma.....	2,396,040	8.34	6.67
Louisiana.....	2,101,593	7.31	5.85
Mississippi.....	2,009,821	7.00	5.60
Arkansas.....	1,854,482	6.45	5.16
South Carolina.....	1,738,765	6.05	4.83
Florida.....	1,468,211	5.11	4.09
Subtotal.....	28,735,213	100.00	80.00

FOURTH ZONE

Illinois.....	7,630,654	28.15	22.52
Missouri.....	3,629,367	13.39	10.71
Indiana.....	3,238,503	11.95	9.56
Wisconsin.....	2,939,006	10.84	8.67
Minnesota.....	2,563,953	9.46	7.57
Iowa.....	2,470,939	9.12	7.30
Kansas.....	1,880,999	6.91	5.55
Nebraska.....	1,377,963	5.08	4.06
South Dakota.....	692,849	2.50	2.05
North Dakota.....	680,845	2.51	2.01
Subtotal.....	27,105,078	100.00	80.00

FIFTH ZONE

California.....	5,677,251	46.07	36.89
Washington.....	1,563,396	12.69	10.15
Colorado.....	1,035,791	8.40	6.72
Oregon.....	953,786	7.74	6.19
Montana.....	537,666	4.36	3.49
Utah.....	507,847	4.12	3.30
Idaho.....	445,032	3.61	2.89
Arizona.....	435,573	3.53	2.83
New Mexico.....	423,317	3.44	2.75
Hawaii.....	368,330	2.99	2.39
Wyoming.....	225,565	1.83	1.46
Nevada.....	91,058	.74	.69
Alaska.....	59,278	.48	.38
Subtotal.....	12,323,836	100.00	80.00

112. The facilities assigned to each broadcast station Studio location. shall be charged to the zone and to the State, district, Territory, or possession wherein the main studio of such station is located, regardless of the location of the transmitter. ✓

113. The licensee of a station shall not move its main Moving studio. studio outside the borders of the city, State, district, Territory, or possession in which it is located without first making written application to the Commission for authority to so move, and securing written permission for such removal. A licensee need not obtain permission to move the main studio from one location to another within a city or town, but shall promptly notify the Commission of any such change in location. ✓

114. For details as to applications for new facilities or Applications for new facilities. change of facilities involving change in quota units charged, see paragraph 6.

ALLOCATION OF FACILITIES

115. Within the broadcast band a separation of 10 kilo- 10 kilocycle separation. cycles will be maintained between the carrier frequencies assigned for use by broadcast stations. The carrier frequencies assigned will be multiples of 10 between 550 and 1,500 kilocycles, both included. The national standard Frequency standard. of radio frequency maintained by the Bureau of Standards, Department of Commerce, shall be the basis for all frequency measurements and assignments will be made on the basis of this standard. ✓

116. The following frequencies are designated as clear Clear channels. channels and are allocated for use by clear-channel stations located in the several zones as indicated:

First zone: 660, 710, 760, 860, 990, 1,060, 1,100¹, and 1,150 kilocycles.

Second zone: 700, 750, 820, 980, 1,020, 1,070, 1,110, and 1,170 kilocycles.

Third zone: 650, 740, 800, 850, 1,040, 1,080, 1,140, and 1,190 kilocycles.

Fourth zone: 670, 720, 770, 810, 870, 1,000, 1,090, and 1,160 kilocycles.

Fifth zone: 640, 680, 790, 830, 970, 1,050¹, 1,130, and 1,180 kilocycles.

117. The authorized power of a dominant clear chan- Power of clear channel stations. nel station shall be not less than 5 kilowatts nor more than 50 kilowatts.

118.

¹ See footnote on page 38.

High power regional channels and power.

119. The following frequencies are designated as high power regional frequencies and allocated for use by high power regional stations, each frequency for use in not less than two zones and by stations permitted to operate simultaneously with a power not less than 5 kilowatts:

1,460, 1,470, 1,480, and 1,490 kilocycles.

Regional channels and power.

120. The following frequencies are designated as regional frequencies and are allocated for use by regional stations, which are permitted to operate simultaneously unless otherwise restricted:¹

550, 560, 570, 580, 590, 600, 610, 620, 630, 780, 880, 890, 900, 920, 930, 940, 950, 1,010, 1,120, 1,220, 1,230, 1,240, 1,250, 1,260, 1,270, 1,280, 1,290, 1,300, 1,320, 1,330, 1,340, 1,350, 1,360, 1,380, 1,390, 1,400, 1,410, 1,430, 1,440, and 1,450 kilocycles.

The operating power of such a station shall not be less than 250 watts, nor during nighttime greater than 1,000 watts, nor during daytime greater than 2,500 watts.

Local channels and power.

121. The following frequencies are designated as local frequencies and allocated for use by local stations, which are to operate simultaneously, unless otherwise restricted, with a power of 100 watts during nighttime and not to exceed 250 watts during daytime:

1,200, 1,210, 1,310, 1,370, 1,420, and 1,500 kilocycles.

Canadian exclusive channels.

122. The following frequencies are designated as Canadian exclusive frequencies reserved for use by broadcast stations located in the Dominion of Canada and will not be assigned to any station licensed by the Commission:

690, 730, 840, 910, 960, and 1,030 kilocycles.

123.

124. The following shows the classification of each carrier frequency in the broadcast band:

¹ See Executive Agreement Series No. 34, "Radio broadcasting, arrangement between the United States of America and the Dominion of Canada." Copies of this agreement may be obtained from the Superintendent of Documents.

Classification of frequencies in broadcast band

Frequency (kilocycles)	Classification	Frequency (kilocycles)	Classification
550.....	Regional.	1,030.....	Canadian exclusive.
560.....	Do.	1,040.....	Clear.
570.....	Do.	1,050.....	Clear—Canadian shared.
580.....	Do.	1,060.....	Clear.
590.....	Do.	1,070.....	Do.
600.....	Regional—Canadian shared.	1,080.....	Do.
610.....	Regional.	1,090.....	Do.
620.....	Do.	1,100.....	Clear—Canadian shared.
630.....	Regional—Canadian shared.	1,110.....	Clear.
640.....	Clear.	1,120.....	Regional—Canadian shared.
650.....	Do.	1,130.....	Clear.
660.....	Do.	1,140.....	Do.
670.....	Do.	1,150.....	Do.
680.....	Do.	1,160.....	Do.
690.....	Canadian exclusive.	1,170.....	Do.
700.....	Clear.	1,180.....	Do.
710.....	Do.	1,190.....	Do.
720.....	Do.	1,200.....	Local.
730.....	Canadian exclusive.	1,210.....	Do.
740.....	Clear.	1,220.....	Regional.
750.....	Do.	1,230.....	Do.
760.....	Do.	1,240.....	Do.
770.....	Do.	1,250.....	Do.
780.....	Regional—Canadian shared.	1,260.....	Do.
790.....	Clear.	1,270.....	Do.
800.....	Do.	1,280.....	Do.
810.....	Do.	1,290.....	Do.
820.....	Do.	1,300.....	Do.
830.....	Do.	1,310.....	Local.
840.....	Canadian exclusive.	1,320.....	Regional.
850.....	Clear.	1,330.....	Do.
860.....	Do.	1,340.....	Do.
870.....	Do.	1,350.....	Do.
880.....	Regional—Canadian shared.	1,360.....	Do.
890.....	Regional.	1,370.....	Local.
900.....	Do.	1,380.....	Regional.
910.....	Canadian exclusive.	1,390.....	Do.
920.....	Regional.	1,400.....	Do.
930.....	Regional—Canadian shared.	1,410.....	Do.
940.....	Regional.	1,420.....	Local.
950.....	Do.	1,430.....	Regional.
960.....	Canadian exclusive.	1,440.....	Do.
970.....	Clear.	1,450.....	Do.
980.....	Do.	1,460.....	Regional—high power.
990.....	Do.	1,470.....	Do.
1,000.....	Do.	1,480.....	Do.
1,010.....	Regional	1,490.....	Do.
1,020.....	Clear.	1,500.....	Local.

✓ **EQUIPMENT**

125. The maximum rated carrier power of broadcast transmitters authorized to be installed in the several classes of stations shall be as given in the following table: Maximum rated carrier power.

Limit of maximum rated carrier power

Class of station	Authorized power	Maximum rated carrier power permitted to be installed
Local.....	100 watts..... 100 watts night and 250 watts day.....	100 watts. 250 watts.
Regional and high-power regional.	250 to 1,000 watts..... 2,500 to 5,000 watts.....	1,000 watts 5,000 watts
High-power regional and clear channel.	The maximum rated carrier power of transmitters installed in stations with an authorized power greater than 5,000 watts shall be not more than twice the authorized power.	

✓ 126. The maximum rated carrier power of a broadcast transmitter shall be the same as the sum of the power ratings of all the vacuum tubes in the last radio stage. The power rating of a vacuum tube is determined by its design and class of operation or system of modulation as set out in paragraph 127, tables A, B, and C. These tables shall apply to transmitters employing the different systems of modulation or classes of operation in the last radio stage as follows:

(1) Table A applies to transmitters employing high-level modulation or plate modulation of the last radio stage.

(2) Table B applies to transmitters employing low-level modulation or the last radio stage operating as a linear power amplifier.

(3) Table C applies to transmitters employing grid bias modulation in the last radio stage.

127. The approved power ratings of vacuum tubes for operation in the last radio stage of broadcast transmitters are fixed as set out in the following tables:

TABLE A¹.—*Power rating for high-level modulation or plate modulation in the last radio stage*

Power rating (watts)	De Forest	Federal Telegraph	Hy-grade Sylvania	RCA Radiotron	Western Electric
50			830		211-D 211-E 248-A 276-A
75	552 560 603-A 511	F-352-A F-311-A F-303-A	852 860 203-A 211	UV-852 UV-860 UV-211 UV-203-A RCA-850	261-A 242-A 260-A 284-A 295-A
100		F-102-A F-108-A			
250	604-A 561 571	F-204-A F-331-A	204-A 861	UV-204-A UV-861	212-D
350	571 549	F-349-A F-100-A	831 849	RCA-831 UV-849	270-A
500					251-A
750	551	F-351-A	851	UV-851	279-A
1,000		F-346-A	846	RCA-846	
2,500	520-B 520-M	F-3652-A F-328-A	820-B	RCA-1652	228-A
5,000	507 548 563	F-307-A F-348-A F-363-A	207 848 863	UV-207 UV-848 UV-863	220-B
10,000		F-320-A F-332-A F-358-A F-101-B		UV-858	232-A
40,000				UV-862	

¹ These tables apply only to tube ratings for use in the last radio stage of broadcast transmitters and may not be applicable to any other service.

TABLE B¹.—Power rating for low-level modulation on last radio stage operating as linear power amplifier

Power rating (watts)	De Forest	Federal Telegraph	Hy-grade Sylvania	RCA Radiotron	Western Electric
75.....	504-A	F-304-A F-312-A	204-A	UV-204-A	212-D
125.....	549	F-100-A F-349-A	849	UV-849	270-A
250.....	551	F-351-A	851	UV-851	251-A
500.....		F-346-A	846	RCA-846	279-A
1,000.....	520-B	F-3652-A	820-B	RCA-1652	228-A
	520-M	F-328-A			
2,500.....	507	F-307-A	207	UV-207	220-B
	563	F-363-A	863	UV-863	
		F-320-A			
5,000.....		F-353-A		UV-858	
8,500.....		F-101-B			232-A
25,000.....		F-332-A		UV-862	

TABLE C¹.—Power rating for grid bias modulation in the last radio stage

Power rating (watts)	De Forest	Federal Telegraph	Hy-grade Sylvania	RCA Radiotron	Western Electric
50.....					270-A

¹ These tables apply only to tube ratings for use in the last radio stage of broadcast transmitters and may not be applicable to any other service.

If in an application to the Commission a vacuum tube of a type number and power rating not given in the foregoing tables is specified for operation in the last radio stage, it may be accepted provided there is also submitted to and approved by the Commission the manufacturer's rating of the vacuum tube for the system of modulation or class of service contemplated. These data must be supplied by the manufacturer.

128. If the maximum rated carrier power of any broadcast transmitter, as determined by paragraphs 126 and 127, does not give an exact rating as recognized in the Commission's plan of allocation, the nearest rating thereto shall apply to such transmitter.

129. No licensee shall change the number of vacuum tubes, change to vacuum tubes of different power rating or class of operation in the last radio stage, or change system of modulation without the authority of the Commission.

130. Other changes which do not affect the maximum power rating or operating power of the transmitter or the operation or precision of the frequency-control equipment may be made at any time without authority of the Com-

mission, but in the next succeeding application for renewal of license such changes must be shown in full.

- 131.
- 132.
- 133.

TECHNICAL OPERATION

Determination of operating power.

✓ 134. The operating power of a broadcast station will be determined either by direct measurement or indirect measurement by means of the plate input power to the last radio stage.

Normal method indirect measurement.

a. Unless specifically authorized by the Commission to do otherwise, the licensee of a broadcast station shall compute its operating power by indirect method by means of the plate input power to the last radio stage.

Changes.

b. Any licensee who has at any time been authorized by the Commission to compute operating power by any other method (e.g., by antenna input direct measurement, or radiated power measurement computed from field intensity measurements) shall, upon making any change in the antenna system or in the antenna current measuring instruments, or any other change which may change the characteristics of the antenna, revert to the use of the indirect measurement of antenna input until further order of the Commission.

Indirect measurement.

135. The operating power shall be determined by indirect measurement from the plate input power of the last radio stage by multiplying the plate voltage (E_p) by the total plate current of the last radio stage (I_p) and by the proper factor (F) given in the following tables according to the power and system of modulation used; that is

$$\text{Operating power} = E_p \times I_p \times F_{\text{plate input}}$$

A. FACTOR TO BE USED FOR STATIONS USING HIGH-LEVEL MODULATION

Maximum rated carrier power of transmitter	Factor (F) to be used in determining the operating power from the plate input power
Watts 100	0.50
250-1,000	.60
2,500-50,000	.65

B. FACTOR TO BE USED FOR STATIONS OF ALL POWERS USING LOW LEVEL MODULATION

Maximum percentage of modulation	Factor (F) to be used in determining the operating power from the plate input power
75 to 85	0.40
86 to 100	.33

C. FACTOR TO BE USED FOR STATIONS OF ALL POWERS USING GRID BIAS MODULATION IN THE LAST RADIO STAGE

Maximum percentage of modulation	Factor (F) to be used in determining the operating power from the plate input power
75 to 85	0.27
86 to 100	.22

136. In computing operating power by indirect measurement, the above factors shall apply in all cases, and no distinction will be recognized due to the operating power being less than the maximum rated carrier power. Application of factor F.

137. The antenna input power determined by direct measurement is the square of the antenna current times the antenna resistance at the point where the current is measured and at the operating frequency. Direct measurement of the antenna input power will be accepted as the operating power of the station, provided the data on the antenna resistance measurements are submitted under oath giving detailed description of the method used and the data taken. The antenna current shall be measured by an ammeter of accepted accuracy. These data must be submitted to and approved by the commission before any licensee will be authorized to operate by this method of power determination. The antenna ammeter shall not be changed to one of different type, maximum reading or accuracy without the authority of the commission. If any change is made in the antenna system or any change made which may affect the antenna system, the method of determining operating power shall be changed immediately to the indirect method. Direct measurement of antenna power.
Commission approval.

138. The operating power of a broadcast station determined by the radiated power computed from field intensity measurements may be accepted in lieu of antenna input power, provided a sufficient number of measurements are taken to insure accuracy and an analysis of the antenna system is submitted indicating the relative distribution of the radiation (i.e., ground and sky wave Radiated power.

radiation). The data on the antenna resistance, complete description of the antenna system with dimensions and method of taking field intensity measurements and of relating these measurements to the operating power shall be submitted to and approved by the commission before any licensee will be authorized to operate by this method of power determination. If any change is made in the antenna system or any change made which may affect the antenna system, the method of determining operating power shall be changed immediately to the indirect method.

Minimum modulation of 75 percent required.

139. A licensee of a broadcast station will not be authorized to operate a transmitter unless it is capable of delivering satisfactorily the authorized power with a modulation of a least 75 percent. When the transmitter is operated with 75 percent modulation, not over 10 percent combined audio frequency harmonics shall be generated by the transmitter.

Maximum power.

140. A licensee of a broadcast station will not be authorized to operate a transmitter with an operating power greater than the maximum rated carrier power of the transmitter.

Data required on percentage modulation.

141. A licensee of a broadcast station claiming a greater percentage of modulation than the fundamental design indicates can be procured, shall submit full data showing the antenna input power by direct measurement and complete information, either oscillograms or other acceptable data, to show that a modulation of 75 percent or more, with not over 10 percent combined audio harmonics, can be obtained with the transmitter operated at the maximum authorized power.

Operating power same as licensed power.

142. The licensee of a broadcast station shall maintain the operating power of the station in exact accord with its licensed power at all times except that in an emergency when, due to causes beyond the control of the licensee, it becomes impossible to operate with the full licensed power, the station may be operated at reduced power for a period of not to exceed 10 days, provided that the Commission and the inspector in charge shall be notified in writing immediately after the emergency develops.

Indicating instruments.

143. Each broadcast station shall be equipped with suitable indicating instruments of accepted accuracy to measure the antenna current, direct plate circuit voltage, and the direct plate circuit current of the last radio stage. These indicating instruments shall not be changed or

replaced, without authority of the Commission, except by instruments of the same type, maximum scale reading, and accuracy.

144. Each broadcast station shall be so operated that the frequency is maintained between the limits of 50 cycles per second above to 50 cycles per second below the assigned frequency. Frequency maintenance 50 cycles.

145. The licensee of a broadcast station shall make provision for the checking of the frequency of the emitted wave by means independent of the frequency control of the transmitter and capable of the accuracy specified in paragraph 144. Frequency checking device.

146. The Commission will authorize the installation of new transmitting equipment in a broadcast station or changes in the frequency control of an existing transmitter only if such equipment is so designed that there is reasonable assurance that the transmitter is capable of maintaining automatically the assigned frequency within the limits of 50 cycles per second above to 50 cycles per second below the assigned frequency. Changes and new equipment.

147. New automatic frequency control equipment and changes in existing automatic frequency control equipment that may affect the precision of frequency control or the operation of the transmitter shall be installed only upon authorization from the Commission. Changes in frequency control.

148. Upon showing that a need exists for the use of an auxiliary transmitter³ in addition to the regular transmitter of a broadcast station, a license may be issued therefor provided that: Auxiliary transmitter.

a. An auxiliary transmitter shall be installed only at the same location as the main transmitter, except that upon satisfactory showing of technical necessity therefor the Commission may authorize another location. Location.

b. A licensed operator shall be in control whenever an auxiliary transmitter is placed in operation. Licensed operator.

c. The auxiliary transmitter shall be maintained so that it may be put into immediate operation at any time upon failure of the main transmitter, or upon request by a duly authorized Government representative. Maintenance.

d. The auxiliary transmitter shall be tested at least once each week to determine that it is in proper operating condition, and that it is adjusted to the proper frequency. A record shall be kept of the time and result Test. Record of test.

³ All regulations applying to broadcast transmitting equipment shall apply also to an auxiliary transmitter.

of test. Tests shall be conducted only between 1 a.m. and 12 noon.

Frequency maintenance.

e. The auxiliary transmitter shall be equipped with satisfactory control equipment which will enable the maintenance of the frequency emitted by the station within the limits prescribed by these regulations.

Location different from main transmitter.

f. An auxiliary transmitter which is licensed at a geographical location different from that of the main transmitter shall be equipped with a frequency control which will automatically hold the frequency within the limits prescribed by these regulations without any manual adjustment during operation or when it is being put into operation.

Duplicate transmitters.

149. If a licensee of a broadcast station has duplicate transmitting equipment and arranges for alternate operation, one such duplicate shall be considered as an auxiliary transmitter subject to the above conditions: *Provided, however,* That duplicate equipment for alternate operation may be licensed when the Commission is satisfied that desirable experimental work is being carried on, in which case the licensee shall be subject to the regulations governing experimental stations. (See part IV.)

Reporting use of auxiliary transmitter.

150. Within two days after each use of the auxiliary transmitter, except for testing, the Commission and the inspector in charge shall be notified in writing of the date, time, and power at which the auxiliary transmitter is operated, and the reasons for each use.

✓ OPERATION

Minimum operation.

151. Except Sundays, the licensee of each broadcast station shall maintain a minimum regular operating schedule of two thirds of the hours that it is authorized to operate during each broadcast day, except that in an emergency when, due to causes beyond the control of the licensee, it becomes impossible to continue operating, the station may cease operation for a period of not to exceed 10 days, provided that the Commission and the inspector in charge shall be notified in writing immediately after the emergency develops.

Penalty.

152. If the minimum operating schedule herein required is not adhered to, the licensee may, after hearing, be required to share time with other stations, or be limited to operation during daytime or during specified hours.

Hours of unlimited time station.

153. A licensee of an unlimited time station may operate the station on any schedule of hours during the broad-

cast day and the experimental period, provided the minimum regular schedule is maintained during the broadcast day.

154. If the license of a sharing time station specifies Specified hours. the hours of operation, the schedule so specified shall be adhered to until otherwise ordered by the Commission.

155. If the licenses of sharing time stations do not Sharing time agreement. specify hours of operation, the licensees shall endeavor to reach an agreement for a definite schedule of periods of time to be used by each. Such agreement shall be in writing and each licensee shall file the same in triplicate original with each application to the Commission for renewal of license. If and when such written agreements are properly filed in conformity with this order the file mark of the Commission will be affixed thereto, 1 copy will be retained by the Commission, 1 copy forwarded to the inspector in charge, and 1 copy returned to the licensee to be posted with the station license and considered as a part thereof. If the license specifies a proportionate time division, the agreement shall maintain this proportion. If no proportionate time division is specified in the license, the licensees shall agree upon a division of time. Such division of time shall not include simultaneous operation of the stations unless specifically authorized by the terms of the license.

156. Departure from the regular operating schedule set Departures from operating schedules. forth in a time-sharing agreement will be permitted only in cases where an agreement to that effect is reduced to writing, is signed by the licensees of the stations affected thereby and filed in triplicate by each licensee with the Commission prior to the time of the proposed change. If time is of the essence, the actual departure in operating schedule may precede the actual filing of written agreement, provided appropriate notice is sent to the Commission and the inspector in charge.

157. If the licensees of sharing time stations are unable Failure to reach agreement. to agree on a division of time, the Commission shall be so notified by statement to that effect filed with application for renewal of license. Upon receipt of such statement the Commission will designate the application for a hearing and, pending such hearing, the operating schedule previously adhered to shall remain in full force and effect.

158. If the licensee of a broadcast station is required Sunset. to cease operation of the station at the time of sunset at

some point within the United States, the license will specify the hour of the day during each month of the license period when operation of such station shall cease. (See par. 181.)

Limited time schedules.

159. The licensee of a limited time station that is authorized to resume operation at the time the unlimited time station on the same frequency ceases operation, shall, with each application for renewal of license, file in triplicate a copy of his regular operating schedule, signed and approved by the licensee of the unlimited time station. Upon receipt of such operating schedule, properly executed, the Commission will affix its file mark, retain 1 copy, forward 1 copy to the inspector in charge, and return 1 copy to the licensee of the limited time station, who shall post it with the station license, and it shall be considered as a part thereof. Departure from said operating schedule will be permitted only in accordance with the procedure set forth in paragraph 156.

Failure to reach agreement.

160. If the licensees of the limited time and unlimited time stations are unable to agree upon a definite time for resumption of operation by the limited time station, the Commission shall be so notified by the licensee of the limited time station. After receipt of such statement the Commission will designate for hearing the applications of both stations for renewal of license, and pending the hearing the schedule previously adhered to shall remain in full force and effect.

Specified hours.

161. Any broadcast station, other than a day or limited time station, that is licensed for operation part time on a channel on which the entire available broadcast time (i.e., the broadcast day) has not been designated for use in the same geographical area, may operate only during the hours specified in the license.

Operating schedule.

162. In all cases where a station licensee is required to prepare and file an operating schedule, any deviation or departure from such schedule, except as herein authorized, shall be considered as a violation of a material term of the license.

Specific hours.

163. In all cases where specific hours of operation are fixed in the license any deviation or departure therefrom, except as authorized by the Commission, shall be considered as a violation of the material terms of the license.

Equipment tests.

164. Upon completion of construction of a broadcast station in exact accord with the terms of the construction permit, and prior to the filing of application for license,

the permittee is authorized to test the equipment between the hours of 1 a.m. and 6 a.m., local standard time, for a period not to exceed 10 days: *Provided*, That the Commission and the inspector in charge are notified two days in advance of the beginning of such equipment tests: *And provided further*, That the Commission may cancel or change the period and/or date of the beginning of such authority as may appear to be in the public interest, convenience, and necessity.

165. When construction is completed in exact accord ^{Program tests.} with the terms of the construction permit, and after an application for station license has been filed with the Commission, showing the transmitter to be in satisfactory operating condition, the permittee is authorized to conduct program tests in exact accord with the equipment, power, frequency, and hours of operation specified in the construction permit, for a period not to exceed 30 days: *Provided*, That the Commission and the inspector in charge of the proper district are notified two days in advance of the beginning of such program tests: *And provided further*, That the Commission may cancel or change the period and/or date of the beginning of such authority as may appear to be in the public interest, convenience, and necessity.

166. If local time is changed from standard time to ^{Daylight-saving time.} daylight-saving time at the location of all stations sharing time on the same frequency, the hours of operation of all such stations on that frequency shall be understood to refer to daylight-saving time, and not standard time, as long as daylight-saving time is observed. This provision shall govern when the time is changed by provision of law or general observance of daylight-saving time by the various communities, and when the time of operation of such stations is specified in the license or is mutually agreed upon by the licensees: *Provided, however*, That when the license specifies average time of sunset, local standard time shall be used.

167. Where the local time is not changed from standard time to daylight-saving time at the location of all stations sharing time on the same frequency, the hours of operation on this frequency shall be understood to have reference to standard time, and not daylight-saving time, unless said licensees mutually agree upon a new schedule which shall be effective only while daylight-saving time is observed at the location of some of these stations.

Standard time. 168. The time of operation of any broadcast station which does not share time with other stations on the same frequency shall be understood to have reference to local standard time unless modification of such license with respect to hours of operation is made by the Commission.

Posting of licenses. 169. The station license shall be posted in a conspicuous place in the room in which the transmitter is located, and the license of the station operator shall be posted in a conspicuous place in a room occupied by the operator while on duty.

Licensed operators. 170. The licensee of each station shall keep a licensed operator or operators of the grade specified by the secretary of the Commission on duty during all periods of actual operation of the transmitter at the place where the transmitting equipment is located.

171. A licensed operator on duty and in charge of the transmitter may, at the discretion of the licensee, be employed for additional operator's duties commensurate with the grade of operator's license which he holds.

LOG RECORDS

172. The licensee of each broadcast station shall maintain program and operating logs and shall require entries to be made as follows:

Program log.

A. THE PROGRAM LOG

a. An entry of the time each station and call announcement is made, with an indication of the type of announcement.

b. An entry briefly describing each program broadcast, such as "music", "drama", "speech", etc., with the time of the beginning and ending. If a mechanical reproduction is used, that fact shall be noted, together with an indication whether announcement thereof was made. If a speech is made by a political candidate, the name and political affiliations of such speaker shall be entered.

Operating log.

B. THE OPERATING LOG

a. An entry of the time the station begins to supply power to the antenna, and the time it stops.

b. An entry of the time the program begins and ends.

c. An entry of each interruption to the carrier wave, its cause and duration.

d. An entry of the following each 30 minutes:

(1) Operating constants of last radio stage (total plate current and plate voltage).

(2) Antenna current.

(3) Frequency check.

(4) Temperature of crystal control chamber.

173. Each log shall be kept by the person or persons ^{Who shall keep log.} competent to do so, having actual knowledge of the facts required, and who shall sign the log when starting duty and again when going off duty. The logs shall be made available upon request by authorized Government representatives.

174. The exact form of logs is not prescribed, but they ^{Log form.} shall be kept in an orderly manner, and in such detail that the information required is readily available. Key letters or abbreviations may be used if the explanation of each is given plainly in the log.

175. Each licensee of a broadcast station shall announce ^{Announcements.} the call letters and location as frequently as practicable during the hours of operation, and in any event before or after each program being broadcast. In no event shall more than 30 minutes elapse between such announcements, and insofar as practicable these announcements shall be made on the hour and half hour. These requirements are waived when such announcements would interrupt a single consecutive speech; and in such cases the announcement of the call letters and location shall be made as soon as possible.

176. A mechanical reproduction shall be announced as ^{Mechanical reproductions.} such except when its use is merely incidental, as for identification or background. The exact form of announcement is not prescribed but the language shall be clear and in terms commonly used and understood. The following are examples of statements sufficient for the purpose:

a. "This is a phonograph record."

b. "This is a player-piano record."

In all cases where electrical transcriptions made exclusively for broadcast purposes are so constructed as to record a single continuous program upon more than one mechanical reproduction, rather than a recordation of the entire program upon a single mechanical reproduction, the announcement required hereby shall be made at the commencement of each such program and in no event less than every 15 minutes. All other announcements

required hereby shall immediately precede the use of each separate mechanical reproduction.

Rebroadcast of programs.

177. The licensee of any broadcast station, may without authority of the Commission, rebroadcast a program of another broadcast station upon authority of the licensee of the station that originates the program: *Provided*, That no broadcast station shall rebroadcast a program of an experimental relay broadcast station or of any station operating in any other service without express authority of the Commission. The Commission will not consider any application for such authorization unless it is accompanied by the written consent of the originating station. (See par. 321.)

Political broadcasts.

178. Attention is directed to section 18 of the Radio Act of 1927, which reads as follows:

If any licensee shall permit any person who is a legally qualified candidate for any public office to use a broadcasting station, he shall afford equal opportunities to all other such candidates for that office in the use of such broadcasting station, and the licensing authority shall make rules and regulations to carry this provision into effect: *Provided*, That such licensee shall have no power of censorship over the material broadcast under the provisions of this paragraph. No obligation is hereby imposed upon any licensee to allow the use of its station by any such candidate.

Any violation of this section of the act shall be sufficient grounds for the revocation or denial of a broadcast license. (See par. 172.)

Distress messages.

179. Each station licensee shall give absolute priority to radio communications or signals relating to ships or aircraft in distress, and shall cease transmitting upon such frequencies and at such times, when such transmissions may, in any way, interfere with the reception of radio distress signals or traffic relating thereto.

180. No station licensee shall resume operations until the need for distress traffic no longer exists, or it is determined that the station will not interfere with distress traffic as it is then being routed and the operation of the station shall again be discontinued if the routing of distress traffic is so changed that the station will interfere. The status of distress traffic may be ascertained by communication with Government and commercial stations. The Commission may hereafter require the licensees of certain stations to keep an effective continuous watch on the distress frequency, 500 kilocycles (410 kilocycles in the Great Lakes area).

181. The average time of sunset for each month at various points, as fixed for the purpose of these regulations, is as follows:

Average sunset time

[(E) Eastern standard time, (C) Central, (M) Mountain, (P) Pacific]

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Ablene, Tex. (C).....	6.00	6.30	6.45	7.15	7.30	7.45	7.45	7.30	6.45	6.15	5.45	5.30
Akron, Ohio (C).....	4.15	5.00	5.30	6.00	6.30	7.00	7.00	6.30	5.30	4.45	4.15	4.00
Albany, N. Y. (E).....	4.45	5.30	6.00	6.30	7.15	7.30	7.30	7.00	6.00	5.15	4.30	4.15
Albuquerque, N. Mex. (M)...	5.15	5.45	6.15	6.45	7.00	7.15	7.15	7.00	6.15	5.30	5.00	5.00
Americus, Ga. (E).....	6.00	6.30	6.45	7.00	7.30	7.45	7.45	7.15	6.45	6.00	5.30	5.30
Ames, Iowa (C).....	5.00	5.45	6.15	7.00	7.30	7.45	7.45	7.15	6.30	5.30	5.00	4.45
Annapolis, Md. (E).....	5.00	5.45	6.15	6.45	7.15	7.30	7.30	7.00	6.15	5.30	5.00	4.45
Atlanta, Ga. (C).....	4.45	5.15	5.45	6.15	6.30	6.45	6.45	6.30	5.45	5.00	4.30	4.30
Atlantic City, N. J. (E).....	5.00	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.15	5.15	4.45	4.30
Augusta, Maine (E).....	4.30	5.00	5.45	6.15	7.00	7.30	7.15	6.45	5.45	5.00	4.15	4.00
Austin, Tex. (C).....	5.45	6.15	6.45	7.00	7.15	7.30	7.30	7.15	6.45	6.00	5.30	5.30
Baltimore, Md. (E).....	5.00	5.45	6.15	6.45	7.15	7.30	7.30	7.00	6.15	5.30	5.00	4.45
Baton Rouge, La. (C).....	5.30	5.45	6.15	6.30	6.45	7.15	7.15	6.45	6.15	5.30	5.15	5.00
Beaumont, Tex. (C).....	5.45	6.00	6.30	6.45	7.00	7.15	7.15	7.00	6.30	5.45	5.15	5.15
Berrien Springs, Mich. (C)...	4.30	5.15	5.45	6.30	7.00	7.15	7.15	6.45	6.00	5.00	4.30	4.15
Beverly Hills, Calif. (P)...	5.00	5.30	6.00	6.30	6.45	7.00	7.00	6.45	6.00	5.15	4.45	4.45
Billings, Mont. (M).....	5.00	5.45	6.15	7.00	7.30	8.00	8.00	7.30	6.30	5.30	4.45	4.30
Birmingham, Ala. (C).....	5.00	5.30	6.00	6.15	6.45	7.00	7.00	6.30	6.00	5.15	4.45	4.45
Bismarck, N. Dak. (C).....	5.15	6.00	6.45	7.30	8.15	8.45	8.30	8.00	7.00	6.00	5.15	5.00
Blytheville, Ark. (C).....	5.15	5.45	6.00	6.30	7.00	7.15	7.15	6.45	6.15	5.30	5.00	4.45
Boise, Idaho (M).....	5.30	6.15	6.45	7.30	8.00	8.30	8.30	7.45	7.00	6.00	5.15	5.15
Boston, Mass. (E).....	4.30	5.15	5.45	6.30	7.00	7.15	7.15	6.45	6.00	5.30	4.30	4.15
Bridgeport, Conn. (E).....	4.45	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.00	5.15	4.30	4.30
Bronx, N. Y. (E).....	4.45	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.00	5.15	4.45	4.30
Brookings, S. Dak. (C).....	5.15	6.00	6.30	7.15	7.45	8.15	8.15	7.30	6.45	5.45	5.00	4.45
Brooklyn, N. Y. (E).....	4.45	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.00	5.15	4.45	4.30
Buffalo, N. Y. (E).....	5.00	5.45	6.15	7.00	7.30	8.00	8.00	7.15	6.30	5.30	5.00	4.45
Burlington, Vt. (E).....	4.45	5.15	6.00	6.30	7.15	7.45	7.30	7.00	6.00	5.15	4.30	4.15
Butte, Mont. (M).....	5.15	6.00	6.30	7.15	8.00	8.15	8.15	7.45	6.45	5.45	5.00	4.45
Calumet, Mich. (C).....	4.30	5.15	6.00	6.45	7.30	7.45	7.45	7.00	6.15	5.15	4.15	4.00
Cambridge, Mass. (E).....	4.30	5.15	5.45	6.30	7.00	7.30	7.15	6.45	6.00	5.00	4.30	4.15
Camden, N. J. (E).....	5.00	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.15	5.15	4.45	4.30
Canton, N. Y. (E).....	4.45	5.30	6.00	6.45	7.15	7.45	7.45	7.00	6.15	5.15	4.30	4.15
Canton, Ohio (E).....	5.15	6.00	6.30	7.00	7.30	8.00	8.00	7.30	6.30	5.45	5.15	5.00
Carbondale, Pa. (E).....	5.00	5.30	6.15	6.45	7.15	7.45	7.30	7.00	6.15	5.15	4.45	4.30
Carson City, Nev. (P).....	5.00	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.15	5.15	4.45	4.30
Carthage, Ill. (C).....	5.00	5.45	6.15	6.45	7.15	7.30	7.30	7.00	6.15	5.30	4.45	4.45
Cedar Rapids, Iowa (C).....	5.00	5.45	6.15	6.45	7.15	7.45	7.45	7.15	6.15	5.30	4.45	4.30
Charleston, W. Va. (E).....	5.30	6.00	6.30	7.00	7.30	7.45	7.45	7.15	6.30	5.45	5.15	5.15
Charlotte, N. C. (E).....	5.30	6.00	6.30	7.00	7.15	7.45	7.45	7.15	6.30	5.45	5.15	5.15
Charlottesville, Va. (E).....	5.15	5.45	6.15	6.45	7.15	7.45	7.30	7.15	6.30	5.45	5.00	6.00
Chattanooga, Tenn. (C).....	4.45	5.30	5.45	6.15	6.30	7.00	7.00	6.30	5.45	5.15	4.30	4.30
Cheyenne, Wyo. (M).....	5.00	5.30	6.00	6.45	7.15	7.20	7.30	7.00	6.15	5.15	4.45	4.30
Chicago, Ill. (C).....	4.45	5.15	6.00	6.30	7.00	7.30	7.30	6.45	6.00	5.15	4.30	4.15
Chickasha, Okla. (E).....	5.45	6.15	6.45	7.00	7.30	7.45	7.45	7.15	6.45	6.00	5.30	6.15
Cincinnati, Ohio (C).....	5.45	6.15	6.45	7.15	7.45	8.00	8.00	7.30	6.45	6.00	5.30	5.15
Clarinda, Iowa (C).....	5.15	6.00	6.30	7.00	7.30	8.00	7.45	7.15	6.30	6.45	5.00	5.00
Clay Center, Nebr. (C).....	5.30	6.00	6.45	7.15	7.45	8.00	8.00	7.30	6.45	6.00	5.15	5.00
Clayton, Mo. (C).....	5.00	5.45	6.00	6.30	7.00	7.30	7.30	7.00	6.15	5.30	4.45	4.45
Clearwater, Fla. (E).....	6.00	6.15	6.45	7.00	7.15	7.30	7.30	7.15	6.30	6.00	5.45	5.30
Cleveland, Ohio (E).....	5.15	6.00	6.30	7.00	7.45	8.00	8.00	7.30	6.45	5.45	5.15	5.00
Coffeyville, Kans. (C).....	5.20	6.00	6.30	7.00	7.30	7.45	7.45	7.15	6.30	5.45	5.15	5.00
Columbia, Mo. (C).....	5.15	5.45	6.15	6.45	7.15	7.30	7.30	7.00	6.15	5.30	5.00	4.45
Columbia, S. C. (E).....	5.30	6.00	6.30	7.00	7.15	7.30	7.30	7.15	6.30	5.45	5.15	5.15
Columbus, Ohio (E).....	5.30	6.00	6.45	7.15	7.45	8.00	8.00	7.30	6.45	6.00	5.15	5.15
Concord, N. H. (E).....	4.30	5.15	5.45	6.30	7.00	7.30	7.30	7.00	6.00	5.00	4.30	4.15
Connersville, Ind. (C).....	4.45	5.15	5.45	6.15	6.45	7.15	7.00	6.30	5.45	5.00	4.30	4.15
Corpus Christi, Tex. (C).....	6.00	6.15	6.45	7.00	7.15	7.30	7.30	7.15	6.30	6.00	5.45	5.30
Council Bluffs, Iowa (C).....	5.15	6.00	6.30	7.00	7.30	8.00	8.00	7.30	6.30	5.45	5.00	5.00
Culver City, Calif. (P).....	5.00	5.30	6.00	6.30	6.45	7.00	7.00	6.45	6.00	5.15	4.45	4.45
Cumberland, Md. (E).....	5.15	5.45	6.15	6.45	7.15	7.45	7.45	7.15	6.30	5.30	5.00	4.45
Dallas, Tex. (C).....	5.45	6.15	6.30	7.00	7.15	7.30	7.30	7.15	6.30	6.00	5.30	5.15
Davenport, Iowa (C).....	5.00	5.30	6.15	6.45	7.15	7.45	7.30	7.00	6.15	5.15	4.45	4.30
Dayton, Ohio (E).....	5.30	6.15	6.45	7.15	7.45	8.00	8.00	7.30	6.45	6.00	5.15	5.15
Decorah, Iowa (C).....	5.00	5.30	6.15	6.45	7.30	7.45	7.45	7.15	6.15	5.30	4.45	4.30
Denver, Colo. (M).....	5.00	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.15	5.15	4.45	4.30
Des Moines, Iowa (C).....	5.00	5.45	6.15	7.00	7.30	7.45	7.45	7.15	6.30	5.30	5.00	4.45
Detroit, Mich. (E).....	5.30	6.00	6.45	7.15	7.45	8.15	8.15	7.30	6.45	5.45	5.15	5.00
Dover, Del. (E).....	5.00	5.45	6.15	6.45	7.00	7.30	7.30	7.00	6.15	5.30	4.45	4.45
Duluth, Minn. (C).....	4.45	5.30	6.15	7.00	7.30	8.00	8.00	7.15	6.15	5.30	4.30	4.15
East Lansing, Mich. (C).....	4.30	5.15	5.45	6.15	7.00	7.15	7.15	6.45	5.45	5.00	4.15	4.30
Elizabeth, N. J. (E).....	5.00	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.15	5.15	4.45	4.30
Elkhart, Ind. (C).....	4.30	5.15	5.45	6.30	7.00	7.15	7.15	6.45	6.00	5.00	4.30	4.15
Elkins Park, Pa. (E).....	5.00	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.15	5.15	4.45	4.30
El Paso, Tex. (C).....	6.30	6.45	7.15	7.30	8.00	8.15	8.15	7.45	7.15	6.30	0.00	6.00

Average sunset time—Continued

[(E) Eastern standard time, (C) Central, (M) Mountain, (P) Pacific]

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Elmira, N.Y. (E)	5.00	5.45	6.15	6.45	7.15	7.45	7.45	7.15	6.15	5.30	4.45	4.30
Emory, Va. (E)	5.30	6.00	6.30	7.00	7.30	7.45	7.45	7.15	6.30	5.45	5.15	5.15
Enid, Okla. (C)	5.45	6.15	6.45	7.00	7.30	7.45	7.45	7.30	6.45	6.00	5.30	5.15
Erie, Pa. (E)	5.15	5.45	6.30	7.00	7.30	8.00	8.00	7.15	6.30	5.45	5.00	4.45
Eureka, Calif. (P)	5.15	5.45	6.15	7.00	7.30	7.45	7.45	7.15	6.30	5.45	5.00	4.45
Evansville, Ind. (C)	5.00	5.30	6.00	6.30	7.00	7.15	7.15	6.45	6.00	5.15	4.45	4.30
Fairmont, W.Va. (E)	5.15	6.00	6.30	7.00	7.30	7.45	7.45	7.15	6.30	5.45	6.00	5.00
Fall River, Mass. (E)	4.45	5.15	5.45	6.30	7.00	7.15	7.15	6.45	6.00	5.00	4.30	4.15
Fayetteville, Ark. (C)	5.30	6.00	6.30	6.45	7.15	7.30	7.30	7.15	6.30	5.45	5.15	5.00
Fergus Falls, Minn. (C)	5.00	5.45	6.30	7.15	7.45	8.15	8.15	7.30	6.45	5.45	4.45	4.45
Flint, Mich. (C)	4.30	5.00	5.45	6.15	6.45	7.15	7.15	6.45	5.45	6.00	4.15	4.00
Florence, Ala. (C)	5.00	5.30	6.00	6.30	6.45	7.00	7.00	6.45	6.00	5.15	4.45	4.45
Fort Dodge, Iowa (C)	5.00	5.45	6.15	7.00	7.30	8.00	8.00	7.15	6.30	5.30	5.00	4.45
Fort Smith, Ark. (C)	5.30	6.00	6.30	6.45	7.15	7.30	7.30	7.15	6.30	5.45	5.15	5.00
Fort Wayne, Ind. (C)	4.30	5.15	5.45	6.15	6.45	7.15	7.15	6.45	5.45	6.00	4.30	4.15
Fort Worth, Tex. (C)	5.45	6.15	6.30	7.00	7.15	7.45	7.45	7.15	6.30	6.00	5.30	5.30
Frankfort, Ky. (C)	4.45	5.15	5.45	6.15	6.45	7.00	7.00	6.30	5.45	6.00	4.30	4.15
Gainesville, Fla. (E)	5.45	6.15	6.30	7.00	7.15	7.30	7.30	7.15	6.30	6.00	5.30	5.30
Galveston, Tex. (C)	5.45	6.15	6.30	6.45	7.00	7.15	7.15	7.00	6.30	5.45	5.30	5.15
Gary, Ind. (C)	4.45	5.15	6.00	6.30	7.00	7.30	7.15	6.45	6.00	5.15	4.30	4.15
Glendale, Calif. (P)	5.00	5.30	6.00	6.30	6.45	7.00	7.00	6.45	6.00	5.15	4.45	4.45
Grand Rapids, Mich. (C)	4.30	5.15	5.45	6.30	7.00	7.30	7.15	6.45	6.00	6.00	4.15	4.15
Great Falls, Mont. (M)	5.00	5.45	6.30	7.15	8.00	8.30	8.15	7.45	6.45	5.45	4.45	4.30
Greeley, Colo. (M)	5.00	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.15	5.15	4.45	4.30
Green Bay, Wis. (C)	4.30	5.15	6.00	6.30	7.15	7.45	7.30	7.00	6.00	5.15	4.30	4.15
Greensboro, N.C. (E)	5.30	6.00	6.30	6.45	7.15	7.30	7.30	7.15	6.30	5.45	5.15	5.00
Greenville, Miss. (C)	5.15	5.45	6.15	6.30	7.00	7.15	7.15	6.45	6.15	5.30	5.00	5.00
Greenville, N.C. (E)	5.15	5.45	6.15	6.45	7.00	7.30	7.30	7.00	6.15	5.30	5.00	5.00
Greenville, S.C. (E)	5.45	6.15	6.30	7.00	7.30	7.45	7.45	7.15	6.45	6.00	6.30	5.15
Gulfport, Miss. (C)	5.15	5.45	6.00	6.15	6.45	7.00	7.00	6.45	6.00	5.30	5.00	5.00
Hagerstown, Md. (E)	5.15	5.45	6.15	6.45	7.15	7.45	7.45	7.15	6.15	5.30	5.00	4.45
Harrisburg, Pa. (E)	5.00	5.45	6.15	6.45	7.15	7.45	7.30	7.00	6.15	5.30	4.45	4.45
Hartford, Conn. (E)	4.45	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.00	5.15	4.30	4.15
Havre, Mont. (M)	4.45	5.45	6.30	7.15	7.45	8.30	8.15	7.30	6.30	5.30	4.45	4.30
Helena, Mont. (M)	5.00	5.45	6.30	7.15	8.00	8.30	8.15	7.45	6.45	5.45	5.00	4.45
Hollywood, Calif. (P)	5.00	5.30	6.00	6.30	6.45	7.00	7.00	6.45	6.00	5.15	4.45	4.45
Honolulu, Hawaii (local)	5.45	6.00	6.15	6.15	6.30	6.30	6.45	6.00	6.30	6.00	5.15	5.15
Hot Springs, Ark. (C)	5.30	6.00	6.15	6.45	7.00	7.30	7.30	7.00	6.15	5.45	5.15	5.00
Houston, Tex. (C)	5.45	6.15	6.30	6.45	7.15	7.30	7.30	7.00	6.30	5.45	5.30	6.00
Hudson Falls, N.Y. (E)	4.45	5.30	6.00	6.30	7.15	7.30	7.30	7.00	6.00	5.15	4.30	4.15
Huntington, W.Va. (E)	5.30	6.00	6.30	7.00	7.30	8.00	8.00	7.30	6.45	6.00	6.15	6.15
Huron, S.Dak. (C)	5.15	6.00	6.45	7.15	7.45	8.15	8.15	7.45	6.45	5.45	5.00	5.00
Idaho Falls, Idaho (M)	5.15	6.00	6.30	7.15	7.45	8.15	8.15	7.30	6.45	5.45	5.00	4.45
Independence, Mo. (C)	5.15	6.00	6.30	7.00	7.30	7.45	7.45	7.15	6.30	5.45	5.00	5.00
Indianapolis, Ind. (C)	4.45	5.15	5.45	6.15	6.45	7.15	7.15	6.45	6.00	5.00	4.30	4.15
Inglewood, Calif. (P)	5.00	5.30	6.00	6.30	6.45	7.00	7.00	6.45	6.00	5.15	4.45	4.45
Ironwood, Mich. (C)	4.45	5.30	6.00	6.45	7.30	8.00	7.45	7.15	6.15	5.15	4.30	4.15
Ithaca, N.Y. (E)	5.00	5.30	6.15	6.45	7.15	7.45	7.45	7.15	6.15	5.30	4.45	4.30
Jackson, Mich. (C)	4.30	5.15	5.45	6.15	6.45	7.15	7.15	6.45	5.45	6.00	4.15	4.00
Jackson, Miss. (C)	5.30	6.00	6.15	6.30	7.00	7.15	7.15	6.45	6.15	5.30	5.15	5.00
Jackson, Tenn. (C)	5.00	5.30	6.00	6.30	6.45	7.15	7.15	6.45	6.00	5.15	4.45	4.45
Jacksonville, Fla. (E)	5.45	6.15	6.30	7.00	7.15	7.30	7.30	7.15	6.30	6.00	5.30	5.30
Jefferson City, Mo. (C)	5.15	5.45	6.15	6.45	7.15	7.30	7.30	7.00	6.15	5.30	6.00	4.45
Jerome, Ariz. (M)	5.45	6.15	6.30	7.00	7.30	7.45	7.45	7.15	6.30	6.00	5.30	5.15
Jersey City, N.J. (E)	4.45	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.00	5.15	4.45	4.30
Joplin, Mo. (C)	5.30	6.00	6.30	6.45	7.15	7.45	7.45	7.15	6.30	5.45	5.15	5.00
Kalamazoo, Mich. (C)	4.30	5.15	5.45	6.15	7.00	7.15	7.15	6.45	6.00	5.00	4.15	4.15
Kansas City, Mo. (C)	5.15	6.00	6.30	7.00	7.30	7.45	7.45	7.15	6.30	5.45	5.00	5.00
Knosville, Tenn. (C)	4.45	5.15	5.45	6.15	6.30	7.00	7.00	6.30	5.45	6.00	4.30	4.30
Kosciusko, Miss. (C)	6.15	5.45	6.00	6.30	6.45	7.15	7.15	6.45	6.00	5.30	5.00	5.00
LaCrosse, Wis. (C)	4.45	5.30	6.15	6.45	7.30	7.45	7.45	7.15	6.15	5.30	4.45	4.30
La Salle, Ill. (C)	4.45	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.15	5.15	4.45	4.30
Lansing, Mich. (C)	4.30	5.15	5.45	6.15	7.00	7.15	7.15	6.45	5.45	5.00	4.15	4.00
Lexington, Mass. (E)	4.30	5.15	5.45	6.30	7.00	7.30	7.15	6.45	6.00	4.30	4.15	4.15
Lincoln, Neb. (C)	5.30	6.00	6.30	7.00	7.30	8.00	8.00	7.30	6.45	5.45	5.15	5.00
Little Rock, Ark. (C)	5.15	5.45	6.15	6.45	7.00	7.30	7.30	7.00	6.15	5.30	5.00	5.00
Los Angeles, Calif. (P)	5.00	5.30	6.00	6.20	6.45	7.00	7.00	6.45	6.00	5.15	4.45	4.45
Louisville, Ky. (C)	4.45	5.15	5.45	6.15	6.45	7.15	7.00	6.45	6.00	5.00	4.30	4.30
Lowell, Ariz. (M)	5.45	6.00	6.30	6.45	7.15	7.30	7.30	7.00	6.30	5.45	5.15	5.15
Lowell, Mass. (E)	4.30	5.15	5.45	6.30	7.00	7.30	7.15	6.45	6.00	5.00	4.30	4.15
Lubbock, Tex. (C)	6.00	6.30	6.45	7.15	7.45	8.00	8.00	7.30	7.00	6.15	5.45	5.45
Lynn, Mass. (E)	4.30	5.15	5.45	6.30	7.00	7.30	7.15	6.45	6.00	5.00	4.30	4.15
Macon, Ga. (E)	5.45	6.15	6.45	7.00	7.30	7.45	7.45	7.15	6.45	6.00	5.30	5.30
Madison, Wis. (C)	4.45	5.30	6.00	6.45	7.15	7.45	7.30	7.00	6.15	5.15	4.30	4.30
Manhatton, Kans. (C)	5.30	6.00	6.30	7.00	7.30	8.00	7.45	7.30	6.30	5.45	5.15	5.00
Manhattan, N.Y. (E)	4.45	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.00	5.15	4.45	4.30
Marshalltown, Iowa (C)	5.00	5.45	6.15	6.45	7.30	7.45	7.45	7.15	6.30	5.30	4.45	4.45
Memphis, Tenn. (C)	5.15	5.45	6.00	6.30	7.00	7.15	7.15	6.45	6.15	5.30	5.00	4.45
Meridian, Miss. (C)	5.15	5.45	6.00	6.30	6.45	7.00	7.00	6.45	6.00	6.30	6.00	4.45
Minmi, Fla. (E)	5.45	6.15	6.30	6.45	7.00	7.15	7.15	7.00	6.30	6.00	6.30	5.30
Milford, Kans. (C)	5.30	6.00	6.30	7.00	7.30	8.00	8.00	7.30	6.45	5.45	5.15	5.00

Average sunset time—Continued

(E) Eastern standard time, (C) Central, (M) Mountain, (P) Pacific)

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Milwaukee, Wis. (C)	4.45	5.15	6.00	6.30	7.15	7.30	7.30	7.00	6.00	5.15	4.30	4.15
Minneapolis, Minn. (C)	5.00	5.45	6.15	7.00	7.30	8.00	8.00	7.15	6.30	5.30	4.45	4.30
Mississippi City, Miss. (C)	5.15	5.45	6.00	6.15	6.45	7.00	7.00	6.45	6.00	5.30	5.00	5.00
Mobile, Ala. (C)	5.15	5.45	6.00	6.15	6.45	7.00	7.00	6.30	6.00	5.30	5.00	5.00
Monroe, La. (C)	5.30	6.00	6.15	6.30	7.00	7.15	7.15	7.00	6.15	5.30	5.00	5.00
Montgomery, Ala. (C)	5.00	5.30	6.00	6.15	6.30	7.00	7.00	6.30	6.00	5.15	4.45	4.45
Montpelier, Vt. (E)	4.30	5.15	6.00	6.30	7.15	7.30	7.30	7.00	6.00	5.15	4.30	4.15
Mooseheart, Ill. (C)	4.45	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.00	5.15	4.30	4.30
Muscatine, Iowa (C)	5.00	5.30	6.15	6.45	7.15	7.45	7.30	7.00	6.15	5.30	4.45	4.30
Nashville, Tenn. (C)	5.00	5.30	6.00	6.15	6.45	7.00	7.00	6.45	6.00	5.15	4.45	4.30
Needham, Mass. (E)	4.30	5.15	5.45	6.30	7.00	7.30	7.15	0.45	0.00	5.00	4.30	4.15
Newark, N.J. (E)	5.00	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.15	5.15	4.45	4.30
New Bedford, Mass. (E)	4.30	5.15	5.45	6.30	7.00	7.15	7.15	6.45	6.00	5.00	4.30	4.15
New Haven, Conn. (E)	4.45	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.00	5.15	4.30	4.30
New Orleans, La. (C)	5.15	5.45	6.15	6.30	6.45	7.00	7.00	6.45	6.00	5.30	5.00	5.00
New York, N.Y. (E)	4.45	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.00	5.15	4.45	4.30
Norfolk, Nebr. (C)	5.15	6.00	6.30	7.15	7.45	8.00	8.00	7.30	6.45	5.45	5.15	5.00
Norfolk, Va. (E)	6.15	5.45	6.15	6.45	7.00	7.30	7.30	7.00	6.15	5.30	5.00	4.45
Norman, Okla. (C)	5.45	6.15	6.30	7.00	7.30	7.45	7.45	7.15	6.45	0.00	5.30	5.15
North Platte, Nebr. (C)	5.45	6.15	6.45	7.15	8.00	8.15	8.15	7.45	7.00	6.00	5.30	5.15
Oakland, Calif. (P)	5.15	5.45	6.15	6.45	7.15	7.30	7.30	7.00	6.15	5.30	5.00	4.45
Oil City, Pa. (E)	5.15	5.45	6.30	7.00	7.30	8.00	7.45	7.15	0.30	5.45	5.00	4.45
Oklahoma City, Okla. (C)	5.45	6.15	6.30	7.00	7.30	7.45	7.45	7.15	6.45	6.00	5.30	5.15
Olympia, Wash. (P)	4.45	5.30	6.15	7.00	7.45	8.15	8.00	7.30	6.30	5.30	4.45	4.15
Omaha, Nebr. (C)	5.15	6.00	6.30	7.00	7.30	8.00	8.00	7.30	6.30	5.45	5.00	5.00
Orlando, Fla. (E)	5.45	6.15	6.30	6.45	7.15	7.30	7.30	7.00	6.30	6.00	5.30	5.30
Paragould, Ark. (C)	6.15	5.45	6.15	6.30	7.00	7.15	7.15	7.00	6.15	5.30	5.00	4.45
Paterson, N.J. (E)	4.45	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.15	5.15	4.45	4.30
Peoria Heights, Ill. (C)	5.00	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.15	5.15	4.45	4.30
Petersburg, Va. (E)	5.15	5.45	6.15	6.45	7.15	7.30	7.30	7.00	6.15	5.30	5.00	5.00
Philadelphia, Pa. (E)	5.00	5.30	6.00	6.15	7.15	7.30	7.30	7.00	6.15	5.30	4.45	4.30
Phoenix, Ariz. (M)	5.45	6.15	6.30	7.00	7.15	7.45	7.45	7.15	6.30	6.00	5.30	5.15
Pierre, S.Dak. (C)	5.30	6.15	6.45	7.30	8.00	8.30	8.30	7.45	7.00	6.00	5.15	5.00
Pittsburgh, Pa. (E)	5.15	6.00	6.30	7.00	7.30	7.45	7.45	7.15	6.30	5.45	5.00	6.00
Pocatello, Idaho (M)	5.15	6.00	6.30	7.15	7.45	8.15	8.00	7.30	6.45	5.45	5.15	5.00
Portland, Maine (E)	4.30	5.15	5.45	6.30	7.00	7.30	7.15	6.45	6.00	5.00	4.15	4.00
Portland, Oreg. (P)	4.45	5.30	6.15	7.00	7.30	8.00	8.00	7.15	6.30	5.30	4.45	4.30
Portsmouth, N.H. (E)	4.30	5.15	5.45	6.30	7.00	7.30	7.15	6.45	6.00	5.00	4.15	4.15
Providence, R.I. (E)	4.45	5.15	5.45	6.30	7.00	7.30	7.15	6.45	6.00	5.00	4.30	4.15
Pueblo, Colo. (M)	5.00	5.30	6.00	6.30	7.00	7.30	7.15	7.00	6.15	5.15	4.45	4.45
Fullman, Wash. (P)	4.30	5.15	6.00	6.30	7.15	7.45	7.45	7.00	6.00	5.00	4.15	4.00
Queens, N.Y. (E)	4.45	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.00	5.15	4.45	4.30
Quincy, Ill. (C)	5.00	5.45	6.15	6.45	7.15	7.30	7.30	7.00	6.15	5.30	4.45	4.45
Raleigh, N.C. (E)	5.30	6.00	6.15	6.45	7.15	7.30	7.30	7.00	6.30	5.45	5.15	5.00
Rending, Pa. (E)	5.00	5.45	6.15	6.45	7.15	7.30	7.30	7.00	6.15	5.30	4.45	4.45
Richmond, N.Y. (E)	4.45	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.00	5.15	4.45	4.30
Richmond, Va. (E)	5.15	5.45	6.15	6.45	7.15	7.30	7.30	7.00	6.15	5.30	5.00	5.00
Rosnoko, Va. (E)	5.30	6.00	6.30	7.00	7.15	7.45	7.45	7.15	6.30	5.45	5.15	5.00
Rochester, N.Y. (E)	5.00	5.45	6.15	6.45	7.30	7.45	7.45	7.15	6.15	5.30	4.45	4.30
Rockford, Ill. (C)	4.45	5.30	6.00	6.30	7.15	7.30	7.30	7.00	6.15	5.15	4.30	4.30
Rome, Ga. (C)	5.00	5.30	5.45	6.15	6.30	7.00	7.00	6.30	5.45	5.15	4.30	4.30
Rutland, Vt. (E)	4.45	5.15	6.00	6.30	7.15	7.30	7.30	7.00	6.00	5.15	4.30	4.15
Sacramento, Calif. (P)	5.15	5.45	6.15	6.45	7.15	7.30	7.30	7.00	6.15	5.30	5.00	4.45
Salem, Oreg. (P)	5.00	5.45	6.15	7.00	7.30	8.00	8.00	7.15	6.30	5.30	4.45	4.30
Salt Lake City, Utah (M)	5.30	6.00	6.30	7.00	7.30	8.00	8.00	7.30	6.45	5.45	5.15	5.00
San Antonio, Tex. (C)	6.00	6.30	6.45	7.00	6.45	7.00	7.00	6.30	6.00	5.15	4.45	4.45
San Diego, Calif. (P)	5.00	5.30	6.00	6.15	6.45	7.00	7.30	7.00	6.15	5.30	5.00	4.45
San Francisco, Calif. (P)	5.15	5.45	6.15	6.45	7.15	7.30	7.30	7.00	6.15	5.30	5.00	4.45
Santa Fe, N.Mex. (M)	6.15	5.45	6.15	6.30	7.00	7.15	7.15	7.00	6.15	5.30	5.00	4.45
Saranac Lake, N.Y. (E)	4.45	5.30	6.00	6.45	7.15	7.45	7.45	7.00	6.15	5.15	4.30	4.15
Schenectady, N.Y. (E)	4.45	5.30	6.00	6.30	7.15	7.30	7.30	7.00	6.15	5.15	4.30	4.15
Scranton, Pa. (E)	5.00	5.30	6.15	6.45	7.15	7.45	7.30	7.00	6.15	5.30	4.45	4.30
Seattle, Wash. (P)	4.45	5.30	6.15	7.00	7.45	8.15	8.00	7.30	6.30	5.30	4.30	4.15
Shanandoah, Iowa (C)	5.15	6.00	6.30	7.00	7.30	8.00	7.45	7.15	6.30	5.45	5.00	5.00
Shreveport, La. (C)	5.30	6.00	6.15	6.45	7.00	7.30	7.30	7.00	6.30	5.45	5.15	5.15
Siloam Springs, Ark. (C)	5.30	6.00	6.30	6.45	7.15	7.30	7.30	7.15	6.30	5.45	5.15	5.00
Sioux City, Iowa (C)	5.15	6.00	6.30	7.00	7.45	8.00	8.00	7.30	6.45	5.45	5.00	5.00
Sioux Falls, S.Dak. (C)	5.15	6.00	6.30	7.15	7.45	8.15	8.00	7.30	6.45	5.45	5.00	4.45
Somerville, Mass. (E)	4.30	5.15	5.45	6.30	7.00	7.30	7.15	6.45	6.00	5.00	4.30	4.15
South Bend, Ind. (C)	4.45	5.15	5.45	6.30	7.00	7.15	7.15	6.45	6.00	5.00	4.30	4.15
South Madison, Wis. (C)	4.45	5.30	6.00	6.45	7.15	7.45	7.30	7.00	6.15	5.15	4.30	4.30
Spartanburg, S.C. (E)	5.45	6.15	6.30	7.00	7.30	7.45	7.45	7.15	6.30	0.00	5.30	5.15
Spokane, Wash. (P)	4.30	5.15	6.00	6.45	7.15	7.45	7.45	7.00	6.00	5.00	4.15	4.00
Springfield, Ill. (C)	5.00	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.15	5.15	4.45	4.30
Springfield, Mass. (E)	4.45	5.15	6.00	6.30	7.00	7.30	7.30	6.45	0.00	5.15	4.30	4.15
Springfield, Mo. (C)	5.15	5.45	6.15	6.45	7.15	7.30	7.30	7.00	6.30	5.45	5.00	5.00
Springfield, Vt. (E)	4.45	5.15	6.00	6.30	7.00	7.30	7.30	7.00	6.00	5.15	4.30	4.15
St. Albans, Vt. (E)	4.30	5.15	6.00	6.30	7.15	7.45	7.30	7.00	6.00	5.15	4.30	4.15
St. Joseph, Mo. (C)	5.15	6.00	6.30	7.00	7.30	7.45	7.45	7.15	6.30	5.45	5.00	5.00
St. Louis, Mo. (C)	5.00	5.45	6.00	6.30	7.00	7.30	7.30	7.00	6.15	5.30	4.45	4.45
State College, N.Mex. (M)	5.30	5.45	6.15	6.30	7.00	7.15	7.15	7.00	6.15	5.30	5.00	5.00

RULES AND REGULATIONS

Average sunset time—Continued

[(E) Eastern standard time, (C) Central, (M) Mountain, (P) Pacific]

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
State College, Pa. (E).....	5.00	5.45	6.15	6.45	7.15	7.45	7.45	7.15	6.15	5.30	5.00	4.45
Stevens Point, Wis. (C).....	4.45	5.30	6.00	6.45	7.15	7.45	7.45	7.00	6.15	5.15	4.20	4.15
Stockton, Calif. (P).....	5.15	5.45	6.15	6.45	7.00	7.30	7.30	7.00	6.15	5.30	5.00	4.45
Superior, Wis. (C).....	4.45	5.30	6.15	6.45	7.30	8.00	8.00	7.15	6.15	5.30	4.30	4.15
Syracuse, N.Y. (E).....	5.00	5.30	6.15	6.45	7.15	7.45	7.45	7.15	6.15	5.30	4.45	4.30
Tacoma, Wash. (P).....	4.45	5.30	6.15	7.00	7.45	8.15	8.00	7.30	6.30	5.30	4.30	4.15
Tallahassee, Fla. (E).....	6.00	6.30	6.45	7.00	7.30	7.45	7.45	7.15	6.45	6.00	5.45	5.45
Tampa, Fla. (E).....	6.00	6.15	6.45	7.00	7.15	7.30	7.30	7.15	6.30	6.00	5.30	5.30
Toledo, Ohio (E).....	5.30	6.00	6.45	7.15	7.45	8.15	8.15	7.30	6.45	6.00	5.15	5.00
Topeka, Kans. (C).....	6.30	6.00	6.30	7.00	7.30	7.45	7.45	7.15	6.30	5.45	5.15	5.00
Trenton, N.J. (E).....	5.00	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.15	5.15	4.45	4.30
Troy, Ala. (C).....	5.00	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.15	5.15	4.45	4.30
Tucson, Ariz. (M).....	5.45	6.15	6.30	7.00	7.15	7.30	7.30	7.15	6.30	6.00	5.30	5.15
Tulsa, Okla. (C).....	5.30	6.00	6.30	7.00	7.30	7.45	7.45	7.15	6.30	6.45	5.15	5.15
Tupelo, Miss. (C).....	5.15	5.45	6.00	6.30	6.45	7.15	7.15	6.45	6.00	6.15	4.45	4.45
Tupper Lake, N.Y. (E).....	4.45	5.30	6.00	6.45	7.15	7.45	7.45	7.00	6.15	5.15	4.45	4.30
Tuscola, Ill. (C).....	4.45	5.30	6.00	6.30	7.00	7.15	7.15	6.45	6.00	5.15	4.45	4.30
Twin Falls, Idaho (M).....	5.30	6.15	6.45	7.15	7.45	8.15	8.15	7.45	6.45	6.00	5.15	5.00
Union City, Tenn. (C).....	5.00	5.30	6.00	6.30	7.00	7.15	7.15	6.45	6.00	5.15	4.45	4.45
Urbana, Ill. (C).....	4.45	5.30	6.00	6.30	7.00	7.30	7.15	6.45	6.00	5.15	4.45	4.30
Utica, N.Y. (E).....	4.45	5.30	6.00	6.45	7.15	7.45	7.45	7.00	6.15	5.15	4.45	4.30
Vermillion, S.Dak. (C).....	5.15	6.00	6.30	7.15	7.45	8.15	8.00	7.30	6.45	5.45	5.00	5.00
Vicksburg, Miss. (C).....	5.15	5.45	6.15	6.30	7.00	7.15	7.15	6.45	6.15	5.30	5.00	5.00
Walla Walla, Wash. (P).....	4.30	5.15	6.00	6.45	7.15	7.45	7.45	7.00	6.00	5.15	4.15	4.15
Washington, D.C. (E).....	5.15	5.45	6.15	6.45	7.15	7.30	7.30	7.00	6.15	5.30	5.00	4.45
Waterbury, Vt. (E).....	4.30	5.15	6.00	6.30	7.15	7.30	7.30	7.00	6.00	5.15	4.30	4.15
Waterloo, Iowa (C).....	5.00	5.45	6.15	6.45	7.30	7.45	7.45	7.15	6.15	5.30	4.45	4.30
West Lafayette, Ind. (C).....	4.45	5.15	6.00	6.30	7.00	7.15	7.15	6.45	6.00	5.15	4.30	4.30
Wheeling, W.Va. (E).....	5.15	6.00	6.30	7.00	7.30	8.00	7.45	7.15	6.30	5.45	5.15	5.00
Wichita, Kans. (C).....	6.30	6.00	6.30	7.00	7.30	7.45	7.45	7.30	6.45	6.00	5.15	5.15
Wichita Falls, Tex. (C).....	5.45	6.15	6.45	7.00	7.30	7.45	7.45	7.15	6.45	6.00	5.30	5.30
Wilmington, Del. (E).....	5.00	5.30	6.15	6.45	7.15	7.30	7.30	7.00	6.15	5.30	4.45	4.45
Wolf Point, Mont. (M).....	4.30	5.30	6.00	6.45	7.30	8.00	8.00	7.15	6.15	5.15	4.30	4.15
Worcester, Mass. (E).....	4.45	5.15	6.00	6.30	7.00	7.30	7.30	6.45	6.00	5.00	4.30	4.15
Yankton, S.Dak. (C).....	4.45	6.00	6.30	7.15	7.45	8.15	8.00	7.30	6.45	5.45	5.15	5.00
Yonkers, N.Y. (E).....	4.45	5.30	6.00	6.30	7.00	7.30	7.30	7.00	6.00	5.15	4.45	4.30
York, Pa. (E).....	5.30	6.00	6.30	7.15	7.45	8.00	8.00	7.30	6.45	5.45	5.15	5.00
York, Nebr. (C).....	5.00	5.45	6.15	6.45	7.15	7.30	7.30	7.00	6.15	5.30	4.45	4.45
York, Pa. (E).....	5.00	5.45	6.15	6.45	7.15	7.30	7.30	7.00	6.15	5.30	4.45	4.45
Youngstown, Ohio (E).....	5.15	6.00	6.30	7.00	7.30	8.00	8.00	7.15	6.30	5.45	5.00	5.00
Zion, Ill. (C).....	4.45	5.15	6.00	6.30	7.00	7.30	7.30	7.00	6.00	5.15	4.30	4.15

FEDERAL RADIO COMMISSION RULES AND REGULATIONS

PART IV. SERVICES OTHER THAN BROADCAST

GENERAL REGULATIONS

182. Whenever in these regulations the words "services ^{Scope.} other than broadcast" are used without specific restriction or further qualification, the words shall be taken to refer to all radio services, frequencies, etc., except broadcast service in the band of frequencies between 550 and 1,500 kilocycles, inclusive.

183. In addition to the regulations herein contained licensees must observe the provisions of the following in so far as they apply: ^{International conventions.}

a. The International Radiotelegraph Convention and General Regulations annexed thereto. (State Department Treaty Series No. 767).¹

184. In these regulations and instruments of authorization issued by the Commission a wave referred to is designated by its frequency in kilocycles per second. ^{Waves designated by frequency.}

—185. The total spectrum of waves shall be construed as ^{Total spectrum of waves.;} extending in frequency from 10 to 500,000 kilocycles, inclusive. This provision, however, shall not be interpreted as precluding authority of the Commission over the use of waves having frequencies less than 10 kilocycles or more than 500,000 kilocycles if and when such waves, by reason of progress in the art, become available for radiocommunication either practically or experimentally, nor as precluding the Commission from issuing instruments of authorization with respect to the use of such waves.

186. The total spectrum of waves as hereinbefore defined is hereby divided into six major bands as follows: ^{Division of total spectrum into major bands.}

- a. Low-frequency: 10 to 100 kilocycles.
- b. Medium-frequency: 100 to 550 kilocycles.

¹ Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. Treaty Series No. 767, price 30 cents.

- c. Broadcast: 550 to 1,500 kilocycles.
- d. Medium high-frequency: 1,500 to 6,000 kilocycles.
- e. High-frequency: 6,000 to 30,000 kilocycles.
- f. Very high-frequency: Above 30,000 kilocycles.

- Definitions.** 187. The following definitions shall apply generally to all services (see International Conventions):
- Station.** 188. The term "station" means all of the radio-transmitting apparatus used at a particular location for one class of service and operated under a single instrument of authorization. In the case of every station other than broadcast, the location of the station shall be considered as that of the radiating antenna.
- Mobile stations.** 189. The term "mobile station" means a station that is capable of being moved and ordinarily does move.
- Fixed station.** 190. The term "fixed station" means a station, other than an amateur station, not capable of being moved, and communicating by radio with one or more stations similarly established.
- Land station.** 191. The term "land station" means a station not capable of being moved, carrying on a mobile service.
- Portable station.** 192. The term "portable station" means a station so constructed that it may conveniently be moved about from place to place for communication and that is in fact so moved about from time to time, but not used while in motion.
- Portable-mobile station.** a. The term "portable mobile station" means a station so constructed that it may conveniently be moved from one mobile unit to another for communication, and that is, in fact, so moved about from time to time and ordinarily used while in motion.
- Mobile service.** 193. The term "mobile service" means a radiocommunication service carried on between mobile and land stations and by mobile stations, communicating among themselves, special services being excluded.
- Fixed service.** 194. The term "fixed service" means a service carrying on radiocommunication of any kind between fixed points, excluding broadcasting services and special services.
- Special service.** 195. The term "special service" means a radiocommunication service carried on especially for the needs of a specific service of general interest and not open to public correspondence, such as a service of radiobeacons, radio-direction finding, time signals, regular meteorological bulletins, notices to navigators, press messages addressed to all, medical notices (medical consultation by radio), standard frequencies, emissions for scientific purposes, etc..

196. The term "international service" means a radio-^{International service.} communication service between offices or stations under the jurisdiction of different countries, or between stations of the mobile service except when the latter are of the same nationality and are within the limits of the country to which they belong. An internal or national radio-communication service which is likely to cause interference with other services beyond the limits of the country in which it operates, shall be considered as an international service from the standpoint of interference.

197. The term "general communication service" is ^{General communication service.} used in these regulations only with respect to the service allocation of certain frequencies, and means that such frequencies have not yet been assigned to any specific service.

198. The term "public service" means a service for ^{Public service.} the use of the public in general.

199. The term "public correspondence" means any ^{Public correspondence.} radio communication where the offices and stations, by reason of their being at the disposal of the public, must accept for transmission.

200. The term "private service" means a radio-^{Private service.} communication service which is not open to public correspondence and which may be used only by specified persons for either general or specific purposes.

201. The term "private enterprise" means any person, ^{Private enterprise.} company, or corporation which operates one or more stations for radio communication.

202. The term "limited service" means a service which ^{Limited service.} can be used only by specified persons or for special purposes.

203. The term "radio operating signals" means a ^{Radio operating signals.} letter, figure, or combination of letters and figures, or both, designed to facilitate the conduct of communications; for example, the list of abbreviations to be used in Radio Transmission, appendix 1 to the General Regulations annexed to the International Radiotelegraph Convention.

204. Allocations of bands of frequencies to services, ^{Allocation of bands of frequencies to services.} such as mobile, fixed, broadcast, amateur, etc., are set forth in article 5 of the General Regulations annexed to the International Radiotelegraph Convention and in the North American Radio Agreement. These allocations will be adhered to in all assignments to stations capable of causing international interference.

Frequency standard.

205. The national standard of radio-frequency maintained by the Bureau of Standards, Department of Commerce, shall be the basis for all frequency measurements and assignments will be made on the basis of this standard.

Frequency checking.

✓ 206. The licensee of each station, except amateur, shall provide for measurement of the station frequency and establish procedure for checking it regularly. These measurements of station frequency shall be made by means independent of the frequency control of the transmitter and shall be of such an accuracy that the limit of error is within the frequency tolerance allowed the station.

Interference, prevention of.

207. Licensees shall use radio transmitters, the emissions of which do not cause interference, outside the authorized band, that is detrimental to traffic and programs of other authorized stations.

Emissions.

208. Except for amateur stations, each license and construction permit will specify the type or types of emission that the station is authorized to use, in conformity with the definitions given in article 4 of the General Regulations annexed to the International Radiotelegraph Convention, but special types of emission not specifically defined therein will be designated in instruments of authorization with reference to the nature of service the station is authorized to render.

Damped waves.

209. Except for ship stations under the conditions hereinafter specified, no license will be issued for the operation of any station using, or proposing to use, transmitting apparatus employing damped wave emissions.

Distress messages.

210. Radio communications or signals relating to ships or aircraft in distress shall be given absolute priority. Upon notice from any station, Government or commercial, all other transmission shall cease on such frequencies and for such time as may, in any way, interfere with the reception of distress signals or related traffic.

211. No station shall resume operation until the need for distress traffic no longer exists, or it is determined that said station will not interfere with distress traffic as it is then being routed and said station shall again discontinue if the routing of distress traffic is so changed that said station will interfere. The status of distress traffic may be ascertained by communication with Government and commercial stations.

212. The Commission may require at certain stations an effective, continuous watch on the distress frequency, 500 kilocycles (410 kilocycles in the Great Lakes area).

213. One or more licensed operators, of the grade ^{Operators.} specified by these regulations, shall be on duty at the place where the transmitting apparatus of each station is located and whenever it is being operated; provided, however, that for a station licensed for service other than broadcasting, and remote control is used, the Commission may modify the foregoing requirement, upon proper application and showing being made, so that such operator or operators may be on duty at the control station in lieu of the place where the transmitting apparatus is located. Such modification shall be subject to the following conditions:

a. The transmitter shall be capable of operation and shall be operated in accordance with the terms of the station license.

b. The transmitter shall be monitored from the control station with apparatus that will permit placing the transmitter in an inoperative condition in the event there is a deviation from the terms of the license, in which case the radiation of the transmitter shall be suspended immediately until corrective measures are effectively applied to place the transmitter in proper condition for operation in accordance with the terms of the station license.

c. The transmitter shall be so located or housed that it is not accessible to other than duly authorized persons.

214. Only an operator holding a radiotelegraph class ^{Licensed operator} of operators' license may manipulate the transmitting key of a manually operated coastal telegraph or mobile telegraph station in the international service; and only a licensed amateur operator may manipulate the transmitting key at a manually operated amateur station. The licensees of other stations operated under the constant supervision of duly licensed operators may permit any person or persons, whether licensed or not, to transmit by voice or otherwise, in accordance with the types of emission specified by the respective licenses.

215. A licensed operator in charge of the transmitter, ^{Additional} on duty as specified hereinabove, may be employed at the ^{duties of} discretion of the licensee for additional operator's ^{operator.} duties commensurate with the grade of operator's license which he holds.

Permittee to apply for license. 216. Upon completion of construction in exact accord with the terms of a construction permit, the permittee shall file application for license or modification of license in accordance with rule 2.

Equipment test. 217. During the period of construction and prior to filing application for license the permittee is authorized to test the equipment constructed in compliance with the terms of the construction permit for a period not to exceed 10 days, at such times as will not cause interference with existing services, provided the Commission and the inspector in charge are notified two days in advance of the beginning of the test, and provided further that the Commission may notify the permittee to conduct no tests until specifically authorized by it.

Service test. 218. When construction is completed and regular application for license is filed in exact accord with the terms of the construction permit, the permittee is authorized to begin service tests in exact accord with the equipment, power, frequency, and hours specified in the construction permit, and such tests may continue for a period not to exceed 30 days, provided the Commission and the inspector in charge are notified two days in advance of the beginning of such service tests, and provided further that the Commission may cancel or change the period and/or date of the beginning of such tests in such manner as may appear to be in the public interest, convenience, and/or necessity.

License to operate essential. 219. The authorizations for tests shall not be construed as constituting a license to operate, and under no circumstances is the permittee to operate the station under the construction permit except for testing purposes as specified above, until license has been granted by the Commission. The granting of a license will cancel all authority to operate other than in accordance with the terms of the license.

Maintenance tests. 220. Licensees of stations other than broadcast stations are authorized to carry on such routine tests as may be required for the proper maintenance of the stations, provided, however, that these tests shall be so conducted as not to cause interference with the service of other stations.

Licenses, posting of. 221. The original of each station license, except amateur, portable, and portable-mobile stations, shall be posted by the licensee in a conspicuous place in the room in which the transmitter is located. In the case of amateur, portable, and portable-mobile stations the

original license, or a photostat copy thereof, shall be similarly posted or kept in the personal possession of the operator on duty.

a. The original license of each station operator, except amateur and aircraft radio station operators, and operators of portable and portable-mobile stations, shall be posted in a conspicuous place in the room occupied by such operator while on duty. In the case of an amateur or aircraft radio operator, and operators of portable or portable-mobile stations, the original operator's license shall be similarly posted or kept in his personal possession and available for inspection at all times while the operator is on duty.

b. When an operator's license cannot be posted because it has been mailed to an office of the Federal Radio Commission for endorsement or other change, such operator may continue to operate stations in accordance with the class of license held, for a period not to exceed 60 days, but in no case beyond the date of expiration of the license.

✓222. In all cases where the word "day" or "daylight" Day frequencies. occurs in connection with a specific frequency, such use of the word shall be construed to mean that period of time included between 2 hours after local sunrise and 2 hours before local sunset.

223. (a) The hours of operation and frequency used by Hours of operation and use of frequencies. stations will be specified in the license which may authorize unlimited operation, continuous daily operation, or operation during only a specific part of the 24-hour day, either every day or for certain specified periods only and either continuously during the term of the license or only during certain seasons of the year.

(b) The term "unlimited" when used in instruments of authorization, with respect to frequencies or hours of operation, means that the frequencies may be used and the station operated on any schedule of hours during the 24-hour day.

✓224. (a) Except for an amateur station, each radio station license or other instrument of authorization shall Center frequency to be designated. designate the type of emission which the station is authorized to employ, shall specify the center frequency of the frequency band of emission of such width as is authorized for the type of emission, and shall specify the frequency tolerance in accordance with which the assigned frequency shall be maintained.

(b) The term "frequency band of emission" means that the frequency band of an emission is the frequency band actually occupied by the emission for the type of emission and for the signaling speed used.

(c) The term "frequency tolerance" means the maximum permissible separation between the frequency assigned to a station and the actual frequency of emission.

Communication band width.

225. Unless otherwise specified in the instrument of authorization, the width of the authorized communication band shall be as follows:

Type of emission	Frequency range	Normal width of the frequency band of emission
A1. C. W. Morse telegraphy; printer and slow-speed facsimile.	<i>Kilocycles</i> 10- 100	<i>Kilocycles</i> 0.100
	100- 550	.250
	1,500- 6,000	.500
	6,000-12,000	1.000
	12,000-28,000	2.000
A2. Tone-modulated CW and ICW.....	10- 100	(1)
	100- 550	1.500
	1,500- 6,000	2.000
	6,000-12,000	3.000
A3. Commercial telephony: Single sideband.....		3.000
	Double sideband.....	6.000
A4. Visual broadcasting.....		(1)
Special: High-speed facsimile, picture transmission, high-quality, telephony, etc.....	10- 550	(2)
	1,500-28,000	(2)

¹ To be specified in the instrument of authorization.
² The authorized width of the frequency band of emission for special types of transmission shall be specified in the instrument of authorization.

Interference

226. No frequency assignment will be made to any station or service that will result in undue interference with existing stations or services either of the United States or other nations.

Frequency tolerances.

227. The licensee of each station, except amateur, shall maintain the assigned frequency within the tolerance as set out in the following table:

Tolerance table

Frequency range (kilocycles)	Frequency tolerance	
	A Applicable to stations licensed or authorized by construction permits prior to Sept. 3, 1931	B Applicable to all equipment authorized subsequent to Sept. 3, 1931
	Percent, plus or minus	Percent, plus or minus
A. 10 to 550 kilocycles:		
(a) Fixed stations.....	0.1	0.1
(b) Land stations.....	.1	.1
(c) Mobile stations except those using damped waves or simple oscillator transmitters.....	.5	.5
(d) Mobile stations using damped waves or simple oscillator transmitters.....	1.0	.5
B. 550 to 1,500 kilocycles:		
Broadcast stations.....	(¹)	(²)
C. 1,500 to 6,000 kilocycles:		
(a) Fixed stations.....	.05	.03
(b) Land stations.....	.05	.04
(c) Mobile stations using frequencies not normally used for ship radiotelegraph transmissions.....	.05	.04
(d) Other mobile stations.....	.1	.1
D. 6,000 to 28,000 kilocycles:		
(a) Fixed stations.....	.05	.02
(b) Land stations.....	.05	.04
(c) Mobile stations using frequencies not normally used for ship radiotelegraph transmissions.....	.05	.04
(d) Other mobile stations.....	.1	.1
(e) Broadcast stations.....	.03	.01

¹ This tolerance is applicable to previously licensed simple oscillator transmitters transferred to other mobile stations.
² See part III, par. 144.

228. The following separations between assigned frequencies will be maintained in the frequency range between 10 and 28,000 kilocycles per second: *Provided, however,* That departure therefrom may be made in exceptional cases where the commission is satisfied that this is required in order to serve public interest, convenience or necessity and that interference will not result:

Separation between frequency allocations.

Frequency range	Frequency separation	Frequency range	Frequency separation
<i>Kilocycles</i>	<i>Kilocycles</i>	<i>Kilocycles</i>	<i>Kilocycles</i>
10- 15	0.15	390- 550	2
15- 20	.2	550- 1,500	10
20- 25	.25	1,500- 3,000	4
25- 30	.3	3,000- 6,000	5
30- 40	.4	6,000-11,000	10
40- 50	.5	11,000-16,400	15
50- 60	.6	16,400-21,550	20
60-100	.8	21,550-28,000	25
100-390	1.0		

NOTE.—The separation between assignments may be greater than those indicated where this is required by the type of emission authorized.

Frequency allocations.

229. Subject to the foregoing provisions the center frequencies of communication bands that will be designated are as follows: ¹

Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
10.05	Fixed.	24.25	Fixed.
10.20	Do.	24.50	Do.
10.35	Do.	24.75	Do.
10.50	Do.	25.00	Do.
10.65	Do.	25.30	Do.
10.80	Do.	25.60	Do.
10.95	Do.	25.90	Do.
11.10	Do.	26.20	Government.
11.25	Do.	26.50	Fixed.
11.40	Do.	26.80	Do.
11.55	Do.	27.10	Do.
11.70	Do.	27.40	Do.
11.85	Do.	27.70	Do.
12.00	Do.	28.00	Do.
12.15	Do.	28.30	Do.
12.30	Do.	28.60	Government.
12.45	Do.	28.90	Fixed.
12.60	Do.	29.20	Do.
12.75	Do.	29.50	Do.
12.90	Do.	29.80	Do.
13.05	Do.	30.20	Do.
13.20	Do.	30.60	Government.
13.35	Do.	31.00	Fixed.
13.50	Do.	31.40	Do.
13.65	Do.	31.80	Do.
13.80	Do.	32.20	Do.
13.95	Do.	32.60	Government.
14.10	Do.	33.00	Fixed.
14.25	Do.	33.40	Do.
14.40	Do.	33.80	Government.
14.55	Do.	34.20	Fixed.
14.70	Do.	34.60	Do.
14.85	Do.	35.00	Do.
15.00	Do.	35.40	Do.
15.20	Do.	35.80	Do.
15.40	Do.	36.20	Do.
15.60	Do.	36.60	Do.
15.80	Do.	37.00	Do.
16.00	Do.	37.40	Do.
16.20	Do.	37.80	Do.
16.40	Do.	38.20	Government.
16.60	Do.	38.60	Fixed.
16.80	Do.	39.00	Do.
17.00	Do.	39.40	Do.
17.20	Do.	39.80	Do.
17.40	Do.	40.20	Do.
17.60	Do.	40.70	Do.
17.80	Government.	41.20	Do.
18.00	Do.	41.70	Do.
18.20	Fixed.	42.20	Do.
18.40	Do.	42.70	Government.
18.60	Government.	43.20	Fixed.
18.80	Fixed.	43.70	Do.
19.00	Do.	44.20	Do.
19.20	Do.	44.70	Do.
19.40	Do.	45.20	Do.
19.60	Do.	45.70	Do.
19.80	Government.	46.20	Government.
20.00	Fixed.	46.70	Fixed.
20.25	Do.	47.20	Do.
20.50	Do.	47.70	Do.
20.75	Do.	48.20	Do.
21.00	Do.	48.70	Do.
21.25	Do.	49.20	Do.
21.50	Do.	49.70	Do.
21.75	Do.	50.20	Do.
22.00	Do.	50.80	Do.
22.25	Do.	51.40	Do.
22.50	Do.	52.00	Do.
22.75	Do.	52.60	Do.
23.00	Government.	53.20	Do.
23.25	Fixed.	53.80	Government.
23.50	Do.	54.40	Fixed.
23.75	Do.	55.00	Do.
24.00	Government.	55.60	Do.

¹ Services are indicated for information purposes.

FEDERAL RADIO COMMISSION

Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
56.20	Government.	128	Government.
56.80	Fixed.	129	Coastal teleg.
57.40	Do.	130	Do.
58.00	Government.	131	Do.
58.60	Fixed.	132	Government.
59.20	Do.	a133	Coastal teleg. and Gov- ernment.
59.80	Do.		Coastal teleg.
60.40	Do.	134	Do.
61.20	Do.	135	Do.
62.00	Do.	136	Do.
62.80	Do.	137	Do.
63.60	Do.	138	Do.
64.40	Government.	139	Do.
65.20	Fixed.	140	Do.
66.00	Government.	141	Do.
66.80	Fixed.	142	Guard band.
67.00	Do.	143	Maritime calling.
69.40	Do.	144	Guard band.
69.20	Do.	145	Coastal teleg.
70.00	Do.	146	Do.
70.80	Do.	147	Do.
71.60	Do.	148	Do.
72.40	Do.	149	Do.
73.20	Do.	150	Do.
74.00	Do.	151	Ship teleg.
74.80	Government.	152	Do.
75.00	Fixed.	153	Do.
76.40	Do.	154	Do.
77.20	Do.	a155	Ship teleg. and Gov- ernment.
78.00	Do.		Ship teleg.
78.80	Do.	150	Do.
79.60	Do.	157	Do.
80.40	Do.	158	Do.
81.20	Do.	159	Government.
82.00	Do.	160	Ship teleg.
82.80	Government.	161	Fixed and coastal teleg.
83.60	Fixed.	162	Do.
84.40	Do.	163	Do.
85.20	Do.	164	Do.
86.00	Do.	165	Do.
86.80	Do.	166	Do.
87.60	Do.	167	Do.
88.40	Do.	168	Do.
89.20	Do.	169	Do.
90.00	Do.	170	Do.
90.80	Do.	171	Do.
91.60	Do.	b172	Government and fixed.
92.40	Do.	173	Fixed and coastal teleg.
93.20	Do.	174	Do.
94.00	Government.	175	Government.
94.80	Fixed.	176	Fixed and coastal teleg.
95.60	Do.	177	Do.
96.40	Do.	178	Do.
97.20	Do.	179	Do.
98.00	Do.	a180	Government, fixed, and coastal teleg.
98.80	Do.		Fixed and coastal teleg.
100	Government.	181	Do.
101	Fixed.	182	Do.
102	Government.	183	Do.
103	Fixed.	184	Do.
104	Government.	185	Government.
105	Coastal teleg.	186	Fixed and coastal teleg.
106	Government.	187	Do.
107	Coastal teleg.	188	Do.
108	Government.	189	Do.
109	Coastal teleg.	a190	Government and State police.
110	Do.		Fixed and coastal teleg.
111	Do.	191	Government and fixed.
112	Do.	b192	Fixed and coastal teleg.
113	Government.	193	Do.
114	Coastal teleg.	194	Government.
115	Government.	195	Do.
116	Coastal teleg.	196	Do.
117	Do.	197	Do.
118	Do.	198	
119	Do.	199	
a120	Coastal teleg. and Gov- ernment.	200	
121	Coastal teleg.	201	Do.
122	Government.	202	
123	Coastal teleg.	203	
124	Do.	204	
125	Do.	205	Gen. communication.
126	Do.	206	Government.
127	Do.	207	Gen. communication.
		208	Government.

RULES AND REGULATIONS

Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
209	Fixed.	275	Government.
b210	Government and fixed.	275)	
211	Gen. communication.	276	
b212	Government and fixed.	277	
213	Gen. communication.	278 278	Do.
b214	Government and fixed.	279	
215	Government.	280	
216)		281)	Government.
217		284	
218		281)	
219 219	Government.	282	
220		283	
221		284 284	Do.
222)		285	
221)		286	
222		287)	Do.
223		285	Do.
a224 224	{Government and air- port.	286	Radio beacon.
b225		288	Do.
226		289	Government and Can- ada Aero.
b227)		290	Radio beacon.
b225	Government and fixed.		Do.
b227)		291	Do.
228		292	Government.
229		293	Do.
230 230	Government.	294	Government.
231		295	Do.
232		296	Government and Can- ada Aero.
233		297	Radio beacon.
234		298	Do.
235		299	Do.
236 236	Do.	300	Government.
237		301	Radio beacon.
238		302	Government.
239)		303	Radio beacon.
239)		304	Government.
240		305	Do.
241		306	Do.
242 242	Do.	307	Radio beacon.
243		308	Government.
244		309	Radio beacon.
245		310	Government.
245	Government.	311)	
245)		312	
b246		313	
247		314 314	{Government and Can- ada Aero.
248 248	{Government and Can- ada Aero.	315	
249		316	
250		317)	Government.
251)		314	
251)		317)	
b252		318	
253		319	
254 254	Government.	320 320	Do.
255		321	
b256		322)	
257)		323)	Do.
257)		323	
258		323	
259		324	
260 260	Do.	325	
261		326 326	{Government and Can- ada Aero.
b262		327	
263)		328	
263)		329)	
264		329	
265		330	
266 266	Do.	331	
267		332 332	Do.
b268		333	
269)		334	
269)		335)	
270		a333	Govt. and aircraft.
271		335)	
b272 272	Do.	336	
273		337	
b274		338 338	Government.
275)		339	
b272	Government and fixed.	340	
		341)	

Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
341)		436	Coastal teleg.
342)		438	Do.
343		440	Government.
344 } 344	Government.	442	Coastal teleg.
345		444	Government.
346		446	Do.
347)		448	Coastal teleg.
343	Do.	450	Government.
347)		452	Coastal teleg.
348		a454	Coastal teleg., ship
349			teleg., and Govern-
350 } 350	Do.		ment.
351		456	Guard band.
352		457	Aircraft.
353		458	Guard band.
354	Guard band.	460	Coastal teleg.
d355	Government.	462	Do.
356		464	Government.
357		466	Coastal teleg.
358		468	Ship teleg.
359 } 359	Do.	470	Government.
360		472	Coastal teleg.
361		474	Do.
362		a476	Coastal teleg. and Govern-
360	Do.		ment.
362)		478	Coastal teleg.
363		480	Government.
364		482	Coastal teleg.
365 } 365	Do.	484	Do.
366		486	Guard band.
367		488	Do.
368		490	Do.
369	Guard band.	492	Do.
370	Do.	494	Do.
371	Do.	496	Do.
372	Do.	498	Do.
373	Do.	500	Maritime calling.
374	Do.	502	Guard band.
375	Direction finding.	504	Do.
376	Guard band.	506	Do.
377	Do.	508	Do.
378	Do.	510	Do.
379	Do.	512	Do.
380	Do.	514	Do.
381	Do.	515	Government.
382	Do.	516	Do.
383	Do.	517	Do.
384	Do.	518	Do.
385	Do.	519	Do.
386	General communica-	520	Do.
	tion.	521	Do.
387	Do.	522	Do.
388	Do.	523	Do.
389	Do.	524	Do.
390	Do.	525	Do.
392	Coastal teleg.	526	Do.
394	Coastal tel. and ship	527	Do.
	teleg.	528	Do.
396	Government.	529	Do.
398	Guard band.	530	Do.
400	Ship teleg.	531	Do.
402	Guard band.	532	Do.
404	Government.	533	Do.
406	Coastal teleg.	534	Do.
408	Do.	535	Do.
a410	Coastal, teleg., ship	536	Do.
	teleg., and Govern-	537	Do.
	ment.	538	Do.
412	Guard band.	539	Do.
414	Aircraft.	540	Do.
416	Guard band.	541	Do.
418	Coastal teleg.	542	Do.
420	Do.	543	Do.
422	Do.	544	Do.
424	Guard band.	545	Do.
a425	Coastal teleg., ship	546	Guard band.
	teleg., intership, tel-	547	Do.
	ephone and Govern-	548	Do.
	ment.	549	Do.
426	Guard band.	a550)	Government.
428	Government.	n1, 500/	
430	Coastal teleg.	550	Broadcast. ←
432	Do.	560	Do.
434	Government.	570	Do.

RULES AND REGULATIONS

Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
580	Broadcast.	1,430	Broadcast.
590	Do.	1,440	Do.
600	Do.	1,450	Do.
610	Do.	1,460	Do.
620	Do.	1,470	Do.
630	Do.	1,480	Do.
640	Do.	1,490	D9.
650	Do.	1,500	Do.
660	Do.	1,504	Gen. communication.
670	Do.	1,508	Do.
680	Do.	1,512	Do.
690	Do.	1,516	Do.
700	Do.	1,520	Do.
710	Do.	1,524	Do.
720	Do.	1,528	Do.
730	Do.	1,530	Experimental broad- cast.
740	Do.		Gen. communication.
750	Do.	1,532	Do.
760	Do.	1,536	Do.
770	Do.	1,540	Do.
780	Do.	1,544	Do.
790	Do.	1,548	Do.
800	Do.	1,550	Experimental broad- cast.
810	Do.		Gen. communication.
820	Do.	1,552	Do.
830	Do.	1,556	Do.
840	Do.	1,560	Do.
850	Do.	1,564	Do.
860	Do.	1,568	Do.
870	Do.	1,570	Experimental broad- cast.
880	Do.		Gen. communication.
890	Do.	1,572	Do.
900	Do.	1,576	Government.
910	Do.	1,580	Do.
920	Do.	1,584	Do.
930	Do.	1,588	Do.
940	Do.	1,592	Gen. communication.
950	Do.	1,596	Do.
960	Do.	1,600	Do.
970	Do.	1,602	Gen. communication and geophysical.
980	Do.		
990	Do.	1,604	
1,000	Do.	1,606	Broadcast pickup.
1,010	Do.	1,608	
1,020	Do.	1,612	
1,030	Do.	1,614	General experimental.
1,040	Do.	1,616	
1,050	Do.	1,620	
1,060	Do.	1,622	Broadcast pickup.
1,070	Do.	1,624	
1,080	Do.	1,628	Geophysical, Marine fire.
1,090	Do.	1,632	
1,100	Do.	1,636	
1,110	Do.	1,638	Aviation.
1,120	Do.	1,640	
1,130	Do.	1,644	
1,140	Do.	1,646	Broadcast pickup.
1,150	Do.	1,648	
1,160	Do.	1,652	Motion picture and geophysical.
1,170	Do.		
1,180	Do.	1,656	
1,190	Do.	1,658	Police.
1,200	Do.	1,660	
1,210	Do.	1,664	
1,220	Do.	1,666	Do.
1,230	Do.	1,668	
1,240	Do.	1,672	
1,250	Do.	1,674	Do.
1,260	Do.	1,676	Geophysical.
1,270	Do.	1,680	
1,280	Do.	1,682	Police.
1,290	Do.	1,684	
1,300	Do.	1,688	
1,310	Do.	1,690	Do.
1,320	Do.	1,692	
1,330	Do.	1,696	
1,340	Do.	1,698	Do.
1,350	Do.	1,700	Geophysical.
1,360	Do.	1,704	
1,370	Do.	1,706	Police.
1,380	Do.	1,708	
1,390	Do.	1,712	Do.
1,400	Do.	1,716	Amateur.
1,410	Do.	1,720	Do.
1,420	Do.		

Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
1,724	Amateur.	2,056	Exp. vis. broadcast.
1,728	Do.	2,060	Do.
1,732	Do.	2,064	Do.
1,736	Do.	2,068	Do.
1,740	Do.	2,072	Do.
1,744	Do.	2,076	Do.
1,748	Do.	2,080	Do.
1,752	Do.	2,084	Do.
1,756	Do.	2,088	Do.
1,760	Do.	2,092	Do.
1,764	Do.	a2,096	Government and exp. vis. broadcast.
1,768	Do.		
1,772	Do.	2,100	
1,776	Do.	2,102	Broadcast pickup.
1,780	Do.	2,104	
1,784	Do.	2,108	
1,788	Do.	2,110	Ship harbor.
1,792	Do.	2,112	
1,796	Do.	2,116	
1,800	Do.	2,118	Do.
1,804	Do.	2,120	
1,808	Do.	2,124	
1,812	Do.	2,126	Do.
1,816	Do.	2,128	
1,820	Do.	2,132	
1,824	Do.	2,134	Do.
1,828	Do.	2,136	
1,832	Do.	2,140	
1,836	Do.	2,142	Ship harbor.
1,840	Do.	2,144	
1,844	Do.	a2,148	Govt. and b. pickup. Broadcast pickup.
1,848	Do.	2,150	
1,852	Do.	2,152	
1,856	Do.	2,156	
1,860	Do.	2,158	Ship harbor.
1,864	Do.	2,160	
1,868	Do.	2,164	
1,872	Do.	2,166	Do.
1,876	Do.	2,168	
1,880	Do.	2,172	
1,884	Do.	2,174	Do.
1,888	Do.	2,176	
1,892	Do.	2,180	
1,896	Do.	2,182	Do.
1,900	Do.	2,184	
1,904	Do.	2,188	
1,908	Do.	2,190	Broadcast pickup.
1,912	Do.	2,192	
1,916	Do.	a2,196	Govt. and ship harbor. Ship harbor.
1,920	Do.	2,198	
1,924	Do.	2,200	
1,928	Do.	2,204	
1,932	Do.	2,206	Do.
1,936	Do.	2,208	
1,940	Do.	2,212	Gen. communication.
1,944	Do.	2,216	Do.
1,948	Do.	2,220	Do.
1,952	Do.	2,224	Do.
1,956	Do.	2,228	Do.
1,960	Do.	2,232	Do.
1,964	Do.	2,236	Do.
1,968	Do.	2,240	Do.
1,972	Do.	2,244	Do.
1,976	Do.	2,248	Do.
1,980	Do.	a2,252	Government and gen- eral communication.
1,984	Do.		Gen. communication.
1,988	Do.	2,256	
1,992	Do.	2,260	Do.
1,996	Do.	2,264	Do.
2,000	Do.	2,268	Do.
a2,004	Government and exp. vis. broadcast.	2,272	Do.
2,008	Exp. vis. broadcast.	2,276	Do.
2,012	Do.	2,280	Do.
2,016	Do.	2,284	Do.
2,020	Do.	2,288	Do.
2,024	Do.	2,292	Do.
2,028	Do.	2,296	Do.
2,032	Do.	2,300	Do.
2,036	Do.	2,304	Government.
2,040	Do.	2,308	
2,044	Do.	2,310	Police.
2,048	Do.	2,312	
a2,052	Government and exp. vis. broadcast.	2,316	
		2,318	Do.
		2,320	

Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
2,324	Police.	2,556	Coast harbor.
2,328		2,560	
2,332		2,564	
2,334	Do.	2,566	Do.
2,336	Government.	2,568	Do.
2,340		2,572	
2,342	Police.	2,576	Government.
2,344	Do.	2,580	Coast harbor.
2,348		2,584	
2,350		2,588	
2,352	Do.	2,592	Do.
2,356		2,596	
2,358	Do.	2,598	Do.
2,360		2,600	
2,364		2,604	
2,366	Government.	2,608	Government.
2,372		2,612	
2,374	Do.	2,616	Aviation.
2,376	Do.	2,620	Do.
2,380		2,624	Do.
2,382		2,628	Do.
2,384	Government.	2,632	Do.
2,388		2,636	Do.
2,390	Police.	2,640	Do.
2,392	Gen. experimental.	2,644	Do.
2,396		2,648	Do.
2,400		2,652	Do.
2,404	Police.	2,656	Government.
2,408		2,660	
2,412	Do.	2,664	Do.
2,416		2,668	Do.
2,420		2,672	Do.
2,422	Do.	2,676	Do.
2,424		2,680	Do.
2,428	Do.	2,684	Do.
2,430		2,688	Do.
2,432		2,692	Do.
2,436	Government.	2,696	Do.
2,440		2,700	
2,442	Police.	2,704	Do.
2,444	Do.	2,708	Aviation.
2,448		2,712	Do.
2,450		2,716	Government.
2,452	Do.	2,720	Aviation.
2,456		2,724	Special emergency.
2,460	Do.	2,728	Special emergency.
2,464		2,732	
2,466		2,736	
2,468	Do.	2,740	Aviation
2,472		2,744	
2,474	Do.	2,748	{Coast harbor, ship harbor, and intership.
2,476		2,752	
2,480		2,756	
2,482	Government.	2,760	Government.
2,484	Government.	2,764	Aviation.
2,488		2,768	Exp. vis. broadcast.
2,490	Police.	2,772	Do.
2,492	Government.	2,776	Do.
2,496		2,780	Do.
2,500	Do.	2,784	Do.
2,504	Coast Harbor.	2,788	Do.
2,506		a2,792	{Exp. vis. broadcast and Government.
2,508	Do.	2,796	Exp. vis. broadcast.
2,512		2,800	Do.
2,514		2,804	Do.
2,516	Do.	2,808	Do.
2,520		2,812	Do.
2,522	Do.	2,816	Do.
2,524		2,820	Do.
2,528		2,824	Do.
2,530	Do.	2,828	Do.
2,532		2,832	Do.
2,536	Do.	2,836	Do.
2,538		2,840	Do.
2,540		2,844	Do.
2,542	Government.	2,848	{Government and exp. vis. broadcast.
2,544		2,852	
2,548	Coast harbor.	2,856	Exp. vis. broadcast.
2,552		2,860	

Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
2,852	Aviation.	3,135	Aviation.
2,854		e3,137.5	
2,856		3,140	
2,860	Do.	3,145	Do.
2,862		3,147.5	
2,864	Do.	3,150	Govt. and aviation.
2,868		e3,155	
2,870		3,160	
2,872	Do.	3,162.5	Aviation.
2,876		3,165	
2,878		3,170	
2,880	Government.	3,172.5	Do.
2,884		3,175	
2,888	Aviation.	3,180	Do.
2,890		3,182.5	
2,892		3,185	
2,896	Do.	3,190	Special emergency. Govt. and aviation.
2,898		e3,195	
2,900	Do.	3,200	Aviation.
2,904		3,202.5	
2,906		3,205	
2,908	Do.	3,210	Do.
2,912		3,212.5	
2,916	Government.	3,215	Do.
2,920		3,220	
2,922		3,222.5	
2,924	Aviation.	3,225	Do.
2,928		3,230	
2,930		3,232.5	
2,932	Do.	e3,235	Do. Government and aviation.
2,936		3,240	
2,940	Do.	3,242.5	Aviation.
2,944		3,245	
2,946		3,250	
2,948	Government.	3,255	Aviation.
2,952		3,257.5	
2,956	Aviation.	3,260	Government and aviation.
2,960		be3,265	
2,964	Government.	3,270	Fixed.
2,968		3,275	
2,972	Do.	3,280	Do.
2,976	Do.	3,285	Do.
2,980	Do.	3,290	Do.
2,984	Aviation.	e3,295	Government and fixed.
2,988		3,300	
a2,992		3,305	
a2,996	Govt. and aviation.	3,310	Do.
3,000		3,315	
3,002.5	Do.	3,320	Aviation.
e3,005		3,322.5	
3,010	Gen. communication.	3,325	Fixed.
3,015		3,330	
3,020	Do.	3,335	Do.
3,025	Do.	3,340	Government.
3,030	Do.	3,345	Do.
e3,035	{Government and gen. communication.	3,350	Do.
		3,355	Do.
3,040	Gen. communication.	3,360	Do.
3,045	Do.	3,365	Do.
3,050	Do.	3,370	Do.
3,055	Do.	3,375	Do.
3,060	Do.	3,380	Do.
e3,065	Govt. and aviation.	3,385	Do.
3,070		3,390	
3,072.5	Aviation.	3,395	Do.
3,075		3,400	
3,080		3,405	
2,085	Govt. and aviation.	3,410	Do.
		e3,415	
3,090	Aviation.	3,420	Aviation.
3,092.5		3,422.5	
e3,095		3,425	
3,100	{Aircraft and mar. call- ing.	3,430	Do.
3,105		3,435	
3,110	{Ship teleg. and coast teleg.	3,440	Do.
3,115		e3,445	
3,120	Do.	3,447.5	Govt. and aviation. Aviation.
3,125		3,450	
3,127.5	Aviation.	3,455	Do.
3,130		3,460	

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Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
3,465	3,467.5 Aviation.	3,820	Amateurs.
3,470		3,825	Do.
e3,475	Govt. and aviation.	3,830	Do.
	3,477.5 Aviation.	3,835	Do.
3,480		3,840	Do.
3,485	Do.	a3,845	Government and ama- teurs.
3,490	3,492.5 Gen. exp.	3,850	Amateurs.
3,495		3,855	Do.
3,497.5	Government.	3,860	Do.
3,500	Amateurs.	a3,865	Government and ama- teurs.
a3,505	Government and ama- teurs.	3,870	Amateurs.
3,510	Amateurs.	3,875	Do.
3,515	Do.	3,880	Do.
3,520	Do.	3,885	Do.
3,525	Do.	3,890	Do.
3,530	Do.	3,895	Do.
a3,535	Government and ama- teurs.	3,900	Do.
3,540	Amateurs.	a3,905	Government and ama- teurs.
3,545	Do.	3,910	Amateurs.
3,550	Do.	3,915	Do.
3,555	Do.	3,920	Do.
3,560	Do.	3,925	Do.
3,565	Do.	3,930	Do.
3,570	Do.	a3,935	Government and ama- teurs.
3,575	Do.	3,940	Amateurs.
3,580	Do.	3,945	Do.
a3,585	Government and ama- teurs.	3,950	Do.
3,590	Amateurs.	3,955	Do.
3,595	Do.	3,960	Do.
3,600	Do.	a3,965	Government and ama- teurs.
3,605	Do.	3,970	Amateurs.
3,610	Do.	3,975	Do.
a3,615	Government and ama- teurs.	3,980	Do.
3,620	Amateurs.	a3,985	Government and ama- teurs.
3,625	Do.	3,990	Amateurs.
3,630	Do.	3,995	Do.
3,635	Do.	4,000	Do.
3,640	Do.	4,005	Gen. communication.
3,645	Do.	4,010	Do.
3,650	Do.	4,015	Government.
3,655	Do.	4,020	Do.
3,660	Do.	4,025	Do.
a3,665	Government and ama- teurs.	4,030	Do.
3,670	Amateurs.	4,035	Gen. communication.
3,675	Do.	4,040	Do.
3,680	Do.	4,045	Government.
3,685	Do.	4,050	Do.
3,690	Do.	4,055	Do.
a3,695	Government and ama- teurs.	4,060	Do.
3,700	Amateurs.	4,065	Do.
3,705	Do.	4,070	Do.
3,710	Do.	4,075	Do.
3,715	Do.	4,080	Do.
3,720	Do.	4,085	Do.
a3,725	Government and ama- teurs.	4,090	Do.
3,730	Amateurs.	4,095	4,097.5 Fixed.
3,735	Do.	4,100	4,105
3,740	Do.	4,105	Government.
3,745	Do.	4,110	Aviation.
3,750	Do.	4,115	Do.
a3,755	Government and ama- teurs.	4,120	4,122.5 Do.
3,760	Amateurs.	4,125	4,125
3,765	Do.	4,130	Gen. communication.
3,770	Do.	4,135	Government.
3,775	Do.	4,140	Mar. calling.
3,780	Do.	4,145	Ship teleg.
a3,785	Government and ama- teurs.	4,150	Do.
3,790	Amateurs.	4,155	Government.
3,795	Do.	4,160	Ship teleg.
3,800	Do.	4,165	Do.
3,805	Do.	4,170	Do.
3,810	Do.	4,175	Coast teleg.
a3,815	Government and ama- teurs.	4,180	Do.
		4,185	Do.
		4,190	Gen. communication.
		4,195	Do.
		4,200	Do.

Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
4, 205	Government.	4, 605	Gen. communication.
4, 210	Gen. communication.	4, 610	Do.
4, 215	Do.	4, 615	Do.
4, 220	Do.	4, 620	Do.
4, 225	Do.	4, 625	Do.
4, 230	Do.	4, 630	Do.
4, 235	Government.	4, 635	Do.
4, 240	Gen. communication.	4, 640	Do.
4, 245	Agriculture.	4, 645	Do.
4, 250	Gen. communication.	4, 650	Fixed.
4, 255	Government.	4, 655	Do.
4, 260	Fixed.	4, 660	Do.
4, 265	Government.	4, 665	Do.
4, 270		4, 670	Do.
4, 275	4, 272. 5	4, 675	Do.
4, 280	Coast phone.	4, 680	Gen. communication.
4, 285	Do.	4, 685	Do.
4, 290	4, 287. 5	4, 690	Do.
4, 295	Do.	4, 695	Do.
4, 300	Government.	4, 700	Do.
4, 305	Do.	4, 705	Do.
4, 310	Do.	4, 710	Do.
4, 315	Do.	4, 715	Fixed.
4, 320	Gen. communication.	4, 720	Do.
4, 325	Do.	4, 725	Do.
4, 330	Do.	4, 730	Do.
4, 335	Do.	4, 735	Do.
4, 340	Aviation.	4, 740	Aviation.
4, 345	Gen. communication.	4, 745	Do.
4, 350	Do.	4, 750	Gen. communication.
4, 355	Do.	4, 755	Do.
4, 360	Do.	4, 760	Do.
4, 365	Do.	4, 765	Do.
4, 370	Government.	4, 770	Do.
4, 375	Do.	4, 775	Do.
4, 380	Do.	4, 780	Coast teleg.
4, 385	Do.	4, 785	Do.
4, 390	Do.	4, 790	Do.
4, 395	Do.	4, 795	
4, 400	Fixed.	4, 800	4, 797. 5: Gen. experimental.
4, 405	4, 402. 5	4, 805	Gen. communication.
4, 410	Ship phone.	4, 810	Do.
4, 415		4, 815	Do.
4, 420	4, 412. 5	4, 820	Do.
4, 425	Do.	4, 825	Do.
4, 430		4, 830	Do.
4, 435	4, 422. 5	4, 835	Do.
4, 440	Do.	4, 840	Do.
4, 445		4, 845	Do.
4, 450	Gen. communication.	4, 850	Do.
4, 455	Government.	4, 855	Do.
4, 460	Do.	4, 860	Do.
4, 465	Do.	4, 865	Do.
4, 470	Gen. communication.	4, 870	Do.
4, 475	Do.	4, 875	Do.
4, 480	Do.	4, 880	Do.
4, 485	Aviation.	4, 885	Do.
4, 490	Gen. communication.	4, 890	Do.
4, 495	Do.	4, 895	Do.
4, 500	Aviation	4, 900	Do.
4, 505	Gen. communication.	4, 905	Do.
4, 510	Do.	4, 910	Do.
4, 515	Do.	4, 915	4, 917. 5
4, 520	Fixed.	4, 920	Aviation.
4, 525	Government.	4, 925	Gen. communication.
4, 530	Gen. communication.	4, 930	Do.
4, 535	Fixed.	4, 935	Do.
4, 540	Do.	4, 940	Do.
4, 545	Do.	4, 945	4, 947. 5
4, 550	Do.	4, 950	Aviation.
4, 555	Do.	4, 955	Gen. communication.
4, 560	Gen. communication.	4, 960	Do.
4, 565	Do.	4, 965	4, 967. 5
4, 570	Do.	4, 970	Aviation.
4, 575	Do.	4, 975	Gen. communication
4, 580	Do.	4, 980	Do.
4, 585	Do.	4, 985	4, 987. 5
4, 590	Do.	4, 990	Aviation.
4, 595	Do.	4, 995	Gen. communication.
4, 600	Do.	5, 000	Government.
		5, 005	Gen. communication.

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Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
5, 010	Gen. communication.	5, 420	Gen. communication.
5, 015	Do.	5, 425	Do.
5, 020	Do.	5, 430	Do.
5, 025	Do.	5, 435	Do.
5, 030	Do.	5, 440	Do.
5, 035	Do.	5, 445	Do.
5, 040	Do.	5, 450	Do.
5, 045	Do.	5, 455	Do.
5, 050	Do.	5, 460	Do.
5, 055	Do.	5, 465	Do.
5, 060	Do.	5, 470	Do.
5, 065	Do.	5, 475	Do.
5, 070	Do.	5, 480	Do.
5, 075		5, 485	Do.
	5, 077.5 Fixed.	5, 490	Do.
5, 080		5, 495	Do.
5, 085	Gen. communication.	5, 500	Do.
5, 090	Do.	5, 505	Shlp teleg.
5, 095	Do.	5, 510	Do.
5, 100	Do.	5, 515	Do.
5, 105	Do.	5, 520	Mar. calling.
5, 110	Do.	5, 525	Shlp teleg.
5, 115	Do.	5, 530	Do.
5, 120		5, 535	Do.
	5, 122.5 Aviation.	5, 540	Government and coast teleg.
5, 125			Coast teleg.
5, 130	Gen. communication.	5, 545	Do.
5, 135	Do.	5, 550	Do.
5, 140	Do.	5, 555	Do.
5, 145	Do.	5, 560	Do.
5, 150	Do.	5, 565	Do.
5, 155	Do.	5, 570	
5, 160	Do.		5, 572.5 Aviation.
5, 165	Do.	5, 575	
5, 170	Do.	5, 580	
5, 175	Do.		5, 582.5 Do.
5, 180	Fixed.	5, 585	
5, 185	Do.	5, 590	
5, 190	Do.		5, 592.5 Do.
5, 195	Gen. communication.	5, 595	
5, 200	Do.	5, 600	Government and avia- tion.
5, 205	Do.		Aviation.
5, 210	Do.		5, 602.5 Do.
5, 215	Do.	5, 605	
5, 220	Do.	5, 610	
5, 225	Fixed.		5, 612.5 Do.
5, 230	Do.	5, 615	
5, 235	Do.	5, 620	
5, 240	Do.		5, 622.5 Do.
5, 245	Do.	5, 625	
5, 250	Do.	5, 630	
5, 255	Gen. communication.		5, 632.5 Do.
5, 260	Fixed.	5, 635	
5, 265	Do.	5, 640	
5, 270	Do.		5, 642.5 Do.
5, 275	Gen. communication.	5, 645	
5, 280	Fixed.	5, 650	
5, 285	Do.		5, 652.5 Do.
5, 290	Do.	5, 655	
5, 295	Do.	5, 660	
5, 300	Do.		5, 662.5 Do.
5, 305	Do.	5, 665	
5, 310	Do.	5, 670	
5, 315	Do.		5, 672.5 Do.
5, 320	Do.	5, 675	
5, 325	Gen. communication.	5, 680	
5, 330	Do.		5, 682.5 Do.
5, 335	Fixed.	5, 685	
5, 340	Do.	5, 690	
5, 345	Do.		5, 692.5 Do.
5, 350	Do.	5, 695	
5, 355	Do.	5, 700	Gen. communication.
5, 360	Do.	5, 705	Do.
5, 365	Agriculture.	5, 710	Do.
5, 370	Fixed.	5, 715	Do.
5, 375		5, 720	Fixed.
	5, 377.5 Aviation.	5, 725	Gen. communication.
5, 380		5, 730	Do.
5, 385	Gen. communication.	5, 735	Do.
5, 390	Do.	5, 740	Do.
5, 395	Do.	5, 745	Do.
5, 400	Do.	5, 750	Fixed.
5, 405	Aviation.	5, 755	Gen. communication.
5, 410	Gen. communication.	5, 760	Do.
5, 415	Do.	5, 765	Do.

Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
5, 770	Gen. communication.	6, 340	Coast teleg.
5, 775	Do.	6, 350	Do.
5, 780	Do.	h6, 355	Government.
5, 785	Do.	6, 360	Coast teleg.
5, 790	Do.	6, 370	Do.
5, 795	Do.	6, 380	Do.
5, 800	Do.	eg, 385	Government.
5, 805	Do.	6, 390	Coast teleg.
5, 810	Do.	6, 400	Do.
5, 815	Do.	eg, 405	Government.
5, 820	Do.	6, 410	Coast teleg.
5, 825	Do.	ag, 420	Gen. expt. and Govt.
5, 830	Do.	ag, 425	Do.
5, 835	Do.	ag, 430	Do.
5, 840	Do.	6, 440	Mobile press.
5, 845	Fixed.	h6, 445	Government.
5, 850	Do.	6, 450	Mobile press.
5, 852.5	Do.	ag, 460	Coast phone and Govt.
5, 855	Do.	eg, 465	Government.
5, 860	Gen. communication.	ag, 470	Coast phone and Govt.
5, 865	Government.	eg, 475	Government.
5, 870	Gen. communication.	h6, 480	Coast phone and Govt.
5, 875	Do.		Government.
5, 880	Do.	6, 490	Aviation.
5, 885	Do.	eg, 500	Aviation and Govern-
5, 890	Do.		ment.
5, 895	Do.	6, 510	Aviation.
5, 900	Do.	6, 520	Do.
5, 905	Do.	6, 530	Do.
5, 910	Do.	h6, 540	Aviation and Govern-
5, 915	Do.		ment.
5, 920	Government.	6, 550	Aviation.
5, 925	Do.	6, 560	Do.
5, 930	Do.	6, 570	Do.
5, 935	Do.	6, 580	Do.
5, 940	Do.	6, 590	Do.
5, 945	Do.	ag, 600	Aviation and Govern-
5, 950	Do.		ment.
5, 955	Do.	h6, 610	Do.
5, 960	Do.	h6, 615	Do.
5, 965	Gen. communication.	h6, 620	Do.
5, 970	Do.	eg, 625	Government.
5, 975	Fixed.	eg, 630	Aviation and Govt.
5, 980	Do.	eg, 635	Government.
5, 985	Do.	eg, 640	Aviation and Govt.
5, 990	Do.	eg, 645	Government.
5, 995	Government.	ag, 650	Ship phone and Govt.
6, 000	Guard hand.	eg, 655	Government.
6, 010		ag, 660	Ship phone and Govt.
6, 020	Relay broadcast.	eg, 665	Government.
6, 030		ag, 670	Ship phone and Gov-
6, 040	Do.		ernment.
6, 050		6, 680	Fixed.
6, 060	Do.	6, 690	Government.
6, 070		6, 700	Fixed.
6, 080	Do.	6, 710	Do.
6, 090		6, 720	Do.
6, 100	Do.	6, 730	Do.
6, 110		6, 740	Do.
6, 120	Government.	eg, 747	Government.
6, 130		6, 750	Fixed.
6, 140	Relay broadcast.	6, 760	Do.
6, 150		6, 770	Do.
6, 160	Ship teleg.	6, 780	Do.
6, 170	Do.	6, 790	Do.
6, 180	Do.	6, 800	Do.
ag, 190	Ship teleg. and Govt.	6, 810	Do.
6, 200	Ship teleg.	6, 820	Do.
6, 210	Mar. calling.	6, 830	Do.
6, 220	Ship teleg.	6, 840	Do.
h6, 230	Ship teleg. and Govt.	6, 850	Do.
h6, 235	Government.	6, 860	Do.
h6, 240	Ship teleg. and Govt.	6, 870	Do.
6, 250	Coast teleg.	6, 880	Do.
6, 260	Do.	6, 890	Do.
6, 270	Do.	6, 900	Do.
6, 280	Do.	eg, 910	Fixed and Govern-
eg, 290	Coast teleg. and Gov-		ment.
	ernment.	6, 920	Fixed.
6, 300	Coast teleg.	6, 930	Do.
6, 310	Do.	eg, 940	Fixed and Govern-
6, 320	Do.		ment.
h6, 330	Coast teleg. and Gov-	6, 950	Fixed.
	ernment.	6, 960	Do.

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Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
66,970	Fixed and Govern-	7,710	Fixed.
	ment.	7,720	Do.
6,980	Fixed.	7,730	Do.
6,990	Government.	7,740	Do.
7,000	Amateurs.	7,750	Do.
7,010	Do.	7,760	Do.
7,020	Do.	7,770	Do.
7,030	Do.	7,780	Do.
7,040	Do.	7,790	Do.
7,050	Do.	7,800	Do.
7,060	Do.	7,810	Do.
7,070	Do.	7,820	Do.
7,080	Do.	7,830	Do.
7,090	Do.	7,840	Do.
7,100	Do.	7,850	Do.
7,110	Do.	7,860	Do.
7,120	Do.	7,870	Do.
7,130	Do.	7,880	Do.
7,140	Do.	7,890	Do.
7,150	Do.	7,900	Do.
7,160	Do.	7,910	Do.
7,170	Do.	7,920	Do.
7,180	Do.	7,930	Do.
7,190	Do.	7,940	Do.
7,200	Do.	7,950	Do.
7,210	Do.	7,960	Do.
7,220	Do.	7,970	Do.
7,230	Do.	7,980	Do.
7,240	Do.	7,990	Do.
7,250	Do.	8,000	Do.
7,260	Do.	8,010	
7,270	Do.		
7,280	Do.	8,020	Aviation.
7,290	Do.	8,030	Government.
7,300	Do.	8,040	Do.
		8,050	Do.
7,310	Government.	8,060	Do.
7,320	Fixed.	8,070	Fixed.
7,330	Fixed and Govern-	8,080	Do.
	ment.	8,090	Government.
7,340	Fixed.	8,100	Do.
7,350	Do.	8,110	Do.
7,360	Do.	8,120	Do.
7,370	Do.	8,130	Do.
7,380	Do.	8,140	Do.
		8,150	Do.
7,390	Government.	8,160	Do.
7,400	Fixed.	8,170	Do.
7,410	Do.	8,180	Do.
7,420	Do.	8,190	Fixed.
7,430	Do.	8,200	Do.
7,440	Do.	8,210	Government
7,450	Do.	8,220	Aviation.
		8,230	Ship teleg.
7,460	Government.	8,240	Do.
		8,250	Do.
7,470	Fixed and Govern-	8,260	Do.
7,480	ment.	8,270	Government.
7,490	Fixed.	8,280	Mar. calling.
7,500	Do.	8,290	Ship teleg.
		8,300	Do.
7,510	Fixed and Govern-	8,310	Government.
7,520	ment.	8,320	Ship teleg.
7,530	Fixed.	8,330	Ship teleg. and Gov-
			ernment.
7,540	Fixed and Govern-	8,340	Ship teleg.
	ment.	8,350	Mobile press.
7,550	Fixed.	8,360	Do.
7,560	Do.	8,370	Coast teleg.
7,570	Do.	8,380	Do.
7,580	Do.	8,390	Do.
7,590	Do.	8,400	Do.
7,600	Do.	8,410	Government.
7,610	Do.	8,420	Coast teleg.
7,620	Do.	8,430	Do.
7,630	Do.	8,440	Do.
7,640	Do.	8,450	Do.
		8,460	Do.
7,650	Government.	8,470	Government.
7,660	Fixed.	8,480	Coast teleg.
7,670	Do.	8,490	Do.
7,680	Fixed and Govern-	8,500	Do.
	ment.	8,510	Government.
7,690	Fixed.	8,520	Coast teleg.
7,700	Do.	8,530	Government.

Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
8,540	Coast phone.	9,370	Fixed.
8,550	Do.	9,380	Do.
8,560	Do.	9,390	Do.
8,570	Coast teleg.	9,400	Do.
8,580	Do.	9,410	Do.
8,590	Government.	9,420	Do.
8,600	Do.	9,430	Do.
8,610	Do.	9,440	Do.
8,620	Do.	9,450	Do.
8,630	Coast teleg.	9,460	Do.
8,640	Do.	9,470	Do.
8,650	Do.	9,480	Do.
8,655	Gen. experimental.	9,490	Do.
8,660		9,500	
8,670	Coast teleg.	9,510	Relay broadcast.
8,680	Do.	9,520	
8,690	Do.	9,530	Do.
8,700	Fixed.	9,540	
8,710	Do.	9,550	Government.
8,720	Do.	9,560	
8,730	Government.	9,570	Relay broadcast.
8,740	Do.	9,580	
8,750	Do.	9,590	Do.
8,760	Do.	9,600	
8,770	Do.	9,610	Fixed.
8,780	Fixed.	9,620	Do.
8,790	Do.	9,630	Do.
8,800	Do.	9,640	Do.
8,810	Ship phone.	9,650	Do.
8,820	Do.	9,660	Do.
8,830	Do.	9,670	Do.
8,840	Do.	9,680	Do.
8,850	Do.	9,690	Do.
8,860	Government and fixed.	9,700	Do.
8,870	Government.	9,710	Do.
8,880	Do.	9,720	Do.
8,890	Do.	9,730	Do.
8,900	Fixed.	9,740	Do.
8,910	Do.	9,750	Do.
8,920	Do.	9,760	Do.
8,930	Do.	9,770	Do.
8,940	Do.	9,780	Do.
8,950	Do.	9,790	Do.
8,960	Do.	9,800	Do.
8,970	Do.	9,810	Do.
8,980	Do.	9,820	Do.
8,990	Do.	9,830	Do.
9,000	Do.	9,840	Do.
9,010	Do.	9,850	Do.
9,020	Do.	9,860	Do.
9,030	Do.	9,870	Do.
9,040	Do.	9,880	Do.
9,050	Government.	9,890	Do.
9,060	Fixed.	9,900	Do.
9,070	Do.	9,910	Do.
9,080	Fixed.	9,920	Do.
9,090	Government and fixed.	9,930	Do.
9,100	Fixed.	9,940	Do.
9,110	Do.	9,950	Do.
9,120	Do.	9,960	Do.
9,130	Do.	9,970	Do.
9,140	Do.	9,980	Do.
9,150	Do.	9,990	Do.
9,160	Do.	10,000	Government.
9,170	Do.	10,010	Fixed.
9,180	Do.	10,020	Do.
9,190	Do.	10,030	Do.
9,200	Do.	10,040	Do.
9,210	Do.	10,050	Do.
9,220	Do.	10,060	Do.
9,230	Do.	10,070	Do.
9,240	Do.	10,080	Do.
9,250	Government.	10,090	Do.
9,260	Fixed.	10,100	Do.
9,270	Do.	10,110	Do.
9,280	Do.	10,120	Do.
9,290	Do.	10,130	Do.
9,300	Do.	10,140	Do.
9,310	Do.	10,150	Do.
9,320	Do.	10,160	Do.
9,330	Do.	10,170	Do.
9,340	Do.	10,180	Do.
9,350	Do.	10,190	Do.
9,360	Do.	10,200	Do.

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Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
10, 210	Fixed.	11, 085	Ship teleg.
10, 220	Do.	11, 100	Do.
10, 230	Do.	11, 115	Coast teleg.
10, 240	Do.	11, 130	Do.
10, 250	Do.	11, 145	Do.
10, 260	Do.	11, 160	Do.
10, 270	Do.	11, 175	Do.
10, 280	Do.	11, 190	Do.
10, 290	Do.	11, 205	Do.
10, 300	Do.	11, 220	Do.
10, 310	Do.	11, 235	Do.
10, 320	Do.	11, 250	Do.
10, 330	Do.	11, 265	Do.
10, 340	Do.	11, 280	Do.
10, 350	Do.	11, 295	Do.
10, 360	Do.	11, 310	Do.
10, 370	Do.	11, 325	Do.
10, 380	Do.	11, 340	Mobile press.
10, 390	Do.	11, 355	Do.
10, 400	Do.	11, 370	Coast phone.
10, 410	Do.	11, 385	Do.
10, 420	Do.	11, 400	Do.
10, 430	Do.	11, 415	Fixed.
10, 440	Do.	11, 430	Do.
10, 450	Do.	11, 445	Do.
10, 460	Do.	11, 460	Do.
10, 470	Do.	11, 475	Government.
10, 480	Do.	11, 490	Fixed.
10, 490	Do.	11, 505	Do.
10, 500	Do.	11, 520	Do.
10, 510	Do.	11, 535	Do.
10, 520	Do.	11, 550	Do.
10, 530	Do.	11, 565	Do.
10, 540	Do.	11, 580	Do.
10, 550	Do.	11, 595	Do.
10, 560	Do.	11, 610	Do.
10, 570	Do.	11, 625	Do.
10, 580	Do.	11, 640	Do.
10, 590	Do.	11, 655	Do.
10, 600	Do.	11, 670	Do.
10, 610	Do.	11, 685	Do.
10, 620	Do.	11, 700	11, 700
10, 630	Do.	11, 715	11, 710
10, 640	Do.	11, 730	11, 720
10, 650	Do.	11, 730	11, 730
10, 660	Do.	11, 730	11, 740
10, 670	Do.	11, 745	11, 750
10, 680	Do.	11, 760	11, 760
10, 690	Do.	11, 760	11, 770
10, 700	Do.	11, 775	11, 780
10, 710	Do.	11, 790	11, 790
10, 720	Do.	11, 805	11, 800
10, 730	Do.	11, 805	11, 810
10, 740	Do.	11, 820	11, 820
10, 750	Do.	11, 835	11, 830
10, 760	Do.	11, 835	11, 840
10, 770	Do.	11, 850	11, 850
10, 780	Do.	11, 865	11, 860
10, 790	Do.	11, 865	11, 870
10, 800	Do.	11, 880	11, 880
10, 810	Do.	11, 895	11, 890
10, 820	Do.	11, 900	11, 900
10, 830	Do.	11, 910	11, 910
10, 840	Do.	11, 925	11, 925
10, 850	Do.	11, 940	11, 940
10, 860	Do.	11, 955	11, 955
10, 870	Do.	11, 970	11, 970
10, 880	Do.	11, 985	11, 985
10, 890	Do.	12, 000	12, 000
10, 900	Do.	12, 015	12, 015
10, 910	Do.	12, 030	12, 030
10, 920	Do.	12, 045	12, 045
10, 930	Do.	12, 060	12, 060
10, 940	Do.	12, 075	12, 075
10, 950	Do.	12, 090	12, 090
10, 960	Do.	12, 105	12, 105
10, 970	Do.	12, 120	12, 120
10, 980	Do.	12, 135	12, 135
10, 990	Do.	12, 150	12, 150
11, 000	Do.	12, 165	12, 165
11, 010	Ship teleg.	12, 180	12, 180
11, 025	Do.	12, 195	12, 195
11, 040	Mar. calling.	12, 210	12, 210
11, 055	Ship teleg.	12, 225	12, 225
11, 070	Do.		

Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
12, 240	Government.	13, 450	Fixed.
12, 255	Do.	13, 465	Do.
12, 270	Fixed.	13, 480	Do.
12, 285	Do.	13, 495	Do.
12, 300	Do.	13, 510	Do.
12, 315	Government.	13, 525	Do.
12, 330	Aviation.	13, 540	Do.
12, 345	Ship teleg.	13, 555	Do.
12, 360	Do.	13, 570	Do.
12, 375	Do.	13, 575	Government.
	a12, 380		Fixed.
12, 390	Government.	13, 585	Do.
12, 405	Ship teleg.	13, 600	Do.
12, 420	Government.	13, 615	Do.
12, 435	Mar. calling.	13, 630	Do.
12, 450	Ship teleg.	13, 645	Do.
12, 465	Do.	13, 660	Do.
12, 480	Government.	13, 675	Do.
12, 495	Ship teleg.	13, 690	Do.
12, 510	Coast teleg.	13, 705	Do.
12, 525	Do.	13, 720	Do.
12, 540	Do.	13, 735	Do.
12, 555	Government.	13, 750	Do.
12, 570	Coast teleg.	13, 765	Do.
12, 585	Do.	13, 780	Do.
12, 600	Do.	13, 795	Do.
12, 615	Do.	13, 810	Do.
12, 630	Government.	13, 825	Do.
12, 645	Coast teleg.	13, 840	Do.
12, 660	Do.	13, 855	Do.
12, 675	Do.	13, 870	Do.
12, 690	Do.	13, 885	Do.
12, 705	Government.	13, 900	Do.
12, 720	Coast teleg.	13, 915	Do.
12, 735	Do.	13, 930	Do.
12, 750	Do.	13, 945	Do.
12, 765	Government.	13, 960	Do.
12, 780	Coast teleg.	13, 975	Do.
12, 795	Government.	13, 990	Do.
12, 810	Coast phone.	14, 005	Amateurs.
12, 825	Do.	14, 020	Do.
12, 840	Do.	14, 035	Do.
12, 855	Do.	14, 050	Do.
	12, 862.5	14, 065	Do.
12, 870	General experimental.	14, 080	Do.
12, 885	Government.	14, 095	Do.
12, 900	Do.	14, 110	Do.
12, 915	Fixed.	14, 125	Do.
12, 930	Do.	14, 140	Do.
12, 945	Do.	14, 155	Do.
12, 960	Do.	14, 170	Do.
12, 975	Do.	14, 185	Do.
12, 990	Do.	14, 200	Do.
13, 005	Do.	14, 215	Do.
13, 020	Do.	14, 230	Do.
13, 035	Do.	14, 245	Do.
13, 050	Coast teleg.	14, 260	Do.
13, 065	Do.	14, 275	Do.
13, 080	Do.	14, 290	Do.
13, 095	Government.	14, 305	Do.
13, 110	Do.	14, 320	Do.
13, 125	Do.	14, 335	Do.
13, 140	Do.	14, 350	Do.
13, 155	Do.	14, 365	Do.
13, 170	Coast teleg.	14, 380	Do.
13, 185	Fixed.	14, 395	Do.
13, 200	Ship phone.	14, 410	Fixed.
13, 215	Do.	14, 425	Do.
13, 230	Do.	14, 440	Do.
13, 245	Do.	14, 455	Do.
13, 260	Do.	14, 470	Do.
13, 275	Do.	14, 485	Do.
13, 290	Government.	14, 500	Do.
13, 305	Do.	14, 515	Do.
13, 320	Do.	14, 530	Do.
13, 335	Do.	14, 545	Do.
13, 350	Fixed.	14, 560	Do.
13, 360	Do.	14, 575	Do.
13, 375	Do.	14, 590	Do.
	13, 380	14, 605	Do.
13, 390	Government.	14, 620	Do.
13, 405	Fixed.	14, 635	Do.
13, 420	Do.	14, 650	Do.
13, 435	Do.	14, 665	Do.
		14, 680	Do.

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Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
14, 695	Fixed.	15, 835	Fixed.
14, 710	Do.	15, 850	Do.
14, 725	Do.	15, 865	Do.
14, 740	Do.	15, 880	Do.
14, 755	Do.	15, 895	Do.
14, 770	Do.	15, 910	Do.
14, 785	Do.	15, 925	Do.
14, 800	Do.	15, 940	Do.
14, 815	Do.	15, 955	Do.
14, 830	Do.	15, 970	Do.
14, 845	Do.	15, 985	Do.
14, 860	Do.	16, 000	Do.
14, 875	Do.	16, 015	Do.
14, 890	Do.	16, 030	Do.
14, 905	Do.	16, 045	Do.
14, 920	Do.	16, 060	Government.
14, 935	Do.	16, 075	Fixed.
14, 950	Do.	16, 090	Government.
14, 965	Do.	16, 100	Fixed.
14, 980	Do.	16, 105	Government.
14, 995	Do.	16, 120	Fixed.
15, 000	Government.	16, 135	Government.
15, 010	Fixed.	16, 150	Do.
15, 025	Do.	16, 165	Do.
15, 040	Do.	16, 180	Government.
15, 055	Do.	16, 195	Fixed.
15, 070	Do.	16, 210	Do.
15, 085	Do.	16, 225	Do.
15, 100-15, 100		16, 240	Aviation.
15, 115	Relay broadcast.	16, 255	Fixed.
15, 115-15, 110		16, 270	Do.
15, 120		16, 285	Do.
15, 130	Government.	16, 300	Government.
15, 145	Relay broadcast.	16, 315	Fixed.
15, 150		16, 330	Government.
15, 160		16, 340	Fixed.
15, 175	Do.	16, 345	Government.
15, 180		16, 360	Fixed.
15, 190	Do.	16, 375	Do.
15, 205	Do.	16, 390	Do.
15, 210		16, 405	Ship teleg.
15, 220	Do.	16, 420	Government.
15, 235	Do.	16, 440	Aviation.
15, 240		16, 460	Ship teleg.
15, 250	Do.	16, 480	Do.
15, 265	Do.	16, 500	Do.
15, 270		16, 520	Do.
15, 280	Do.	16, 540	Government.
15, 295	Do.	16, 560	Mar. calling.
15, 310	Do.	16, 580	Ship teleg.
15, 325	Do.	16, 600	Do.
16, 340	Fixed.	16, 620	Government.
16, 355	Do.	16, 640	Ship teleg.
16, 370	Do.	16, 660	Do.
16, 385	Do.	16, 680	Do.
16, 400	Do.	16, 700	Mobile Press.
16, 415	Do.	16, 720	Do.
16, 430	Do.	16, 740	Coast teleg.
16, 445	Do.	16, 760	Do.
16, 460	Do.	16, 780	Do.
16, 475	Do.	16, 800	Do.
16, 490	Do.	16, 820	Government.
16, 505	Do.	16, 840	Coast teleg.
16, 520	Do.	16, 860	Do.
16, 535	Do.	16, 880	Do.
16, 550	Do.	16, 900	Do.
16, 565	Do.	16, 920	Do.
16, 580	Do.	16, 940	Government.
16, 595	Do.	16, 960	Coast teleg.
16, 610	Do.	16, 980	Do.
16, 625	Do.	17, 000	Do.
16, 640	Do.	17, 020	Government.
16, 655	Do.	17, 040	Coast teleg.
16, 670	Do.	17, 060	Government.
16, 685	Do.	17, 080	Coast phone.
16, 700	Do.	17, 100	Do.
16, 715	Do.	17, 120	Do.
16, 730	Do.	17, 140	Fixed.
16, 745	Do.	17, 160	Do.
16, 760	Do.	17, 180	Government.
16, 775	Do.	17, 200	Do.
16, 790	Do.	17, 220	Fixed.
16, 805	Do.	17, 240	Do.
16, 820	Do.		

Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
17, 260	Fixed.	18, 860	Fixed.
17, 280	Do.	18, 880	Do.
17, 300	Do.	18, 900	Do.
17, 320	17, 310 } General experimental.	18, 920	Do.
17, 340	Fixed.	18, 940	Do.
17, 360	Do.	18, 960	Do.
17, 380	Do.	18, 980	Do.
17, 400	Do.	19, 000	Do.
17, 420	Do.	19, 020	Do.
17, 440	Do.	19, 040	Do.
17, 460	Government.	19, 060	Do.
17, 480	Do.	19, 080	Do.
17, 500	Do.	19, 100	Do.
17, 520	Fixed.	19, 120	Do.
17, 540	Government.	19, 140	Do.
17, 560	Fixed.	19, 160	Do.
17, 580	Do.	19, 180	Do.
17, 600	Ship phone.	19, 200	Do.
17, 620	Do.	19, 220	Do.
17, 640	Do.	19, 240	Do.
17, 660	Do.	19, 260	Do.
17, 680	Do.	19, 280	Do.
17, 700	Fixed.	19, 300	Do.
17, 720	Government.	19, 320	Do.
17, 740	Do.	19, 340	Do.
		19, 360	Do.
		19, 380	Do.
17, 760	17, 750 } Relay broadcast.	19, 400	Do.
	17, 760 }	19, 420	Do.
	17, 770 }	19, 440	Do.
17, 780	17, 780 } Do.	19, 460	Do.
	17, 790 }	19, 480	Do.
17, 800	17, 800 } Do.	19, 500	Do.
	17, 810 }	19, 520	Do.
17, 820	Fixed.	19, 540	Do.
17, 840	Do.	19, 560	Do.
17, 860	Do.	19, 580	Do.
17, 880	Do.	19, 600	Do.
17, 900	Do.	19, 620	Do.
17, 920	Do.	19, 640	Do.
17, 940	Do.	19, 660	Do.
17, 960	Do.	19, 680	Do.
17, 980	Do.	19, 700	Do.
18, 000	Do.	19, 720	Do.
18, 020	Do.	19, 740	Do.
18, 040	Do.	19, 760	Do.
18, 060	Do.	19, 780	Do.
18, 080	Do.	19, 800	Do.
18, 100	Government.	19, 820	Do.
18, 120	Fixed.	19, 840	Do.
18, 140	Do.	19, 860	Do.
18, 160	Do.	19, 880	Do.
18, 180	Do.	19, 900	Do.
18, 200	Do.	19, 920	Do.
18, 220	Do.	19, 940	Do.
18, 240	Do.	19, 960	Do.
18, 260	Do.	19, 980	Do.
18, 280	Do.	20, 000	Government.
18, 300	Do.	20, 020	Fixed.
18, 320	Do.	20, 040	Do.
18, 340	Do.	20, 060	Do.
18, 360	Do.	20, 075	Government.
18, 380	Do.	20, 080	Fixed.
18, 400	Do.	20, 100	Do.
18, 420	Do.	20, 120	Do.
18, 440	Do.	20, 125	Government.
18, 460	Do.	20, 140	Fixed.
18, 480	Do.	20, 150	Government.
18, 500	Do.	20, 160	Fixed.
18, 520	Do.	20, 180	Do.
18, 540	Do.	20, 200	Do.
18, 560	Do.	20, 220	Do.
18, 580	Do.	20, 225	Government.
18, 600	Do.	20, 240	Fixed.
18, 620	Do.	20, 260	Do.
18, 640	Do.	20, 280	Do.
18, 660	Do.	20, 300	Do.
18, 680	Do.	20, 320	Do.
18, 700	Do.	20, 340	Do.
18, 720	Do.	20, 360	Do.
18, 740	Do.	20, 380	Do.
18, 760	Do.	20, 400	Government.
18, 780	Do.	20, 420	Fixed.
18, 800	Do.	20, 440	Do.
18, 820	Do.	20, 460	Do.
18, 840	Do.		

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Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
20, 480	Fixed.	22, 325	Coast teleg.
20, 600	Do.	22, 350	Do.
20, 620	Do.	22, 375	Do.
20, 640	Do.	22, 400	Do.
20, 560	Do.	22, 425	Do.
20, 580	Do.	22, 450	Do.
20, 600	Do.	22, 475	Do.
20, 620	Do.	22, 500	Do.
20, 640	Do.	22, 525	Do.
20, 660	Do.	22, 550	Do.
20, 680	Do.	22, 575	Do.
20, 700	Do.	22, 600	Do.
20, 720	Do.	22, 625	Government.
20, 740	Do.	22, 650	Coast teleg.
20, 760	Do.	22, 675	Coast phone.
20, 780	Do.	22, 700	Do.
20, 800	Do.	22, 725	Do.
20, 820	Do.	22, 750	Fixed.
20, 840	Do.	22, 775	Do.
20, 860	Do.	22, 800	Do.
20, 880	Do.	22, 825	Do.
20, 900	Do.	22, 850	Do.
20, 920	Do.	22, 875	Do.
20, 940	Do.	22, 900	Do.
20, 960	Do.	22, 925	Ship phone.
20, 980	Do.	22, 950	Do.
21, 000	Do.	22, 975	Do.
21, 020	Do.	23, 000	Do.
21, 025	Government.	23, 025	Gen. communication.
21, 040	Fixed.	23, 050	Do.
21, 060	Do.	23, 075	Do.
21, 080	Do.	23, 100	Gen. experimental.
21, 100	Do.	23, 125	Gen. communication.
21, 120	Do.	23, 150	Do.
21, 140	Do.	23, 175	Do.
21, 160	Do.	23, 200	Do.
21, 180	Do.	23, 225	Do.
21, 200	Do.	23, 250	Do.
21, 220	Do.	23, 275	Do.
21, 240	Do.	23, 300	Do.
21, 260	Do.	23, 325	Do.
21, 280	Do.	23, 350	Do.
21, 300	Do.	23, 375	Do.
21, 320	Do.	23, 400	Do.
21, 340	Do.	23, 425	Do.
21, 360	Do.	23, 450	Do.
21, 380	Do.	23, 475	Do.
21, 400	Do.	23, 500	Do.
21, 420	Do.	23, 525	Do.
21, 440	Do.	23, 550	Do.
21, 460 21, 460	Relay broadcast.	23, 575	Do.
21, 480 21, 480	Do.	23, 600	Do.
21, 500 21, 500	Government.	23, 625	Do.
21, 520 21, 520	Relay broadcast.	23, 650	Do.
21, 540 21, 540	Do.	23, 675	Do.
21, 575	Coast teleg.	23, 700	Do.
21, 600	Do.	23, 725	Do.
21, 625	Do.	23, 750	Do.
21, 650	Do.	23, 775	Do.
21, 675	Do.	23, 800	Do.
21, 700	Do.	23, 825	Do.
21, 725	Do.	23, 850	Do.
21, 750	Do.	23, 875	Do.
21, 775	Do.	23, 900	Do.
21, 800	Do.	23, 925	Do.
21, 825	Do.	23, 950	Do.
21, 850	Do.	23, 975	Do.
21, 875	Do.	24, 000	Do.
21, 900	Do.	24, 025	Do.
21, 925	Government.	24, 050	Do.
21, 950	Coast teleg.	24, 075	Do.
21, 975	Do.	24080	Government.
22, 000	Ship teleg.	24, 100	Gen. communication.
22, 025	Do.	24, 120	Government.
22, 050	Do.	24, 125	Gen. communication.
22, 075 22, 080	Mar. calling.	24, 150	Government.
22, 100	Ship teleg.	24, 175	Gen. communication.
22, 125	Do.	24, 180	Government.
22, 150	Do.	24, 200	Gen. communication.
22, 175	Government.	24, 225	Do.
22, 200	Ship teleg.	24, 250	Do.
22, 225	Mobile Press.	24, 270	Government.
22, 250	Do.	24, 275	Gen. communication.
22, 275	Coast teleg.	24, 300	Do.
22, 300	Do.	24, 325	Do.

Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
24, 350	Gen. communication.	26, 190	Government.
24, 375	Do.	26, 200	Gen. communication.
24, 400	Do.	26, 220	Government.
24, 425	Do.	26, 225	Gen. communication.
24, 450	Government.	26, 250	Government.
24, 475	Gen. communication.	26, 275	Gen. communication.
24, 480	Government.	26, 280	Government.
24, 500	Gen. communication.	26, 300	Gen. communication.
24, 510	Government.	26, 325	Do.
24, 525	Gen. communication.	26, 350	Do.
24, 540	Government.	26, 375	Do.
24, 550	Gen. communication.	26, 400	Do.
24, 575	Do.	26, 425	Do.
24, 600	Do.	26, 450	Do.
24, 625	Do.	26, 475	Do.
24, 630	Government.	26, 500	Do.
24, 650	Gen. communication.	26, 525	Do.
24, 675	Do.	26, 550	Do.
24, 700	Do.	26, 575	Do.
24, 725	Do.	26, 600	Do.
24, 750	Do.	26, 625	Do.
24, 775	Do.	26, 650	Do.
24, 800	Do.	26, 675	Do.
24, 825	Do.	26, 700	Do.
24, 850	Do.	26, 725	Do.
24, 875	Do.	26, 750	Do.
24, 900	Do.	26, 775	Do.
24, 925	Do.	26, 800	Do.
24, 930	Government.	26, 825	Do.
24, 950	Gen. communication.	26, 850	Do.
24, 975	Do.	26, 875	Do.
25, 000	Government.	26, 900	Do.
25, 025	Gen. communication.	26, 925	Do.
25, 050	Do.	26, 950	Do.
25, 075	Do.	26, 975	Do.
25, 100	Do.	27, 000	Do.
25, 125	Do.	27, 025	Do.
25, 150	Do.	27, 050	Do.
25, 175	Do.	27, 075	Do.
25, 200	Do.	27, 100	General experimental.
25, 225	Do.	27, 125	Gen. communication.
25, 230	Government.	27, 150	Government.*
25, 250	Gen. communication.	27, 125	Gen. communication
25, 275	Do.	27, 200	Do.
25, 300	Do.	27, 225	Do.
25, 325	Do.	27, 250	Do.
25, 350	Do.	27, 275	Do.
25, 375	Do.	27, 300	Do.
25, 400	Do.	27, 325	Do.
25, 410	Government.	27, 350	Do.
25, 425	Gen. communication.	27, 375	Do.
25, 450	Do.	27, 400	Do.
25, 475	Do.	27, 425	Do.
25, 500	Do.	27, 450	Do.
25, 525	Do.	27, 475	Do.
25, 530	Government.	27, 500	Do.
25, 550	Gen. communication.	27, 525	Do.
25, 575	Do.	27, 550	Do.
25, 590	Government.	27, 575	Do.
25, 600	Gen. communication.	27, 600	Do.
25, 625	Do.	27, 625	Do.
25, 650	Do.	27, 650	Do.
25, 675	Do.	27, 675	Do.
25, 700	General experimental.	27, 700	Do.
25, 725	Gen. communication.	27, 725	Do.
25, 750	Do.	27, 750	Do.
25, 770	Government.	27, 775	Do.
25, 775	Gen. communication.	27, 800	Do.
25, 800	Do.	27, 825	Do.
25, 825	Do.	27, 850	Do.
25, 850	Do.	27, 875	Do.
25, 875	Do.	27, 900	Do.
25, 900	Do.	27, 925	Do.
25, 925	Do.	27, 950	Do.
25, 950	Do.	27, 975	Do.
25, 975	Do.	28, 000	Do.
26, 000	General experimental.	28, 000	} Amateurs. to } See note 1. General experimental. Government.
26, 025	Gen. communication.	30, 000	
26, 050	Do.	30, 000	
26, 075	Do.	to	
26, 100	Do.	56, 000	
26, 125	Do.	30, 100	
26, 150	Do.	30, 100	
26, 175	Do.	30, 550	

RULES AND REGULATIONS

Frequency (kilocycles)	Service	Frequency (kilocycles)	Service
30, 590	Government.	39, 370	Government.
30, 620	Do.	39, 600	Fixed. (See note k.)
30, 660	Do.	40, 100	General experimental.
31, 100	General experimental.	40, 600	Do.
31, 600	Do.	40, 700	Fixed. (See note k.)
32, 120	Government.	41, 000	General experimental.
32, 160	Do.	42, 000	
32, 200	Do.	to	Exp. vis. broadcast.
32, 240	Do.	56, 000	
32, 360	Do.	46, 200	Fixed. (See note k.)
32, 600	Do.	47, 300	Do.
32, 640	Do.	48, 400	Do.
32, 680	Do.	49, 500	Do.
32, 720	Do.	a 51, 000	
33, 100	General experimental.	to	Government and exp.
33, 640	Government.	a 50, 000	vis. broadcast.
34, 040	Do.	50, 000	
34, 120	Do.	to	Amateurs.
34, 360	Do.	60, 000	
34, 600	General experimental.	a 60, 000	
34, 920	Government.	to	Government and exp.
34, 960	Do.	a 65, 000	vis. broadcast.
35, 000	Do.	60, 000	
35, 040	Do.	to	Exp. vis. broadcast.
35, 400	General experimental.	88, 000	
36, 200	Government.	86, 000	
36, 220	Do.	to	General experimental.
36, 300	Fixed. (See note k.)	400, 000	
36, 720	Government.	400, 000	
37, 100	General experimental.	to	Amateurs.
37, 400	Fixed. (See note k.)	401, 000	
37, 600	General experimental.	401, 000	
38, 290	Government.	and	General experimental.
38, 600	General experimental.	above.	

NOTES

a= Available for non-Government assignments.

b= Available for non-Government assignments in Alaska.

d= Available for non-Government stations for assignment to Merchant Fleet Corporation vessels for communication with Government stations.

e= Available for non-Government assignments provided no interference is caused with Government assignments.

f= Not to be used by Government stations in the vicinity of the Great Lakes.

g= Available for Government assignments provided no interference is caused to the fixed service.

h= Available for Government assignments provided no interference is caused to any other existing service.

i= This band of frequencies is unassigned except as is indicated in the table.

k= Assigned for low power fixed service in Hawaii.

ABBREVIATIONS

VB or vis. broadcast=experimental visual broadcasting.

Exp.=experimental.

Gen.=general.

B pick-up=broadcast pick-up.

A via.=aviation.

Govt.=Government.

Teleg.=telegraph.

RB=relay broadcasting.

Ship teleg.=ship radiotelegraph.

Coast teleg.=coastal radiotelegraph.

Coast phone=coastal radiotelephone.

Ship phone=ship radiotelephone.

Mar.=maritime.

FIXED SERVICES

Definitions.

230. The term "fixed public service" means a radio communication service carried on between fixed stations open to public correspondence. Fixed public service.

231. The term "fixed private service" means a limited private radio communication service carried on between fixed stations not open to public correspondence. Fixed private service.

232. The term "fixed public press service" means a limited radio communication service carried on between fixed point-to-point telegraph stations open to public correspondence for the transmission of news items, advertising, or other material relating to or intended for publication by press agencies and newspapers. Fixed public press service.

233. The term "agriculture service" means a fixed private radio communication service carried on between point-to-point telegraph stations for the transmission of agricultural market information. Agriculture service.

234. The term "point-to-point telegraph station" means a fixed station used for radiotelegraph communication. Point-to-point telegraph station.

235. The term "radiotelegraph" as hereinabove used shall be construed to include the following emissions: Radiotelegraph.

- A-1..... C. W. Morse telegraphy.
Printer.
Slow-speed facsimile.
- A-2..... Tone-modulated I.C.W.
- Special..... High - speed facsimile, picture transmission, and special methods of keying and modulation not included in A-1, A-2, and A-3.

236. The term "point-to-point telephone station" means a fixed station used for radiotelephone communication. Point-to-point telephone station.

237. The term "radiotelephone" as herein used shall be construed to include the following emissions: Radiotelephone.

- A-3..... Commercial telephony, single and double side bands.
- Special..... High-quality telephony and special methods of telephone modulation not included in A-3.

Tests and service messages.

238. Each point-to-point telephone station licensee may also use either A-1 or A-2 emission for test purposes or the exchange of service messages.

Logs.

239. Each licensee shall maintain adequate records of the operation of the station, including:

- a. Hours of operation.
- b. Frequencies used.
- c. Points of communication.
- d. Estimate of the total volume of traffic transmitted for the periods of time covered.

This information shall be made available upon request by authorized Government representatives.

International interference.

240. Licenses which authorize the use of frequencies above 6,000 kilocycles for fixed-service communication between points within the continental limits of the United States shall be issued with the limitation that if any frequency is used for domestic communication no interference shall result to international service, and if such interference is reported the licensee shall immediately discontinue use of the frequency during the hours when interference results.

Points of communication.

241. Each license or other instrument of authorization hereafter issued for fixed service will specify the points between which communication is authorized. The holder of any such instrument of authorization desiring to change said points of communication or to establish communication between other and additional points may be authorized to do so by modification of license or by the issuance of an additional construction permit or license pursuant to proper application.

Allocation of fixed service frequencies.

242. Allocation of frequencies to stations operating in the fixed services will be made from the frequencies designated for fixed service in rule 229.

AVIATION SERVICE

Definitions.

243. The term "aviation service" means a radio communication or special service carried on by aircraft stations, airport stations, aeronautical stations, or aeronautical point-to-point stations. **Aviation service.**

244. The term "aircraft station" means a radio station on board an aircraft. **Aircraft station.**

244a. For the service of public correspondence, aircraft stations and aeronautical stations shall be required to maintain continuous hours of service while aircraft are in flight along a particular route, such route to be specified in each license. **Public Service.**

245. The term "aeronautical station" means a ground station used primarily for radio communication with aircraft stations, but which may also carry on a limited fixed service with other aeronautical stations in connection with the handling of messages relating to the safety of life and property in the air. **Aeronautical station.**

246. The term "aeronautical point-to-point station" means a station used primarily for fixed service in connection with the relay of messages destined for or originating on aircraft and relating solely to the actual aviation needs of the licensees. **Aeronautical point-to-point station.**

247. The term "airport station" means a station of low power used only for communication with aircraft in the vicinity of an airport and/or for the transmission of radio range signals for the locating of the airport, and/or runways. **Airport station.**

248. The term "transport aircraft" means an aircraft operating regularly over fixed routes and commercially transporting persons and/or property. **Transport aircraft.**

249. The term "itinerant aircraft" means other than transport or Government aircraft. **Itinerant aircraft.**

250. A chain of stations is a series of aeronautical stations located along a route flown by transport aircraft and used cooperatively by all organizations flying the route on regular schedule. **Chain.**

251. All aeronautical stations shall provide service without discrimination to all transport aircraft, the owners of which desire nonpublic service and cooperate in **Service.**

its operation, maintenance, and liability. In addition, and if so required, such stations shall provide reasonable and fair service to itinerant aircraft upon the frequencies designated for that purpose.

251a. All aeronautical stations licensed for aviation public service shall provide such service without discrimination to any aircraft station licensed for public service.

Paid or toll messages forbidden.

252. Except when licensed for "public service", stations operating in the aviation service shall not be used to carry on public correspondence; i.e., paid or toll messages in the sense in which these terms are generally understood and accepted.

252a. Each license or other instrument of authorization for aviation public service shall designate the specific frequencies which the station is authorized to use to carry on public correspondence. Other frequencies which may be designated shall be used only for the handling of nonpublic messages relating to the safety of life and property in the air or the actual aviation needs of the licensees in accordance with the rules governing each particular class of station in the aviation service.

Power.

253. Aeronautical or aeronautical point-to-point stations will not be licensed to use more than 1 kilowatt of power on the frequencies above 1,500 kilocycles.

254. Airport stations will not be licensed to use more than 15 watts.

Logs.

255. Each licensee of airport, aeronautical, and aeronautical point-to-point stations licensed only for nonpublic aviation service shall keep a record of the operation of each station, showing time of operation, frequencies used, and stations with which communication was held.

The licensee of every station licensed to carry on aviation public service shall keep a record showing similar information and, in addition, a record of the messages handled.

An aircraft station not licensed for public service is not required to keep such records.

These records shall be made available upon request by authorized Government representatives.

Day frequencies.

256. In all cases herein where the word "day" occurs in connection with a specific frequency, such use of the word "day" shall mean that period of time included between 2 hours after local sunrise and 2 hours before local sunset. If, for any reason, it is impossible to shift

from a day to a night frequency at the exact time required, such shift in frequency shall be made at the earliest possible moment. Under no circumstances shall the use of a day frequency be continued at night on an aircraft after such aircraft has once landed at one of the regular airports along its route, following the time when such shift is required to be made.

257. Frequencies licensed for use by aeronautical point-to-point stations shall be used primarily in connection with the relay of nonpublic messages destined for or originating on aircraft and relating solely to the actual aviation needs of the licensees and then only where frequencies are allocated to a chain and cooperatively used. A point-to-point service may be licensed upon application on frequencies to be designated, provided that the use of such service shall be open to all of the cooperative participants upon an equal basis and then only to the extent of the actual aviation needs of the licensees.

Limitations with regard to aeronautical point-to-point service.

258. The licensee of an airport station licensed to use the airport frequency shall without discrimination provide nonpublic service for any and all aircraft. Such licensee shall maintain a listening watch on the aircraft calling frequency 3,105 kilocycles,¹ between the hours of sunrise and sunset, and such other hours as may hereafter be designated by the Commission. Airport stations are not to be used for the purpose of conducting instructional flying. Except for test purposes radio range signals shall be transmitted only upon specific requests from aircraft desiring to use the airport served by the station and the transmission of radio range signals shall be discontinued immediately upon the landing of such aircraft. Before conducting tests the licensee shall determine that such tests will cause no interference on the assigned frequency or to other frequencies.

Service to be provided by airport station.

259. The Commission may, from time to time, designate certain airports at which the licensee of aeronautical chain facilities will be required to make arrangements for

¹ All stations of the Aeronautics Branch, Department of Commerce, equipped with radiotelephone apparatus listen for calls from aircraft on 3,105 kilocycles upon specific request. Acknowledgments are made by weather broadcasting stations on their regular assigned frequency; however, these stations shift to 236 kilocycles for any other communications. Replies are made to aircraft by intermediate radio stations—i.e., stations of low power located at intermediate points, such as intermediate fields or intermediate weather reporting points, on the frequency 230 kilocycles. Communication will also be established by the intermediate stations on the frequency 230 kilocycles with aircraft using the aeronautical chain frequencies.

the installation and operation of a transmitter for the airport frequency, and maintain a listening watch on 3,105 kilocycles during hours to be specified. In cases of disagreement between various interests at an airport, as to the operation of the airport transmitter, the Commission will specify the arrangements.

**Cooperative use
of airport station.**

260. Only one airport station will be permitted to an airport. The use of the station shall be open to any and all aircraft operators. In case one or more aircraft licensees operate regularly from such airport, control lines to the station shall be permitted upon request in order that each operator may, if he desires, use the station under the supervision of the licensee for the handling of his own aircraft. If airport stations are installed at adjacent airports, arrangements must be made between the licensees for a system to prevent interference being caused by simultaneous operation. In case of disagreement between the various interests as to the operation of airport stations the Commission will specify the arrangements.

**Emergency use
of aeronautical
station.**

261. At all times the licensee of an aeronautical point-to-point service shall be required to transmit, without charge or discrimination, all necessary messages in times of public emergency which involve the safety of life or property.

**Special regula-
tions, public
service.**

262. Upon showing that a need exists for public service a license or other instrument of authorization may be issued for a station in the Aviation Service provided that:

a. Type A-1 emission only shall be used for the transmission of public correspondence.

b. Satisfactory communication facilities are available at each aeronautical station desiring a license for aviation public service for the relaying of public correspondence to its destination.

c. Two licensed radio operators shall maintain simultaneous hours of watch at each aeronautical station; and that the operator who carries on the service of public correspondence at aeronautical stations possesses a radiotelegraph second-class license or the equivalent thereof.

d. The operator on duty in each aircraft station licensed for aviation public service possesses a license showing proficiency in transmission and reception at a speed of not less than 16 words per minute in Continental Morse Code, code groups, and 20 words per minute in Continental Morse Code, plain language (5 characters to the word).

e. The receiving installation used for nonpublic service shall not be used for calls or messages in connection with the handling of public correspondence.

f. The receiving installation in all aircraft and aeronautical stations used for the reception of public correspondence shall be separate and distinct from the main receiving installation used for the reception of nonpublic correspondence.

g. The transmitting installation used in all aeronautical stations for the transmission of public correspondence shall be separate and distinct from the main transmitting installation used for the handling of nonpublic correspondence.

h. The frequency or frequencies used for emergency messages are guarded continuously while public service messages are being handled; and that the installation and operator's watch in aircraft and aeronautical stations will permit instantaneous interruption of public service messages to transmit and/or receive messages relating to safety of life and property in the air.

i. The person actually at the controls of an aircraft in flight shall not perform any duties incident to the handling of public correspondence. He shall be the sole judge as to whether or not the conditions existing at the time of filing a public service message will permit the handling thereof by any other person aboard the aircraft. Furthermore, arrangements shall be made so as to prevent access to the pilot's compartment by the public in connection with the handling and filing of public correspondence.

j. The applicant is legally empowered to handle public message correspondence and assumes the usual obligations of a public utility corporation.

262a. The frequencies assigned for aviation purposes are as follows: Classification of frequencies.

A. DISTRESS, CALLING, AND NAVIGATION

224 kilocycles, airport frequency: Calling and working frequency from ground stations to aircraft. Power not to exceed 15 watts.

333 kilocycles: International air-calling frequency to be used only beyond the limits of the United States and then only for communication between aircraft and foreign stations.

375 kilocycles: Direction-finding frequency.

500 kilocycles: International calling and distress frequency for ships and aircraft over the seas.

1,638 kilocycles: Air navigation frequency. Available for aeronautical stations, transport and itinerant aircraft.

3,105 kilocycles: National calling and working frequency for all itinerant aircraft. It may also be assigned to transport aircraft in addition to the chain frequencies. Aircraft calling or working ground stations on this frequency will conduct a 2-way communication by utilizing the 3,105 kilocycles frequency for transmitting from aircraft to the ground and the 224 kilocycles frequency for the receiving from the ground to aircraft.

4,140	} kilocycles	{	Primarily for coastal stations and ships. May also be assigned to aircraft only for the purpose of communicating with a coastal station or a ship when aircraft is in flight over the seas.
5,520			
6,210			
8,280			
11,040			
12,420			
16,560			

414	} kilocycles	{	Working frequencies for aircraft on sea flights desiring intermediate frequencies. Those desiring high frequencies above 3,000 kilocycles may be authorized to use the frequencies assigned for ship telegraph service.
457			

B. AERONAUTICAL, AERONAUTICAL POINT-TO-POINT, AND AIRCRAFT STATIONS ALONG A CHAIN

a. Chains will be established as indicated upon a map to be maintained by the Commission and this map will show the location of all aeronautical stations and, as nearly as possible, all proposed chains (following, connecting with, or independent of existing chains).²

b. The frequencies allocated to the several chains are as follows:

NORTHERN TRANSCONTINENTAL CHAIN AND FEEDERS (RED)

Available for aircraft and aeronautical stations

3,147.5	5,122.5
3,162.5	5,572.5
3,172.5	5,582.5
3,182.5	5,592.5
3,322.5	5,662.5

MID-TRANSCONTINENTAL CHAIN AND FEEDERS (BLUE)

Available for aeronautical and aircraft stations

2,906	4,947.5	5,672.5
3,072.5	4,967.5	5,692.5
3,088	4,987.5	

² Copies of this map, entitled "Federal Radio Commission Commercial Aviation Communication System", may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. Price, 10 cents.

FEDERAL RADIO COMMISSION

Available for aeronautical point-to-point stations

2,720	6,510: Day only.
2,732	6,520: Day only.
4,110	6,530: Day only.
	8,015: Day only.

SOUTHERN TRANSCONTINENTAL CHAIN AND FEEDERS (BROWN)

Available for aeronautical and aircraft stations

3,127.5	4,917.5	3,005. ²
3,222.5 ¹	5,602.5	2,854. ²
3,232.5	5,612.5	5,377.5: Day only. ²
3,242.5	5,632.5	
3,257.5		
3,447.5		
3,457.5		
3,467.5		
3,485		

Available for aeronautical point-to-point stations

2,640 ²	4,740	6,540: Day only.
2,644 ²		6,550: Day only.
2,612		6,560: Day only.
2,636		8,015: Day only.
3,467.5		

EASTERN CONTINENTAL CHAIN AND FEEDERS (GREEN)

Available for aeronautical and aircraft stations

2,922	4,122.5
2,946	5,652.5
2,986	

Available for aeronautical point-to-point stations

2,748	6,590: Day only.
4,745	6,600: Day only.

SOUTHERN INTERCONTINENTAL CHAIN AND FEEDERS (ORANGE)

Available for aeronautical and aircraft stations

2,780	5,375	8,220
3,082.5	5,405: Day only.	12,330
	5,692.5	16,440

Available for aeronautical point-to-point stations

2,648	6,570: Day only.
3,082.5	6,580: Day only.
5,375	8,015: Day only.
	16,240

¹ Day only—not to be used within 300 miles of Canada.
² Available for use west and north of Chicago only.

C. ADDITIONAL FREQUENCIES

The following additional frequencies may be assigned to lighter-than-air craft and to aeronautical stations serving lighter-than-air craft:

2,930 6,615

D. PUBLIC SERVICE FREQUENCIES

The frequencies which may be authorized for public aviation service are as follows:

4,335 4,480 4,495

COASTAL SERVICES

Definitions.

263. The term "coastal service" means a radiocommunication service carried on by means of coastal stations of any class with maritime mobile stations. Coastal service.

264. The term "coastal station" means a land station used for radio communication with maritime mobile stations. Coastal station.

265. The term "public coastal service" means a radiocommunication service open to public correspondence, carried on by means of coastal stations with maritime mobile stations. Public coastal service.

266. The term "private coastal service" means a limited private radiocommunication service not open to public correspondence, carried on by means of coastal stations with maritime mobile stations. Private coastal service.

267. The term "coastal telegraph station" means a coastal station used for radiotelegraph service with maritime mobile stations. Coastal radiotelegraph station.

268. The term "coastal telephone station" means a coastal station used primarily for radiotelephone service with ocean-going vessels. Coastal radiotelephone station.

269. The term "coastal harbor station" means a coastal station used primarily for radiocommunication service with small craft or other vessels that employ relatively low-power transmitters of limited range. Stations of this class may be licensed to use radiotelegraph or radiotelephone emission, or both. Coastal harbor station.

270. The international calling and distress frequency is 500 kilocycles.¹ In the Great Lakes region the frequency 410 kilocycles shall be used for calling and distress purposes in lieu of the international calling and distress frequency, 500 kilocycles. International calling and distress frequency.]

271. The international calling and distress frequency, 500 kilocycles (410 kilocycles on the Great Lakes only), and all other radiotelegraph calling frequencies herein allocated may be used for the transmission of operating signals and a single short radiotelegram provided no interference is caused to distress, urgent, safety, or call signals. Calling frequencies, use of.

¹ See International Radiotelegraph Convention (Treaty Series 767).

Calling frequen-
cies, not to be
used for working.

272. In no case shall the calling frequency, 500 kilocycles (410 kilocycles on the Great Lakes), be used for working purposes, except as provided in rule 271 and as may be necessary for the handling of distress, urgent, or safety messages. Other calling frequencies may be used for working purposes provided no interference is caused to calls from mobile stations.

Logs.

273. Each licensee of coastal stations shall maintain an accurate log of the operation of each station on the international calling and distress frequency, 500 kilocycles (410 kilocycles on the Great Lakes), as follows:

a. At stations where continuous watch is maintained an entry shall be made at least every 15 minutes. At stations having limited hours of operation, similar entry shall be made during the time the station is active. All calls or answers made shall be entered, giving time and call letters of station worked. Stations may be designated by their call letters in all log entries.

b. Entry shall be made of any unlawful interference from other stations.

c. Distress calls and any unusual and special incidents shall be duly entered.

d. Notations shall be made of any breakdown of apparatus, failure of power supply, noises or disturbances tending to delay traffic.

e. When a change in the watch is made the operator relieved shall sign his name with the indication "off watch" and the relieving operator shall sign his name showing that he is "on watch."

f. Each sheet of the log shall be numbered and dated. The time used for making an entry in the radio log shall be stated at the top of each sheet; i.e., Greenwich mean time, seventy-fifth meridian time, or whatever time is used, depending upon the location of the station.

274. These logs shall be made available upon request by authorized Government representatives.

Frequencies,
coastal stations.

275. The following frequencies are allocated to coastal stations as indicated:

A. COASTAL TELEGRAPH STATIONS

105	118	129	139
107	119	130	140
109	120	131	141
110	121	133	143 Calling.
111	123	134	145
112	124	135	146
114	125	136	147
116	126	137	148
117	127	138	149

150	452	8,380	12,780
161	454	8,390	13,050
162	460	8,400	13,065
163	462	8,420	13,080
164	466	8,430	13,170
165	472	8,440	10,560 Calling.
166	474	8,450	16,740
167	476	8,460	16,760
168	478	8,480	16,780
169	482	8,490	16,800
170	484	8,500	16,840
171		8,520	16,860
173		8,570	16,880
174	500	8,580	16,900
176		8,630	16,920
177	3,105	8,640	16,960
178	3,120	8,670	16,980
179	4,140	8,680	17,000
180	4,175	8,690	17,040
181	4,180	11,040	21,575
182	4,185	11,115	21,600
183	4,780	11,130	21,625
184	4,785	11,145	21,650
186	4,790	11,160	21,675
187	5,620	11,175	21,700
188	5,640	11,190	21,725
189	5,545	11,205	21,750
191	5,550	11,220	21,775
193	5,555	11,235	21,800
194	5,560	11,250	21,825
392	5,565	11,265	21,850
394	6,210	11,280	21,875
406	0,250	11,295	21,900
408	0,260	11,310	21,950
	0,270	11,325	21,975
	6,280	12,420	22,080 Calling.
410	6,290	12,495	22,275
	6,300	12,510	22,300
	6,310	12,525	22,325
418	6,320	12,555	22,350
420	6,330	12,570	22,375
422	6,340	12,585	22,400
	6,350	12,600	22,425
425	6,360	12,630	22,450
	6,370	12,645	22,475
430	6,380	12,660	22,500
432	6,390	12,675	22,525
436	6,400	12,690	22,550
438	6,410	12,720	22,575
442	8,280	12,735	22,600
448	8,370	12,750	22,650

B. COASTAL TELEPHONE STATIONS

4,270	6,460	11,385	17,120
4,275	6,470	11,400	22,675
	6,480	12,810	22,700
	8,540	12,825	22,725
4,280	8,550	12,840	
	8,560	17,080	
4,285	11,370	17,100	
4,290			

C. COASTAL HARBOR STATIONS

2,504	2,528	2,556	2,588
2,508	2,532	2,560	2,592
	2,536	2,564	2,596
2,512	2,540	2,568	2,600
2,516		2,572	
	2,548	2,580	2,736
2,520	2,552	2,584	2,740
2,524			

MARINE RELAY SERVICE

276. The term "marine relay service" means a radio-telegraph service carried on between marine relay stations communicating with one another for the relay of maritime mobile communications or for the interchange of messages or operating signals pertaining to maritime mobile communications only. Definition, marine relay service.

277. The term "marine relay station" means a coastal telegraph station licensed to communicate with other coastal telegraph stations within the same geographical area. Definition, marine relay station.

278. A license for marine relay service will be granted only to a licensee of a public coastal telegraph station and only to the following: Limitations as to licenses and use of frequencies.

a. A coastal telegraph station licensee, for the transmission of radio operating signals utilizing the coastal calling or individual working frequencies that are licensed to the same applicant at the particular location where marine relay service is desired.

b. A Great Lakes coastal telegraph station licensee, for the relay of messages either destined to or originating at mobile stations on the Great Lakes, provided, however, that such messages shall be relayed only upon the coastal working frequencies that are licensed to the same applicant at the particular location where marine relay service is desired and provided further that the frequencies are available for both fixed and mobile services under the provisions of the International Radiotelegraph Convention.

c. Any other coastal telegraph station licensee, for the relay via another marine relay station of messages destined to a mobile station, provided, however, that such messages shall be relayed only upon the coastal working frequencies that are licensed to the same applicant at the particular location where marine relay service is desired and provided further that this service is not to be used for the normal routing of traffic, but only when, for any reason, the initial coastal station has been unable to communicate directly with such mobile station.

Points of
communication.

279. Marine relay stations are permitted to communicate only with stations of their own class located in the same geographical area, provided, however, that they may also communicate with foreign coastal stations within their geographical areas if no interference with international service results from such communication. The areas to be designated in licenses, unless otherwise specified, will be as follows:

Logs.

- a. Atlantic-Gulf area.
- b. Great Lakes area.
- c. Pacific area.

280. Each licensee shall maintain adequate records of the operation of each station, including (1) hours of operation, (2) frequencies used, (3) points of communication, and (4) estimate of the total volume of traffic transmitted for the periods of time covered. This information shall be made available upon request by authorized Government representatives.

SHIP SERVICE

281. The ship acts of July 23, 1912, and June 24, 1910, ^{Ship acts.} are reprinted for convenient reference:

An act approved July 23, 1912, amending section 1 of an act entitled "An act to require apparatus and operators for radio communication on certain ocean steamers," approved June 24, 1910.¹

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, * * **

SECTION 1. That from and after October first, nineteen hundred and twelve, it shall be unlawful for any steamer of the United States or of any foreign country navigating the ocean or the Great Lakes and licensed to carry, or carrying, fifty or more persons, including passengers or crew or both, to leave or attempt to leave any port of the United States unless such steamer shall be equipped with an efficient apparatus for radio communication, in good working order, capable of transmitting and receiving messages over a distance of at least one hundred miles, day or night. An auxiliary power supply, independent of the vessel's main electric power plant, must be provided which will enable the sending set for at least four hours to send messages over a distance of at least one hundred miles, day or night, and efficient communication between the operator in the radio room and the bridge shall be maintained at all times. ^{Auxiliary}

The radio equipment must be in charge of two or more persons skilled in the use of such apparatus, one or the other of whom shall be on duty at all times while the vessel is being navigated. Such equipment, operators, the regulation of their watches, and the transmission and receipt of messages, except as may be regulated by law or international agreement, shall be under the control of the master, in the case of a vessel of the United States; and every willful failure on the part of the master to enforce at sea the provisions of this paragraph as to equipment, operators, and watches, shall subject him to a penalty of one hundred dollars. ^{Operators.} ^{Penalty.}

That the provisions of this section shall not apply to steamers plying between ports, or places, less than two hundred miles apart.

SEC. 2. That this act, so far as it relates to the Great Lakes, shall take effect on and after April first, nineteen hundred and thirteen, and so far as it relates to ocean cargo steamers shall take effect on and after July first, nineteen hundred and thirteen: *Provided*, That on cargo steamers, in lieu of the second operator provided for in this act, there may be substituted a member of the crew or other person who shall be duly certified and entered in the ship's log as competent to receive and understand distress calls or other usual calls indicating danger, and to aid in maintaining a constant wireless watch so far as required for the safety of life. ^{Cargo operators.}

¹ The amended act applies to vessels licensed to carry as well as those actually carrying 50 or more persons, etc.

The remaining sections of the act of June 24, 1910, which are unchanged, read as follows:

**Intercommuni-
cation.**

SEC. 2. That for the purpose of this act apparatus for radio communication shall not be deemed to be efficient unless the company installing it shall contract in writing to exchange, and shall, in fact, exchange, as far as may be physically practicable, to be determined by the master of the vessel, messages with shore or ship stations using other systems of radio communication.

Penalty.

SEC. 3. That the master or other person being in charge of any such vessel which leaves or attempts to leave any port of the United States in violation of any of the provisions of this act shall, upon conviction, be fined in a sum not more than five thousand dollars, and any such fine shall be a lien upon such vessel, and such vessel may be libeled therefor in any district court of the United States within the jurisdiction of which such vessel shall arrive or depart, and the leaving or attempting to leave each and every port of the United States shall constitute a separate offense.

SEC. 4. That the Secretary of Commerce shall make such regulations as may be necessary to secure the proper execution of this act by collectors of customs and other officers of the Government.

**Definition, ship
service.**

282. The term "ship service" means a radiocommunication service carried on between ship stations and coastal stations or between ship stations and other maritime mobile stations.

Upon application being made, the Commission may grant authority for a radio station operated on board a pleasure vessel or a yacht, or on board a vessel or other mobile unit, undertaking scientific expedition, to transmit on ship frequencies above 3,000 kilocycles designated in the license of such ship station, for the secondary purpose of communicating directly with licensed amateur stations, on condition that such transmission shall not interfere with the primary use of these frequencies for regular commercial maritime communication, and provided the applicant makes a satisfactory showing that:

a. The messages to be exchanged with amateur stations will contain no material savoring of a commercial transaction.

b. Unusual circumstances will obtain during the contemplated voyage(s) making it extremely beneficial to the applicant to communicate direct with amateur stations, rather than indirectly through other maritime mobile stations or directly through authorized coastal stations and connecting land wire systems.

**Definition, ship
station.**

283. The term "ship station" means a station on board a vessel not permanently moored.

**Classification of
ship stations.**

284. Ship stations shall be classified as follows:

a. *First class.*—Stations whose duration of service is *First class.* continuous while the vessel is being navigated.

b. *Second class.*—Stations carrying on a designated *Second class.* service of limited duration.

c. *Third class.*—Stations of which the duration of *Third class.* service is less than that specified for the stations in the second class and stations whose duration of service is undetermined.

d. Licenses for stations which change frequently from one class to another may be granted, specifying more than one class.

e. Provided the transmitting equipment to be used in *Lifeboats.* lifeboats is described in the application for license and in the license for the ship to which the lifeboat(s) is attached, such equipment may be operated for maintenance tests and emergency communication under the regular license of the ship stations without a separate license posted in the lifeboat(s). The call signals to be used by a lifeboat operating under this rule shall be the regularly assigned call of the ship station to which the lifeboat is attached, to be followed by the international break sign, \overline{BT} , and the number of the lifeboat.

285. The following frequencies are allocated for the *Frequencies.* following types of ship service; in assigning any frequency designated under b. and c. below, the use of that frequency may be restricted to communication with a specified coastal telephone or coastal harbor station:

a. For telegraph communication primarily with coastal telegraph stations:

143 Calling.	4, 140 Calling.	11, 025
152	4, 145	11, 040 Calling.
153	4, 150	11, 055
164	4, 160	11, 070
165	4, 165	11, 085
156	5, 510	12, 360
157	5, 515	12, 375
158	5, 520 Calling.	12, 390
160	5, 525	12, 420 Calling.
d 355	5, 530	12, 435
375 (See rule 290).	6, 170	12, 450
394	6, 180	16, 460
400	6, 190	16, 450
	6, 200	16, 500
410 { Calling only on Great Lakes working in other regions.	6, 210 Calling.	16, 520
	6, 220	16, 560 Calling.
425	8, 230	16, 580
454	8, 240	16, 660
468	8, 250	16, 680
	8, 260	22, 025
500 { Calling only (not for use on Great Lakes).	8, 280 Calling.	22, 050
	8, 290	22, 080 Calling.
3, 105 Calling.	8, 300	22, 100
3, 115	8, 320	22, 125
	8, 330	22, 150

^d Available for non-Government stations for assignment to Merchant Fleet Corporation vessels for communication with Government stations.

b. For telephone communications primarily with coastal telephone stations:

4,400	} 4,402.5	6,650	} 13,215	17,680	
4,405		6,660		13,230	22,925
4,410	} 4,412.5	6,670	} 13,245	22,950	
4,415		8,810		13,250	22,975
4,420	} 4,422.5	8,820	} 13,275	23,000	
4,425		8,830		17,600	
		8,840		17,620	
		8,850	17,640		
		13,200	17,660		

c. For telephone or telegraph communication primarily with coastal harbor stations:

2,108	} 2,110	2,132	} 2,134	2,164	} 2,166	2,196	} 2,198
2,112		2,136		2,108		2,200	
2,116	} 2,118	2,140	} 2,142	2,172	} 2,174	2,204	} 2,206
2,120		2,144		2,176		2,208	
2,124	} 2,126	2,156	} 2,158	2,180	} 2,182		
2,128		2,160		2,184			

d. For telephone or telegraph communication primarily between ship harbor stations:

2,736 }
2,740 } 2,738

International calling and distress frequency.

286. The international calling and distress frequency is 500 kilocycles.² In the Great Lakes region the frequency 410 kilocycles shall be used for calling and distress purposes in lieu of the international calling and distress frequency 500 kilocycles.

Calling frequencies, use of.

287. The international calling and distress frequency 500 kilocycles (410 kilocycles on the Great Lakes only) and all other radiotelegraph calling frequencies herein allocated may be used for the transmission of operating signals, and a single short radio-telegram, provided no interference is caused to distress, urgent, safety, or call signals.

Calling frequencies, not to be used for working.

288. In no case shall the calling frequency 500 kilocycles (410 kilocycles on the Great Lakes) be used for working purposes except as provided in rule 287 and as may be necessary for the handling of distress, urgent, or safety messages. Other calling frequencies may be used for working purposes, provided no interference is caused to calls from mobile stations.

² See International Radiotelegraph Convention (Treaty Series 767).

289. Frequencies designated in a ship station license as "working" may be used for all purposes for which calling frequencies are authorized and in addition may be used for the handling of regular message traffic. Working frequencies, use of.

290. The frequency 375 kilocycles shall be used only for communication relative to obtaining or furnishing position reports by means of radio direction-finding stations. Direction finding frequency.

291. In addition to the frequencies designated in the license of a ship station, such station may transmit:

a. On any frequency between 110 and 194 kilocycles when directed to do so by a coast station operating in this band, provided no interference results to the service of any other coast station. The operating frequency of the ship station shall be designated by the coast station.

b. On a frequency above 385 kilocycles used by a coast station when directed to do so by the coast station to which the frequency is assigned.

c. On a United States Government frequency when directed to do so by a station of the Government department to which the frequency is assigned.

292. Except in case of signals or messages relating to vessels in distress, all ship stations shall use the minimum amount of energy necessary to carry out any communication desired. Power.

293. Except under the following condition no license will be issued for the operation of any radio station using, or proposing to use, transmitting apparatus employing damped-wave emission. If such apparatus was installed on board a ship prior to January 1, 1930, license will be issued for the operation of damped-wave transmitters on the following frequencies only: Damped waves.

375 kilocycles
410 kilocycles
425 kilocycles
454 kilocycles
500 kilocycles

294. The logarithmic decrement per complete oscillation in the wave trains emitted by the transmitter of a ship station using damped waves shall not exceed two tenths, except when sending distress signals or signals and messages relating thereto. Damped waves, decrement.

295. The licensee of each ship station shall maintain an accurate log of the operation of such station on the inter- Logs.

national calling and distress frequency, 500 kilocycles (410 kilocycles on the Great Lakes), as follows:

a. At stations where continuous watch is maintained an entry shall be made at least every 15 minutes. At stations having limited hours of operation similar entry shall be made during the time the station is active. All calls or answers made shall be entered, giving time and call letters of station worked. Stations may be designated by their call letters in all log entries.

b. Entry shall be made of any unlawful interference from other stations.

c. Distress calls and any unusual and special incidents shall be duly entered.

d. Notations shall be made of any breakdowns of apparatus, failure of power supply, noises or disturbances tending to delay traffic.

e. When a change in the watch is made, the operator relieved shall sign his name with the indication "off watch," and the relieving operator shall sign his name showing that he is "on watch."

f. Each sheet of the log shall be numbered and dated. The time used for making an entry in the radio log shall be stated at the top of each sheet; i.e., Greenwich mean time, seventy-fifth meridian time, or whatever time is used, depending upon the location of the station.

g. Time of arrival at and departure from ports, giving names of each.

h. Approximate position of vessel showing miles and direction from some given point each day. Latitude and longitude may be used (noon position is preferred).

i. These logs shall be made available upon request by authorized Government representatives. These logs shall be filed either aboard the ship on which the station is located or at established offices of the licensee where they shall be made available upon request by authorized Government representatives.

296. A marine transmitter operated by its individual storage battery of at least 4 hours continuous capacity will meet the requirements of the ship act (rule 281) as a proper auxiliary power supply when this transmitter is licensed for emergency service, or for both routine and emergency service under the following conditions:

a. Where such transmitter is used only for emergency service it shall be operated by a storage battery having at least 4 hours continuous capacity or other auxiliary power

supply, independent of the vessel's main electric power plant, capable of continuously operating this set for at least 4 hours.

b. Where such transmitter is used for both routine and emergency service, in addition to the power supply specified in section a, an entirely separate source of power shall be provided for the routine service. This separate power supply may consist of an additional battery or other source of power.

The term "emergency service" as used herein means the transmission of distress, alarm, urgent or safety signals, or messages relating thereto, or any matter relating to the safety of life or property, or any transmission for determining that the apparatus is in good working condition.

The term "routine service" as used herein means all other transmissions authorized for ship stations.

MOBILE PRESS SERVICE

297. The term "mobile press service" means a limited ^{Definition, mobile press service.} radio communication service open to public correspondence for the transmission of news items or other related press material to or from maritime mobile stations or scientific expeditions away from the United States.

298. The term "mobile press station" means a land ^{Definition, mobile press station.} station operating in the mobile press service for radiotelegraph communication with maritime mobile stations or stations of scientific expeditions away from the United States.

299. The following frequencies are allocated to mobile press service:

a. Stations east of the Mississippi River. Frequencies.

6,450	11,355	22,250
8,360	16,720	

b. Stations west of the Mississippi River.

6,440	11,340	22,225
8,350	16,700	

300. Stations licensed for mobile press service shall ^{Hours of operation.} share jointly the frequencies allocated to the geographical area in which they are located.

301. Each licensee of a mobile press station shall ^{Logs.} maintain adequate records of the operation of each station, including (1) hours of operation, (2) frequencies used, (3) points of communication, and (4) estimate of the total volume of traffic transmitted for the periods of time covered. This information shall be made available upon request by authorized Government representatives.

✓ EXPERIMENTAL SERVICES

Definitions.

302. The term "experimental service" means a service carried on by stations engaged in research or development in the radio art. Experimental service.

303. The term "general experimental station" means a station equipped to carry on research or development in the radio art requiring the transmission of radio-frequency power and operating on frequencies designated by the Commission for general experimental service. It does not include other experimental stations hereinafter defined. General experimental stations.

304. The term "special experimental station" means a station used to carry on special research or development in the radio art which, because of the nature of the experiments, requires frequencies other than those designated for general experimental stations. Special experimental stations.

305. The term "experimental relay broadcast station" means a station transmitting telephone broadcast programs experimentally on frequencies above 6,000 kilocycles designated by the International Radiotelegraph Convention for broadcasting. Experimental relay broadcast stations.

306. The term "experimental visual broadcast station" means a station carrying on the experimental transmission of transient visual images, either still or moving. The transmission of images, such as facsimile or telephotography, shall not be classified as visual broadcasting. Experimental visual broadcast stations.

306a. The term "Experimental broadcast station" means a station carrying on the experimental transmission of broadcast programs on frequencies specifically designated for use by such stations. Experimental broadcast stations.

307. Experimental licenses of all classes may be granted only to those who are engaged in fundamental research or improving the technique of the radio art and show satisfactory evidence of being able to contribute substantially toward its progress. To whom licenses may be granted.

308. No experimental frequency will be assigned exclusively to any applicant. Where interference is experienced Limitation on licenses.

licensees shall be required to arrange for a satisfactory division of time.

Changes in equipment.

309. The licensee of an experimental station may make any changes in equipment that may be deemed necessary or desirable, provided that, at no time, shall the transmitter be operated on other than its assigned frequency or frequencies, with greater than its licensed power, or with a frequency variation greater than the licensed tolerance.

Logs.

310. Each licensee of an experimental station shall maintain adequate records of the operation of each station, including (1) the hours of operation, (2) frequencies, (3) power, and (4) types of emission. This information shall be made available, upon request by authorized Government representatives.

Reports, general.

311. Each licensee of a station in the experimental service shall file reports with the Commission with each application for renewal of license or at the end of the license period if no application is made for renewal.

312. These reports are for information of the Commission and the contents thereof will not be disclosed without the permission of the licensee.

313. Each report shall include statements of the following in the order designated:

Reports, general and special experimental stations.

A. GENERAL AND SPECIAL EXPERIMENTAL STATIONS

- a. Ultimate objective to be reached by experiments.
- b. General results accomplished during period of report, including reference to published reports of experimental work.
- c. Technical studies in progress at time of filing of report.
- d. Any major changes made in equipment.
- e. Total hours of operation.

Reports, experimental relay broadcast stations.

B. EXPERIMENTAL RELAY BROADCAST STATIONS

- a. The number of hours during which programs were actually rebroadcast, at what times of the day, and on which frequencies.
- b. Number of hours, specific times and locations, and on what frequencies signals of sufficiently good quality were received from the station to permit good broadcasting, although not actually rebroadcast.
- c. Experiments being carried on to improve transmission.

- d. Any major changes made in equipment.
- e. Experiments being carried on in foreign countries in connection with transmission by the licensee with a view to rebroadcast.

C. EXPERIMENTAL VISUAL BROADCAST STATIONS AND EXPERIMENTAL BROADCAST STATIONS

Reports, experimental visual broadcast stations and experimental broadcast stations.

- a. Description of method used in transmission (to be submitted in first report and in subsequent reports only when substantial changes are made).
- b. Frequency band occupied by transmitter and method used to determine the width of this band.
- c. General results accomplished during period of report, including reference to published reports of operation.
- d. Technical studies in progress at time of filing thereof.
- e. Any major changes made in equipment.
- f. Total hours of operation during period for which report is filed.
- g. Usual hours of daily operation, local standard time.

314. The following frequencies are allocated for use by general experimental stations:

Frequencies, general experimental.

	1, 614	23, 100
2, 396	}	25, 700
		2, 398
2, 400	}	27, 100
3, 490		
	}	31, 100
3, 495		3, 492. 5
4, 795	}	33, 100
		4, 797. 5
4, 800	}	35, 600
6, 420		
	}	37, 600
6, 430		6, 425
8, 650	}	40, 100
		8, 655
8, 660	}	41, 000
12, 855		
	}	401, 000 and above.
12, 870		12, 862. 5
17, 300	}	
17, 320		17, 310

315. Special experimental stations may be licensed on frequencies other than those allocated for use by

Frequencies, special experimental.

general experimental stations and only for special purposes under exceptional circumstances, provided:

a. Such purposes are fully stated by the applicant in his application.

b. A satisfactory showing is made that the general experimental frequencies are unsuitable.

c. The applicant accepts the license with the express understanding that the authority to use the frequency or frequencies may be canceled without advance notice or hearing in case interference is caused to the commercial use of the frequency.

d. In any case where there is possibility of interference with the regular service on the frequency sought to be used experimentally, the applicant shall submit with his application a statement from the licensee on such frequency, or in case of a frequency on which transmissions are received in the United States a statement from the one receiving on that frequency, that there is no objection on his part to the special experimental use of the frequency.

Frequencies,
relay broad-
casting.

316. The following frequencies are allocated for use by experimental relay broadcast stations:

G, 020	9, 570	11, 850	15, 230	17, 800
G, 040	9, 590	11, 870	15, 250	21, 460
G, 060	11, 710	11, 890	15, 270	21, 480
G, 080	11, 750	15, 110	15, 290	21, 520
G, 100	11, 770	15, 150	15, 310	21, 540
G, 140	11, 790	15, 170	15, 330	
G, 510	11, 810	15, 190	17, 760	
G, 530	11, 830	15, 210	17, 780	

Frequencies,
visual broad-
casting.

317. The following bands of frequencies are designated for the use of experimental visual broadcast stations. Licensees may use any carrier frequency within the band subject to mutual agreement with other licensees in the same band and provided no transmission is made outside the authorized band:

42,000-56,000 60,000-86,000

318. In addition the bands 2,000-2,100 and 2,750-2,850 kilocycles are available for experimental visual broadcasting on a shared basis with other North American nations.

Frequencies,
experimental
broadcasting.

319. The following frequencies are allocated for use by experimental broadcast stations: 1530, 1550, 1570 kilocycles.

320. General and special experimental stations may be used only for experimental purposes. Except under specific limitations and restrictions which may be prescribed in individual cases, for special reasons to obtain information or data which gives promise of being of benefit to the radio art, general and special experimental stations shall not be used to conduct general message traffic of any kind, to transmit regular programs for direct entertainment, to rebroadcast the programs of any other station, or to render any commercial communication service, or communications involving advertising, either directly or indirectly.

Special regulations, general and special experimental stations.

321. A licensee of an experimental relay broadcast station may authorize the rebroadcast of the programs of such station by any station outside the limits of the North American Continent without permission from the Commission. No licensee shall authorize any station within the limits of the North American Continent to rebroadcast the programs of an experimental relay broadcast station without express authority of the Commission, which authority will be granted only after a satisfactory showing that no wire or other facilities exist for reaching the area served by such proposed rebroadcast.

Special regulations, experimental relay broadcast stations.

322. Each applicant for experimental visual broadcast station permit will be required to show that he has a program of development outlined that promises to lead to improvement in the visual broadcast art and has the finances and facilities to carry out the proposed program.

Special regulations, visual broadcasting.

323. The licensee of an experimental visual broadcast station shall not permit the transmission of programs involving advertising features. This regulation, however, shall not be construed to prevent the transmission of a visual broadcast program simultaneously with a regular broadcast station program having commercial aspects; provided that commercial announcements, either oral or visual, shall not be made on the visual broadcast frequency. In all such simultaneous transmissions from a broadcast station in the band 550 to 1,500 kilocycles and from a visual broadcast station in the band assigned to visual broadcasting, the regular broadcast station shall make the regular commercial announcements only on the broadcast frequency. Both stations shall make the announcements of call letters for both the broadcast station and the visual broadcast station on their respective frequencies; provided that when commercial an-

nouncements are made on the broadcast frequency, and the use of the visual broadcast frequency is referred to, the following form of announcement only shall be used: "This program is being broadcast by television over station ----- on the frequency of ----- kilocycles. These visual broadcast transmissions are experimental."

Frequencies for
synchronized
sound.

324. Licensees of experimental visual broadcast stations desiring to transmit experimentally synchronized sound, on proper application to the Commission and upon proper showing, may be licensed to operate special experimental stations on frequencies within their licensed visual broadcast frequency band, provided no interference results to the operation of other visual broadcast stations in the same frequency band, or to services on adjacent frequencies.

Special regula-
tions experi-
mental broad-
cast stations.

324a. Each applicant for experimental broadcast station construction permit will be required to show that he has a program of development which promises to lead to improvement in the broadcast art and has the finances and facilities to carry out the proposed program. In addition he shall be required to show—

(1) That the operation will be under the direct supervision of a qualified engineer with an adequate staff of qualified engineers to carry on the program of research;

(2) That the program of research includes study of antenna design field intensity surveys and plans for an analysis of response of listeners;

(3) That the transmitter and all studios will be equipped so as to be capable of at least 10 kilocycles audio-frequency transmission;

(4) That if sponsored programs are transmitted such sponsorship will not interfere with the program of research, and that the conduct of experiments will not depend only upon the sponsors as a means of defraying the cost of the experiments.

324b. The Commission will not authorize an operating power to exceed 1 kilowatt for stations in the experimental broadcast service. In the determination of power the rules governing broadcast stations shall apply.

EMERGENCY SERVICE

325. The term "emergency service" means a radio-Definition, emergency service.
communication service carried on for emergency purposes.

POLICE STATIONS

326. The term "municipal police station" means a Definition, municipal police station.
station used by a municipal police department for emergency service with mobile police units.

327. The term "State police station" means a station Definition, State police station.
used by a State police department primarily for emergency service with mobile police units.

328. Licenses for emergency police radio stations will Limitations on licenses.
be authorized only for municipal, county, or State controlled stations.

329. The maximum amount of power to be assigned Power, police stations.
for the use of municipal police stations will be based on the latest official population figures of the Department of Commerce for an area to be served in accordance with the following table:

Population:	Power watts
Under 100,000.....	50
100,000 to 200,000.....	100
200,000 to 300,000.....	150
300,000 to 400,000.....	200
400,000 to 500,000.....	250
500,000 to 600,000.....	300
600,000 to 700,000.....	400
Over 700,000.....	500

330. In the event that the amount of power allocated Additional transmitters.
above is insufficient to afford reliable coverage over the desired service area, the Commission may authorize the use of additional stations of the same or less power, or upon proper showing being made, may authorize such additional power as may be necessary, but not to exceed 500 watts.

331. Police stations licensed for emergency service Points of communication.
shall be operated for the purpose of transmitting dispatches of an emergency nature to police squad cars or other mobile units, provided, however, that service may also be rendered to fixed police and fire locations and to

mobile fire units for the reception of messages of primary interest to mobile police units.

Frequencies,
police stations.

332. The following frequencies are allocated for use by police stations:

1,658	2,310	2,374	2,442
1,666	2,318	2,382	2,450
1,674	2,326	2,390	2,458
1,682	2,334	2,406	2,466
1,690	2,342	2,414	2,474
1,698	2,350	2,422	2,482
1,706	2,358	2,430	2,490
1,712	2,366		

333. These frequencies are assigned on a zone basis throughout the United States. All cities in any zone shall cooperate in the use of a zone frequency.

Frequencies,
State police
Radiotelegraph
stations.

334. The frequency 190 kilocycles is allocated for use by State police stations using radiotelegraph emission.

Test periods.

335. Police stations licensed for emergency service may be used for the transmission of test messages not to exceed 2 minutes in each half-hour period.

Interference.

336. Before making any test transmission, the licensee shall make certain that no interference will result to reception in other locations.

Prerequisites to
authorization.

337. An application for a construction permit shall show that the transmitter will be situated in the most suitable location from which the minimum power with high percentage modulation will afford adequate coverage over the desired service area. In no case will the Commission authorize a modulation capacity of transmitter less than 85 percent on peaks.

Police radio serv-
ice to contiguous
municipalities.

338. An application for a construction permit filed in the name of an individual city for a police station to serve two or more municipalities shall be supported by sworn copies of agreements made between the city of record and the contiguous municipalities. Such agreements shall show that the applicant is required to furnish emergency police radio service to the contiguous municipalities lacking police radio facilities and that the contiguous municipalities agree to accept such service and not to request individual authority to operate police radio transmitting stations.

SPECIAL EMERGENCY STATIONS

Definition,
special emer-
gency station.

339. The term "special emergency station" means a station used for emergency service with other such stations.

340. Special emergency stations may be used only in ^{Limitations on licenses.} an emergency when all forms of wire communication fail; except, however, they may also be used for testing purposes not to exceed two hours per week provided that, before the station is used for testing, it shall be ascertained that the frequency is clear and that no interference will result to other services.

341. The following frequencies are allocated for use by ^{Frequencies.} special emergency stations, and may be used only with the type of emission indicated:

2724	} 2726 Type A3 emission only
2728	

3190 Type A1 emission only

342. The Commission will not authorize a power to ^{Power.} exceed 500 watts for special emergency stations.

343.

MARINE FIRE STATIONS

344. The term "marine fire station" means a land ^{Definition, marine fire station.} station used by a municipal fire department for emergency service with fire boats and police boats.

345. The frequency 1,630 kilocycles is allocated for ^{Marine fire frequencies.} use by marine fire stations; this frequency is also allocated for use by fire boats and police boats.

346. The Commission will not authorize a power to ^{Power.} exceed 500 watts for marine fire stations.

347. Emissions from marine fire stations shall be type ^{Emission.} A-1, A-2, or A-3.

LOGS

^{Logs.}

348. Each licensee shall maintain adequate records of the operation of the station, including:

- a. Hours of operation.
- b. Nature of each transmission.

This information shall be made available upon request by authorized Government representatives.

GEOPHYSICAL SERVICE

349. The term "geophysical service" means a service Definition,
geophysical
service. carried on by geophysical stations.

350. The term "geophysical station" means a radio Definition,
geophysical
station. station used in connection with the determination of the physical characteristics of the strata below the surface of the earth.

351. The Commission will not authorize a power to Power. exceed 10 watts for geophysical stations, except in cases where the applicant makes a satisfactory showing that due to exceptional atmospheric conditions or other important reasons, power of 10 watts is insufficient, in which case power not exceeding 50 watts may be authorized.

352. The frequencies allocated for use by geophysical Frequencies. stations are as follows:

1,600,	} 1,602	1,652
1,604,		1,676
1,628		1,700

353. Each licensee shall maintain adequate records of Logs. the operation of each station, including:

- a. Hours of operation.
- b. Frequencies used.
- c. Nature of transmission.

This information shall be made available upon request by authorized Government representatives.

TEMPORARY SERVICES

354. The term "temporary service" means a radio-communication service that requires the use of radio for short periods at irregular intervals at locations where wire facilities are not available. Definition, temporary service.

355. The term "motion-picture station" means a station used in connection with the filming of motion pictures for communication between field-production units or between headquarters and field-production units while on location. Definition, motion-picture station.

356. The term "broadcast pick-up station" means a station used in connection with or for the transmission of items of public interest for pick-up and rebroadcast over one or more broadcasting stations in the band 550 to 1,500 kilocycles. Definition, broadcast pick-up station.

357. Temporary service licenses do not permit the use of the transmitter licensed, except with the express authority of the Commission, which shall be obtained as hereinafter provided. Authority for use of stations.

a. Application for authority to use motion-picture stations shall be submitted, either by letter or telegram to the Commission, at least two days before such use is contemplated and shall include a statement as to the period of use desired, the exact points between which communication is desired, and the availability of other means of communication.

b. Application for authority to use broadcast pick-up stations shall be submitted, either by letter or telegram, to the Commission at least two days before such use is contemplated and shall include a statement as to the period of use desired and a description of the event to be broadcast.

358. Each licensee shall maintain adequate records of the operation of each station, including: Logs.

- a. Hours of operation.
- b. Frequencies used.
- c. Nature of transmission.

This information shall be made available upon request by authorized Government representatives.

359. The frequency 1,652 kilocycles is allocated for use by motion-picture stations. Frequencies, motion-picture stations.

360. The following frequencies are allocated for use by broadcast pick-up stations: Frequencies, temporary broadcast pick-up stations.

1,606	1,646	2,150
1,622	2,102	2,190

AMATEUR SERVICE

361. The term "amateur service" means a radio service Definition,
amateur service.
carried on by amateur stations.

362. The term "amateur station" means a station used Definition,
amateur station.
by an "amateur", that is, a duly authorized person interested in radio technique solely with a personal aim and without pecuniary interest.

363. Deleted. (See pars. 362 and 364.)

364. The term "amateur radio operator" means a person holding a valid license issued by the Federal Radio Commission who is authorized under the regulations to operate amateur radio stations. Definition,
amateur operator.

365. The term "amateur radio communication" means Definition,
amateur radio
communication.
radio communication between amateur radio stations solely with a personal aim and without pecuniary interest.

366. An amateur station license may be issued only to Station licenses.
a licensed amateur radio operator who has made a satisfactory showing of ownership or control of proper transmitting apparatus: *Provided, however,* That in the case of a military or naval reserve radio station located in approved public quarters and established for training purposes, but not operated by the United States Government, a station license may be issued to the person in charge of such station who may not possess an amateur operator's license.

(a) An amateur operator's license may be granted to Operator's
license.
a person who does not desire an amateur station license, provided such applicant waives his right to apply for an amateur station license for 90 days subsequent to the date of application for operator's license.

367. Amateur radio station licenses shall not be issued Eligibility for
license.
to corporations, associations, or other organizations: *Provided, however,* That in the case of a bona fide amateur radio society a station license may be issued to a licensed amateur radio operator as trustee for such society.

368. Licenses for amateur mobile stations and portable- Mobile stations.
mobile stations will not be granted, except for portable-mobile stations located aboard aircraft (see pars. 384 and 387) and capable of operating in the band of frequencies

56,000 to 60,000 kilocycles and 400,000 to 401,000 kilocycles only.

369. Deleted. Paragraph 213 applies.

Points of communication.

370. Amateur stations shall be used only for amateur service, except that in emergencies or for testing purposes they may be used also for communication with commercial or Government radio stations. In addition, amateur stations may communicate with any mobile radio station which is licensed by the Commission to communicate with amateur stations, and with stations of expeditions which may also be authorized to communicate with amateur stations.

Amateur stations not to be used for broadcasting.

371. Amateur stations shall not be used for broadcasting any form of entertainment.

Radiotelephone tests.

372. Amateur stations may be used for the transmission of music for test purposes of short duration in connection with the development of experimental radiotelephone equipment.

Amateur stations not for hire.

373. Amateur radio stations shall not be used to transmit or receive messages for hire, nor for communication for material compensation, direct or indirect, paid or promised.

Frequency bands assigned.

374. The following bands of frequencies are allocated exclusively for use by amateur stations:

- | | |
|-----------------------------|-------------------------------|
| 1,715 to 2,000 kilocycles | 28,000 to 30,000 kilocycles |
| 3,500 to 4,000 kilocycles | 56,000 to 60,000 kilocycles |
| 7,000 to 7,300 kilocycles | 400,000 to 401,000 kilocycles |
| 14,000 to 14,400 kilocycles | |

Types of emission.

375. All bands of frequencies so assigned may be used for radiotelegraphy, type A-1 emission. Type A-2 emission may be used in the following bands of frequencies only:

- | | |
|-----------------------------|-------------------------------|
| 28,000 to 30,000 kilocycles | 400,000 to 401,000 kilocycles |
| 56,000 to 60,000 kilocycles | |

376. The following bands of frequencies are allocated for use by amateur stations using radiotelephony, type A-3 emission:

- | | |
|-----------------------------|-------------------------------|
| 1,800 to 2,000 kilocycles | 56,000 to 60,000 kilocycles |
| 28,000 to 28,500 kilocycles | 400,000 to 401,000 kilocycles |

Additional bands for telephony.

377. Provided the station shall be operated by a person who holds an amateur operator's license endorsed for class A privileges, an amateur radio station may use radiotelephony, type A-3 emission, in the following additional bands of frequencies:

- | | |
|---------------------------|-----------------------------|
| 3,900 to 4,000 kilocycles | 14,150 to 14,250 kilocycles |
|---------------------------|-----------------------------|

378. The following bands of frequencies are allocated for use by amateur stations for television, facsimile, and picture transmission: Amateur television, facsimile, and picture transmission.

- 1,715 to 2,000 kilocycles
- 56,000 to 60,000 kilocycles

379. Licensees of amateur stations shall be permitted to use any frequency within the service bands above assigned. Licenses will not specify individual frequencies.

380. An amateur radio station shall not be located upon premises controlled by an alien. Allens.

381. The frequency of the waves emitted by amateur radio stations shall be as constant and as free from harmonics as the state of the art permits. For this purpose, amateur transmitters shall employ circuits loosely coupled to the radiating system or devices that will produce equivalent effects to minimize keying impacts and harmonics. Conductive coupling to the radiating antenna, even though loose, is not permitted, but this restriction does not prohibit the use of transmission-line feeder systems. Prevention of interference.

382. Licensees of amateur stations using frequencies below 14,400 kilocycles, shall use adequately filtered direct-current power supply for the transmitting equipment, to minimize frequency modulation and to prevent the emission of broad signals. Power supply to transmitter.

383. Licensees of amateur stations are authorized to use a maximum power input of 1 kilowatt to the plate circuit of the final amplifier stage of an oscillator-amplifier transmitter or to the plate circuit of an oscillator transmitter. Authorized power.

384. An operator of an amateur station shall transmit its assigned call at least once during each 15 minutes of operation and at the end of each transmission. In addition, an operator of an amateur portable radiotelegraph station shall transmit immediately after the call of the station, the break sign (\overline{BT}) followed by the number of the amateur call area in which the portable amateur station is operating, as for example: Transmission of call.

Example 1.—Portable amateur station operating in the third amateur call area calls a fixed amateur station:

W1ABC W1ABC W1ABC DE W2DEF W2DEF W2DEF
BT3 BT3 BT3 K

Example 2.—Fixed amateur station answers the portable amateur station:

W2DEF W2DEF W2DEF DE W1ABC W1ABC W1ABC
K

Example 3.—Portable amateur station calls a portable amateur station:

W3GHI W3GHI W3GHI DE W4JKL W4JKL W4JKL
BT4 BT4 BT4 K

If telephony is used, the call sign of the station shall be followed by an announcement of the amateur call area in which the portable station is operating.

Quiet hours.

385. In the event that the operation of an amateur radio station causes general interference to the reception of broadcast programs with receivers of modern design, that amateur station shall not operate during the hours from 8 o'clock p.m. to 10:30 p.m., local time, and on Sunday from 10:30 a.m. until 1 p.m., local time, upon such frequency or frequencies as cause such interference.

Logs.

386. Each licensee of an amateur station shall keep an accurate log of station operation, in which shall be recorded:

a. The date and time of each transmission.

b. The name of the person manipulating the transmitting key of a radiotelegraph transmitter or the name of the person operating a transmitter of any other type with statement as to nature of transmission.

c. The station called.

d. The input power to the oscillator, or to the final amplifier stage where an oscillator-amplifier transmitter is employed.

e. The frequency band used.

f. The location of each transmission by a portable station.

This information shall be made available upon request by authorized Government representatives.

Portable stations.

387. The licensee of an amateur station may operate a portable amateur station, or a portable-mobile station located aboard an aircraft, in accordance with rule 368, provided advance notice of all locations in which the station will be operated is given to the inspector in charge of the district in which the station is to be operated. Such notices shall be made by letter or other means prior to any operation contemplated and shall state the station call, name of licensee, the dates of proposed operation and the approximate locations, as by city, town, or county. An amateur station operating under this rule shall not be operated during any period exceeding 30 days without giving further notice to the inspector in

charge of the radio inspection district in which the station will be operated.

388—399.

AMATEUR OPERATORS

400. An amateur station may be operated only by a person holding a valid amateur operator's license, and then only to the extent provided for by the class of privileges for which the operator's license is endorsed. Only amateur operators may operate amateur stations.

401. Amateur operators' licenses are valid only for the operation of licensed amateur stations, provided, however, any person holding a valid radio operator's license of any class may operate stations in the experimental service licensed for, and operating on, frequencies above 30,000 kilocycles. Validity of operator's license.

402. Amateur station licenses and/or amateur operator licenses may, upon proper application, be modified or renewed provided: (1) The applicant has used his station to communicate by radio with at least three other amateur stations during the 3-month period prior to the date of submitting the application, or (2) in the case of an applicant possessing only an operator's license, that he has similarly communicated with amateur stations during the same period. Proof of such communication must be included in the application by stating the call letters of the stations with which communication was carried on and the time and date of each communication. Lacking such proof, the applicant will be ineligible for a license for a period of 90 days. Proof of use.

403. There shall be but one main class of amateur operator's license, to be known as "amateur class", but each such license shall be limited in scope by the signature of the examining officer opposite the particular class or classes of privileges which apply, as follows: Class of operator and privileges.

Unlimited privileges. Class A.

Unlimited radiotelegraph privileges. Limited in the operation of radiotelephone amateur stations to the following bands of frequencies: 1,800 to 2,000 kilocycles; 28,000 to 28,500 kilocycles; 56,000 to 60,000 kilocycles; 400,000 to 401,000 kilocycles. Class B.

Same as class B privileges, except that the Commission may require the licensee to appear at an examining point for a supervisory written examination and practical code test during the license term. Failing to appear for examination when directed to do so, or failing to pass the supervisory examination, the license held will be canceled Class C.

and the holder thereof will not be issued another license for the class C privileges.

Scope and places of examinations.

404. The scope of examinations for amateur operators' licenses shall be based on the class of privileges the applicant desires, as follows:

Class A.

To be eligible for examination for the class A amateur operator's privileges the applicant must have been a licensed amateur operator for at least 1 year and must personally appear at one of the Commission's examining offices, and take the supervisory written examination and code test. (See pars. 2 h (1), 30, and 408.) Examinations will be conducted at Washington, D.C., on Thursday of each week, and at each radio district office of the Commission on the days designated by the inspector in charge of such office. In addition, examinations will be held quarterly in the examining cities listed in paragraph 30 on the dates to be designated by the inspector in charge of the radio district in which the examining city is situated. The examination will include the following:

a. Applicant's ability to send and receive in plain language messages in the continental Morse code (5 characters to the word) at a speed of not less than 10 words per minute.

b. Technical knowledge of amateur radio apparatus, both telegraph and telephone.

c. Knowledge of the provisions of the Radio Act of 1927 as amended, subsequent acts, treaties, and rules and regulations of the Federal Radio Commission, affecting amateur licensees.

Class B.

The requirements for class B amateur operators' privileges are similar to those for the class A, except that no experience is required and the questions on radio-telephone apparatus are not so comprehensive in scope.

Class C.

The requirements for class C amateur operators' privileges shall be the same as for the class B except the examination will be given by mail. To be eligible for this class of privileges, an applicant must reside more than 125 miles (airline) from Washington, D.C., a radio district office of the Commission, or an examining city. (See pars. 2 h (2), 30, and 408.)

Recognition of other classes of licenses.

405. An applicant for any class of amateur operator's privileges who has held a radiotelephone second-class operator's license or higher, or an equivalent commercial grade license, or who has been accorded unlimited amateur radiotelephone privileges, within 5 years of the date

of application may only be required to submit additional proof as to code ability and/or knowledge of the laws, treaties, and regulations affecting amateur licensees.

406. An applicant for the class B or C amateur operator's privileges who has held a radiotelegraph third-class operator's license or higher, or an equivalent commercial grade license, or who has held an amateur extra first-class license within 5 years of the date of application may be accorded a license by passing an examination in laws, treaties, and regulations affecting amateur licensees.

407. An applicant for the class C amateur operator's privileges must have his application signed in the presence of a notary public by a licensed radiotelegraph operator other than an amateur operator possessing only the class C privileges or former temporary amateur class license, attesting to the applicant's ability to send and receive messages in plain language in the continental Morse code (5 characters to the word) at a speed of not less than 10 words per minute. The code certification may be omitted if the applicant can show proof of code ability in accordance with the preceding rule.

408. Forms for amateur station and/or operator license shall be obtained by calling or writing to the inspector in charge of the radio inspection district in which the applicant resides. Upon completion of the forms, they shall be sent back to the same office where the final arrangements will be made for the examination: *Provided, however,* In the case of applicants for the class C amateur operator's privileges, the forms and examination papers when completed shall be mailed direct to the Federal Radio Commission, Washington, D.C.

409. The percentage that must be obtained as a passing mark in each examination is 75 out of a possible 100. No credit will be given in the grading of papers for experience or knowledge of the code. If an applicant answers only the questions relating to laws, treaties, and regulations by reason of his right to omit other subjects because of having held a recognized class of license, a percentage of 75 out of a possible 100 must be obtained on the questions answered.

410. An amateur station license shall be issued so as to run concurrently with the amateur operator's license and both licenses shall run for 3 years from the date of issuance. If either the station license or the operator's license is modified during the license term, both licenses shall be

reissued for the full 3-year term: *Provided, however,* If an operator's license is modified only with respect to the class of operator's privileges, the old license may be endorsed, in which case the expiration date will not change.

Eligibility for reexamination.

411. No applicant who fails to qualify for an operator's license will be reexamined within 90 days from the date of the previous examination.

Penalty.

412. Any attempt to obtain an operator's license by fraudulent means, or by attempting to impersonate another, or copying or divulging questions used in examinations, or, if found unqualified or unfit, will constitute a violation of the regulations for which the licensee may suffer suspension of license or be refused a license and/or debarment from further examination for a period not exceeding 2 years at the discretion of the licensing authority.

Duplicate licenses.

413. Any licensee applying for a duplicate license to replace an original which has been lost, mutilated, or destroyed, shall submit an affidavit to the Commission attesting to the facts regarding the manner in which the original was lost. Duplicates will be issued in exact conformity with the original, and will be marked "duplicate" on the face of the license.

Oath of secrecy.

414. Licenses are not valid until the oath of secrecy has been executed and the signature of the licensee affixed thereto.

Examination to be written in longhand.

415. All examinations, including the code test, must be written in longhand by the applicant.

ALASKA

416. The general regulations and regulations for individual services shall apply to stations located in the Territory of Alaska. General.

417. An application for the operation of a station in Alaska other than broadcast and amateur shall be filed in triplicate with the inspector in charge at Seattle, Wash., and shall be routed to the Federal Radio Commission as follows: Applications
Alaska stations.

a. The inspector shall send the application to the officer in charge, Washington-Alaska Military Cable and Telegraph System (W.A.M.C.A.T.S.). This officer will recommend by indorsement, the type of equipment, frequencies, etc., necessary for efficient operation with the Alaska system.

b. The officer will then forward such application to the office of the Chief Signal Officer of the United States Army. This officer will either approve or amend the recommendation of the officer in charge (W.A.M.C.A.T.S.).

c. The chief signal officer will then send such application to the Federal Radio Commission for final action.

418. Each instrument of authorization will be forwarded to the applicant or licensee in the reverse order of the procedure set out in paragraph 389. Issuance of
instruments of
authorization.

419. The following frequencies are allocated for use in Alaska:

A. FIXED PUBLIC SERVICE

For point-to-point communication between government and nongovernment stations, Type A1 or A2 emission only:

172	186	192	212	246	268
178	187	193	214	252	272
182	188	209	225	256	274
183	189	210	227	262	

B. FIXED PUBLIC SERVICE; PUBLIC COASTAL SERVICE AND SHIP SERVICE

For short-distance communication between nongovernment stations, provided the maximum power shall not exceed 100 watts and upon condition that no interference will result to other services:

- 2,994 A1, A2, and A3 emission
- 3,092.5 A1, A2, and A3 emission
- 3,190 A1, A2, and A3 emission
- 3,265 A1, A2, and A3 emission

C. PUBLIC COASTAL SERVICE

For communication with any ship station:

- 425 kilocycles, A1, A2 emission, maximum power 200 watts
- 460 kilocycles, A1, A2 emission, maximum power 200 watts
- 500 kilocycles, Calling, A1, A2 emission, maximum power 200 watts

D. PUBLIC COASTAL SERVICE

For communication with ship stations in Alaskan waters:

- 1,540 kilocycles, A1, A2, A3 emission, maximum power 100 watts
- 1,592 kilocycles, A1, A2, A3 emission, maximum power 100 watts
- 1,660 kilocycles, A1, A2, A3 emission, maximum power 100 watts
- 1,708 kilocycles, A1, A2, A3 emission, maximum power 100 watts
- 2,512 kilocycles, A1, A2, A3 emission, maximum power 100 watts
- 2,538 kilocycles, A1, A2, A3 emission, maximum power 100 watts
- 2,566 kilocycles, A1, A2, A3 emission, maximum power 100 watts

E. SHIP STATIONS

For use by ship stations in Alaskan waters, provided the maximum power shall not exceed 100 watts on frequencies above 1,500 kilocycles:

- 375 kilocycles, A1, A2, B. Direction finding only
- 425 kilocycles, A1, A2, B
- 460 kilocycles, A1, A2
- 500 kilocycles, A1, A2, B. Calling and distress only
- 1,540 kilocycles, A1, A2, A3
- 1,592 kilocycles, A1, A2, A3
- 1,660 kilocycles, A1, A2, A3
- 1,708 kilocycles, A1, A2, A3
- 2,512 kilocycles, A1, A2, A3
- 2,538 kilocycles, A1, A2, A3
- 2,566 kilocycles, A1, A2, A3

FEDERAL RADIO COMMISSION

RULES AND REGULATIONS

PART V. OPERATOR LICENSES

(Revised, effective October 3, 1933)

420. Amateur stations may be operated only by licensed amateur operators. (See Amateur Rules.)

421. *Commercial extra, first class.*—To be eligible for examination, an applicant for this class of license must hold a radiotelegraph operator first-class license and must have been actually engaged as an operator at stations open to public correspondence for at least 18 months during the 2 years previous to his application and must not have been penalized for violation of any radio act, treaty, or regulation binding on the United States. An applicant must pass code tests in transmission and reception at a speed of not less than 30 words per minute in Continental Morse Code and 25 words per minute in American Morse Code, five characters to the word. The written examination covers the same subjects required for the radiotelegraph operator first-class license and the radiotelephone operator first-class license.

422. *Radiotelegraph operator, first class.*—To be eligible for examination, an applicant for this class of license must have had at least 1 year of experience as a radiotelegraph operator on board a ship or in a coastal telegraph station. An applicant for this class of license must pass code tests in transmission and reception at a speed of at least 20 words per minute in Continental Morse Code, code groups, and 25 words per minute in Continental Morse Code, plain language (5 characters to the word).

Radiotelegraph
licenses.

(1) The practical and theoretical examination consists of comprehensive questions under the following headings:

a. Diagram of radio installation: An applicant is required to draw a complete wiring diagram of a modern marine radio installation as used aboard American vessels. The applicant may be required to draw either

a spark, arc, or vacuum tube transmitter (with radiotelephone attachment.)

b. Theory, adjustment, operation, and care of modern radiotelegraph and radiotelephone transmitting apparatus.

c. Receiving apparatus.

d. General principles of electricity.

e. Operation and care of storage batteries.

f. Power supply apparatus.

g. International regulations governing radio communication and the United States Radio Laws and Regulations.

423. *Radiotelegraph operator, second class.*—An applicant for this class of license must pass code tests in transmission and reception at a speed of not less than 16 words per minute in Continental Morse Code, code groups, and 20 words per minute in Continental Morse Code, plain language (5 characters to the word). The practical and theoretical examination covers the same subjects as for the radiotelegraph operator first-class license.

424. *Radiotelegraph operator, third class.*—An applicant for this class of license must pass a code test in transmission and reception at a speed of not less than 15 words per minute in Continental Morse Code, plain language (5 characters to the word). The practical and theoretical examination covers the same subjects as for the radiotelegraph operator first class, but not so comprehensive in scope.

Radiotelephone
licenses.

425. No code test is required for the radiotelephone classes of licenses.

426. *Radiotelephone operator, first class.*—An applicant for this class of license must pass a theoretical examination covering the following:

- 10 (1) Diagram of modern broadcast installation.
- 20 (2) Theory, adjustment, operation, and care of modern radiotelephone transmitters.
- 10 (3) Receivers.
- 10 (4) General principles of electricity.
- 10 (5) Operation and care of storage batteries.
- 20 (6) Power supply apparatus.
- 20 (7) Radiocommunication laws and regulations.

427. *Radiotelephone operator, second class.*—An applicant for this class of license must pass an examination similar to that required for the radiotelephone operator first-class license, but not so comprehensive in scope.

428. *Radiotelephone operator, third class.*—An applicant for this class of license must pass an examination covering laws, regulations, and operation of radiotelephone stations for which this class of license is valid.

429. The percentage that must be obtained as a passing mark in each examination is 75 out of a possible 100.

430. No credit will be given for experience in the examination for any class of license.

431. All examinations, including the code tests, must be written in longhand by the applicant.

432. Licenses, except for amateur operators, are not valid until the oath of secrecy has been executed and the signature of the issuing officer affixed thereto.

433. When the holder of a radiotelegraph class license has qualified for a radiotelephone class license, the radiotelegraph license shall be endorsed as follows: License endorse-
ments.

(1) *Radiotelephone, first class:*

The holder of this license has also qualified for the radiotelephone first-class license, and the additional privileges authorized under this class license are hereby granted.

Date: -----

Examining Officer.

(2) *Radiotelephone, second class:*

The holder of this license has also qualified for the radiotelephone second-class license, and the additional privileges authorized under this class license are hereby granted.

Date: -----

Examining Officer.

(3) *Radiotelephone, third class:*

The holder of this license has also qualified for the radiotelephone third-class license, and the additional privileges authorized under this class license are hereby granted.

Date: -----

Examining Officer.

434. Where the holder of a radiotelephone license subsequently qualifies for a radiotelegraph license, the radiotelephone license shall be canceled and a radiotelegraph license issued endorsed for the proper class of radiotelephone license.

435. It is not mandatory for the holder of a radiotelegraph second-class license to have his license endorsed by

the Commission to authorize him to act as chief operator on a vessel of the second class; the service record on the reverse side of the license, when attesting to six months or more satisfactory service on board a ship and certified by the operator's employer, will suffice.

However, upon renewal it becomes desirable for the renewal license to indicate in some manner that the holder is entitled to act as chief operator on a vessel of the second class (if he is so entitled because of service gained under his previous license), since this information would not otherwise be readily available. Therefore, such renewal radiotelegraph second-class licenses shall have inserted in the space provided on the license form after "Special endorsement", the following endorsement:

Authority is granted the holder of this license to act as chief operator in a ship station of the second class.

Date: -----

Examining Officer.

436. The holder of a radiotelephone third-class license engaged in operating aircraft radio equipment may, upon passing a code test in transmission and reception at a speed of not less than 15 words per minute in the Continental Morse Code, plain language (5 characters to the word), be granted the following code proficiency endorsement:

The holder of this license has passed a code test at the required speed of 15 words per minute and is also authorized to operate licensed aircraft radiotelegraph stations.

Date: -----

Examining Officer.

437. When licenses are endorsed for an additional class of license, both classes shall expire 3 years after the date of issuance of the main document on which the endorsement is entered. Therefore, both the main license and the class shown in the endorsement will run concurrently and expire at the same time without regard to the date of the endorsement.

438. If an applicant should qualify for additional privileges within 6 months of the expiration of the license sought to be endorsed, the old license shall be canceled and a new license issued for both classes so as to expire 3 years from the date of issuance of said joint license;

provided, however, if the old license sought to be endorsed has more than 60 days to run before expiration and does not fulfill the service requirements of rule 439 (service requirements suspended until January 1, 1935) the applicant shall elect as to whether he desires—

(1) The old license endorsed, in which case both the old and the new classes will remain valid only for the duration of the old license;

(2) To have the old license canceled and a new license document issued for the full 3-year term for the new class only; or

(3) To take the examination for the old-class license as a substitute for the required service.

439. The following rules governing the renewal of operator licenses are hereby suspended until January 1, 1935, insofar as service, employment, or examination is a condition precedent to obtaining renewal of an expiring license.

(1) *Commercial operator extra first-class.*—These licenses Renewals. may be renewed without examination provided the service record shows 12 months' satisfactory service at licensed radio stations, at least 6 months of which must have been during the 12-month period prior to the date the application for renewal of license is due to be filed.

Provided further, that the holders of these licenses employed as radio inspectors, radio instructors, or in similar occupations requiring exceptional qualifications, where the duties require the testing, or demonstrating or otherwise using commercial radio apparatus and the telegraph codes, may be issued renewals of their licenses without examination, provided such employment has covered a period of 2 years out of the 3-year license period. Where the applicant has not regularly used the telegraph codes, he will be given the code examination as for an original license, and if he has used only one code, he will be examined in the code not used.

(2) Other licenses, except amateur, may be renewed without examination, provided

a. The applicant has had 90 days' satisfactory service during the 6-month period prior to the date the application for renewal of license is due to be filed, namely, 60 days prior to the expiration date, or

b. The applicant has had at least 12 months' satisfactory service during the license term prior to the date the application for renewal of license is due to be filed.

(3) No credit will be allowed for service unless it appears that such service was obtained under conditions that required the employment of a licensed operator.

(4) Holders of radiotelegraph licenses endorsed for operation of radiotelephone stations whose service has been wholly at radiotelephone stations will be required to pass the code test for the class of license held, and failing this, will be issued a radiotelephone operator's license of the class corresponding to the endorsement on the license sought to be renewed. In cases where it is impossible for the applicant to appear for the code examination when making application for renewal, he will be issued a radiotelephone operator's license as above. However, in such cases the applicant may appear for code examination within 6 months after the date of the issuance of the radiotelephone license and be issued a license of the class formerly held, provided he passes the code examination. Failing to appear or failing to pass the code test during the 6-month period, the applicant forfeits this privilege.

(5) Renewals may be issued at any time within 6 months of the date of expiration of the license sought to be renewed, but shall bear the exact date of issue. In any event, the application for renewal of license shall be filed not later than 60 days prior to the expiration of the license sought to be renewed.

(6) If, because of circumstances over which the applicant has no control, an operator is unable to apply for renewal of license on or prior to the date of expiration, an affidavit may be submitted attesting to the facts. After consideration by the Commission a decision will be made in regard to the issuance of a renewal of the license.

(7) Service records must be completed and signed only by masters, employers, or the duly authorized agents of either. Operators who have operated at more than three stations in the aviation service, and who apply for renewal of licenses, may indicate service on the reverse of their licenses by giving the name of the aviation chain or company where employed in lieu of listing the call letters of all stations. When this is done, the employer shall sign the license opposite the service entry, indicating whether or not the service performed is considered satisfactory. When the service has been at three or less stations in the aviation service, it will be necessary that the call letters as well as the station locations and signatures of employers be obtained.

440. Any improper alteration of the service record or the forgery of the master's or employer's signatures, or any attempt to obtain a license by fraudulent means, or by attempting to impersonate another, or copying or divulging questions used in examinations, or, if found unqualified or unfit, will constitute a violation of the regulations for which the operator may suffer suspension of license or be refused a license and/or debarment from further examination for a period not exceeding 2 years at the discretion of the licensing authority.

441. *Duplicate licenses.*—Any operator applying for a ^{Duplicates.} duplicate license to replace an original which has been lost, mutilated, or destroyed, will be required to submit an affidavit to the Commission attesting to the facts regarding the manner in which the original was lost. The Commission will consider the facts in the case and render a decision in regard to the issuance of a duplicate license. Duplicates will be issued upon the condition that if and when the original license is recovered, it or the duplicate license will be returned for cancellation. Duplicates, when authorized, shall bear the same serial number and date as the original and will be marked "duplicate" in red on the face of the license.

442. *Reexamination.*—No applicant who fails to qualify ^{Reexamination.} for an operator's license will be reexamined within 90 days from date of the previous examination. However, when an applicant for an amateur or radiotelegraph class license fails in the code examination, he may be reexamined the same day for any other class of license desired.

443. Radio operator licenses are valid for the operation ^{Validity of licenses.} of radio stations except amateur, as follows: (See also rules 444 to 447.)

(1) *Commercial extra first class.*—Any station.

(2) *Radiotelegraph operator, first class.*—Any station except as follows:

a. Broadcast stations.

b. The position of chief operator at stations (not including mobile and fixed stations in the international service) using type A-3 emission with licensed power in excess of 50 watts.

(3) *Radiotelegraph operator, second class.*—Any station except as follows:

- a. Broadcast stations.
- b. The position of chief operator in mobile stations of the first and second classes open to the international service of public correspondence.
- c. The position of chief operator at stations (not including mobile and fixed stations in the international service) using type A-3 emission with licensed power in excess of 50 watts.

Operators of this class are eligible to act as chief operator at ship stations of the second class after the service record has been endorsed, certifying to 6 months' service as a radiotelegraph operator on board a ship. (See rule 435.)

(4) *Radiotelegraph operator, third class.*—Any station except as follows:

- a. Broadcast stations.
- b. Mobile stations open to the international service of public correspondence.
- c. The position of chief operator at stations using type A-3 emission with licensed power in excess of 50 watts.

(5) *Radiotelephone operator, first class.*—Any station using type A-3 emission.

(6) *Radiotelephone operator, second class.*—Any station using type A-3 emission except broadcast stations.

(7) *Radiotelephone operator, third class.*—Any station except broadcast, using type A-3 emission, which is licensed to use a maximum power of 50 watts; provided, however, this class of license shall also be valid to operate stations using type A-3 emission (except broadcast stations), which are licensed to use power in excess of 50 watts if the chief operator regularly employed at such stations holds a radiotelephone second-class license or higher, and that at least one operator holding a radiotelephone second-class license or higher is available immediately on call in case of emergency. When this class of license is endorsed showing proficiency in the continental code at a speed of 15 words per minute such license will also be valid for the operation of aircraft stations using type A-1, A-2, or A-3 emission.

444. In all cases where not specifically provided otherwise, operator licenses permit employment as chief operators.

445. Any person holding a valid operator license of any class may operate any station in the experimental service licensed for and operating on frequencies above 30,000 kilocycles. (See rules 302 to 324, inclusive, which govern the experimental service.)

446. Upon passing the required examination (rules 426 to 428), the holder of a radiotelegraph-class license may be accorded a radiotelephone-class endorsement, in which case the license will be valid for radiotelegraph privileges and radiotelephone privileges for the two classes indicated.

447. The following classes of licenses are no longer issued but are valid until expiration and may be renewed if the service requirements of rule 439 are fulfilled (service requirements suspended until January 1, 1935), in accordance with the following:

(1) *Commercial, first class.*—Shall be considered as the equivalent of the radiotelegraph first class with radiotelephone first class endorsement.

(2) *Commercial, second class.*—Shall be considered as the equivalent of the radiotelegraph second class with radiotelephone first-class endorsement.

(3) *Commercial, third class.*—Shall be considered as the equivalent of the radiotelephone third class.

(4) *Broadcast class and broadcast limited class.*—Shall be considered as the equivalent of the radiotelephone first class.

(5) *Radiotelephone class.*—Shall be considered as the equivalent of the radiotelephone third class.

(6) *Aeronautical class.*—Shall be considered as the equivalent of the radiotelephone second class.

(7) *Radiotelephone second class (valid only for telephone operation of stations in the Aviation Service).*—This class of license is valid until expiration for the operation of any station, except as follows:

a. Broadcast station.

b. The position of chief operator at stations using type A-3 emission with licensed power in excess of 50 watts and not licensed in the Aviation Service.

c. Stations using other than type A-3 emission.

Licenses of this class, or any other license bearing this class of endorsement, may be renewed without examination provided the service requirements of rule 439 are fulfilled, as a radiotelephone second-class license, or a license bearing a radiotelephone second-class endorsement, as the case may be.

448. Application form no. 756 for operator's license, except amateur, may be obtained from the Commission or from the office of any inspector. Upon completion of the forms they shall be returned either in person or by mail to the inspector in charge of the radio inspection district in which the applicant desires to be examined, where the final arrangements shall be made. If the applicant desires to be examined in Washington, the form shall be returned to the Commission, at Washington, D.C. If the application is for renewal of license, and the service requirements of rule 439 are fulfilled (service requirements suspended until January 1, 1935), the renewal license may be issued by mail from the office which originally issued the license sought to be renewed. Applications for renewal of license may also be obtained and submitted by personally appearing at any point where examinations are being held, and the renewal license subsequently issued by mail. Any applicant may submit himself for examination at the time regular examinations are being conducted, either at a field office or an examining point, in which case the application form no. 756 may be filled out and filed at the time and place of examination.

FEDERAL RADIO COMMISSION

THE RADIO ACT OF 1927, AS AMENDED, ANNOTATED

UNITED STATES CODE ANNOTATED

TITLE 47

TELEGRAPHS, TELEPHONES, AND RADIO-TELEGRAPHS

Chapter 4. "The Radio Act of 1927"

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The commission has made certain additions to the annotations in order to include cases reported to July 1, 1931.

The Radio Act of 1927

AN ACT FOR THE REGULATION OF RADIO COMMUNICATIONS,
AND FOR OTHER PURPOSES

SECTION 1. This act is intended to regulate all forms of interstate and foreign radio transmissions and communications within the United States, its Territories and possessions; to maintain the control of the United States over all the channels of interstate and foreign radio transmission; and to provide for the use of such channels, but not the ownership thereof, by individuals, firms, or corporations, for limited periods of time, under licenses granted by Federal authority, and no such license shall be construed to create any right, beyond the terms, conditions, and periods of the license. That no person, firm, company, or corporation shall use or operate any apparatus for the transmission of energy or communications or signals by radio (a) from one place in any Territory or possession of the United States or in the District of Columbia to another place in the same Territory, possession, or District; or (b) from any State,

Regulation of
interstate and
foreign radio
communications;
grant of license.

Territory, or possession of the United States, or from the District of Columbia to any other State, Territory, or possession of the United States; or (c) from any place in any State, Territory, or possession of the United States, or in the District of Columbia, to any place in any foreign country or to any vessel; or (d) within any State when the effects of such use extend beyond the borders of said State, or when interference is caused by such use or operation with the transmission of such energy, communications, or signals from within said State to any place beyond its borders, or from any place beyond its borders to any place within said State, or with the transmission or reception of such energy, communications, or signals from and/or to places beyond the borders of said State; or (e) upon any vessel of the United States; or (f) upon any aircraft or other mobile stations within the United States, except under and in accordance with this chapter and with a license in that behalf granted under the provisions of this chapter. (Feb. 23, 1927, c. 169, § 1, 44 Stat. 1162.)

Appropriation.—Section 37 of the above act provided as follows: "The unexpended balance of the moneys appropriated in the item for 'wireless communication laws,' under the caption 'Bureau of Navigation' in title III of the act entitled 'An act making appropriations for the Departments of State and Justice and for the judiciary, and for the Departments of Commerce and Labor, for the fiscal year ending June 30, 1927, and for other purposes,' approved April 29, 1926, and the appropriation for the same purposes for the fiscal year ending June 30, 1928, shall be available both for expenditures incurred in the administration of this act and for expenditures for the purposes specified in such items. There is hereby authorized to be appropriated for each fiscal year such sums as may be necessary for the administration of

this act and for the purposes specified in such item."

Section 40 of said act provides that "this act [sections 1 to 41], shall take effect and be in force upon its passage and approval, except that for and during a period of sixty days after such approval no holder of a license or an extension thereof issued by the Secretary of Commerce under said act of August 13, 1912, shall be subject to the penalties provided herein for operating a station without the license herein required."

¹/₂. In general

The Supreme Court has refused to answer questions relating to the constitutionality of provisions in this chapter, propounded by the Circuit Court of Appeals, on the ground that they were indefinite. *White v. Johnson* (1931) 51 S.Ct. 115, 282 U.S. 367, 75 L.Ed. 388; *American Bond & Mortgage Co.*

v. *U.S.* (1931) 51 S.Ct. 118, 282, U.S. 374, 75 L.Ed. 395.

1. License

Municipal ordinance imposing license on radio broadcasters held invalid. *Whitehurst v. Grimes* (D.C.Ky. 1927) 21 F. (2d) 787.

This chapter is a valid delegation of the power to regulate interstate commerce and does not by authorizing revocation of license take property without due process of law. *Technical Radio Laboratory v. Federal Radio Commission* (App.D.C. 1929) 36 F. (2d) 111; *City of New York v. Federal Radio Commission* (App.D.C. 1929) 36 F. (2d) 115; *White v. Federal Radio Commission* (C.C.A.Ill. 1928) 29 F. (2d) 113.

Refusal to renew a radio-broadcasting license, without compensation for the investment of the broadcaster is not an invalid deprivation of property. *American Bond & Mortgage Co. v. U.S.* (C.C.A.Ill. 1931) 52 F. (2d) 318, affirming (D.C. 1929) 31 F. (2d) 448, certiorari denied (1932) 52 S.Ct. 311, 76 L.Ed. 931. *Trinity Methodist Church, South, v. Federal Radio Commission*, 62 F. (2d) 850; (1932) 61 App.D.C. 311.

The licensing provision does not improperly delegate legislative power. *U.S. v. American Bond & Mortgage Co.* (D.C.Ill. 1929) 31 F. (2d) 448.

Congress has power, under commerce clause, to provide for reasonable regulation of radio stations and establish agencies to give effect thereto. *General Electric Co. v. Federal Radio Commission* (1929) 31 F. (2d) 630, 58 App.D.C. 386, certiorari dismissed for want of jurisdiction (1930) 50 S.Ct. 389, 281 U.S. 464, 74 L.Ed. 969;

KFKB Broadcasting Assoc., Inc., v. Federal Radio Commission, 47 F. (2d) 670; *White v. Federal Radio Commission*, 29 F. (2d) 113. *Trinity Methodist Church, South, v. Federal Radio Commission*, 62 F. (2d) 850; (1932) 61 App.D.C. 311.

Operation of a station is prohibited without two specified licenses: (a) Station license issued in name of person or concern operating the station, and (b) operator's license issued to person in charge of transmitter. *People's Broadcasting Corp. v. Geo. Batten Co.* (N.Y. Supreme Court, Appellate Div., January, 1931).

This chapter is a valid exercise of the power to regulate commerce. *American Bond & Mortgage Co. v. U.S.* (C.C.A.Ill. 1931) 52 F. (2d) 318, affirming (D.C. 1929) 31 F. (2d) 448, certiorari denied (1932), 52 S.Ct. 311, 76 L.Ed.; *General Electric Co. v. Federal Radio Commission* (1929), 31 F. (2d) 630, 58 App. D.C. 386, cert dismissed (1930), 50 S.Ct. 389, 281 U.S. 464, 74 L.Ed. 969.

Radio-broadcasting business, being species of interstate commerce, is subject to reasonable regulation by Congress. *KFKB Broadcasting Ass'n., Inc., v. Federal Radio Commission* (1931), 47 F. (2d) 670, 60 App.D.C. 79.

Radio-broadcasting business is impressed with public interest. *KFKB Broadcasting Ass'n., Inc., v. Federal Radio Commission* (1931), 47 F. (2d) 670, 60 App. D.C. 79.

Right to use air for radio, which is dependent on Government permit, limited both as to extent and time, is permissive not vested. *American Bond & Mortgage Co. v. U.S.* (C.C.A. Ill. 1931), 52 F. (2d) 318, af-

firming (D.C. 1929) 31 F. (2d) 448, certiorari denied (1932) 52 S.Ct. 311, 76 L.Ed. 931.

Congress has power to give authority to cut down a license to part time on renewal thereof. *City of New York v. Federal Radio Commission* (1929), 36 F. (2d) 115, 59 App.D.C. 192, certiorari denied (1930) 50 S.Ct. 246, 281 U.S. 729, 74 L.Ed. 1146.

Radio apparatus, effects of which extend beyond State in which stationed, is within law requiring station license, so as to require license to operate it. *U.S. v. Molyneaux* (C.C.A.N.Y. 1932), 55 F. (2d) 912; *Federal Radio Commission v. Nelson Brothers Bond & Mortgage Co.* 53 S.Ct. 627.

In passing on application for renewal of radio-broadcasting license Commission must notice applicant's conduct in his previous use of permit. *Trinity Methodist Church, South, v. Federal Radio Commission*, 62 F. (2d) 850; (1932) 61 App.D.C. 311.

Finding that continuance of broadcasting by applicant for renewal of license was not in public interest, held justified and not violative of constitutional guarantee of freedom of speech. *Trinity Methodist Church, South, v. Federal Radio*

Commission, 62 F. (2d) 850; (1932) 61 App.D.C. 311.

Refusing renewal of radio broadcasting license to one who has abused it by broadcasting defamatory and untrue matter is not denial of freedom of speech. *Trinity Methodist Church, South, v. Federal Radio Commission*, 62 F. (2d) 850; (1932) 61 App.D.C. 311.

2. Interference by State of power over interstate commerce

License tax imposed by State on receiving sets within the State held void and for general discussion of subject see *Station WBT, Inc., v. Poulnot et al.*, 46 F. (2d) 671.

3. Testing validity

The validity of this act may be tested by a bill to enjoin enforcement of order of Radio Commission affecting property rights. *White v. Federal Radio Commission* (C.C.A.Ill. 1928), 29 F. (2d) 113.

The remedy given by section 96 of the act should be exhausted before resort to equity. *White v. Federal Radio Commission* (C.C.A.Ill. 1928) 29 F. (2d) 113.

4. Violation of statute

For convictions of violations of this section and others, see annotations under section 32 of this act.

SEC. 2. For the purposes of this act, the United States is divided into five zones, as follows: The first zone shall embrace the States of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Delaware, Maryland, the District of Columbia, Puerto Rico, and the Virgin Islands; the second zone shall embrace the States of Pennsylvania, Virginia, West Virginia, Ohio, Michigan, and Kentucky; the third zone shall embrace the States of North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee, Mississippi, Arkansas, Louisiana, Texas, and Oklahoma; the fourth

Division of
United States
into zones.

zone shall embrace the States of Indiana, Illinois, Wisconsin, Minnesota, North Dakota, South Dakota, Iowa, Nebraska, Kansas, and Missouri; and the fifth zone shall embrace the States of Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, the Territory of Hawaii, and Alaska. (Feb. 23, 1927, c. 169, § 2, 44 Stat. 1162.)

SEC. 3. A commission is hereby created and established to be known as the Federal Radio Commission, hereinafter referred to as the Commission, which shall be composed of five commissioners appointed by the President, by and with the advice and consent of the Senate, and one of whom the President shall designate as chairman: *Provided*, That chairman thereafter elected shall be chosen by the Commission itself.

Creation of
commission;
composition;
qualifications;
appointments;
meetings; em-
ployees; seal;
reports; com-
pensation.

Each member of the Commission shall be a citizen of the United States and an actual resident citizen of a State within the zone from which appointed at the time of said appointment. Not more than one commissioner shall be appointed from any zone. No member of the Commission shall be financially interested in the manufacture or sale of radio apparatus or in the transmission or operation of radiotelegraphy, radiotelephony, or radio broadcasting. Not more than three commissioners shall be members of the same political party.

The first commissioners shall be appointed for the terms of 2, 3, 4, 5, and 6 years, respectively, from the date of the taking effect of this act, the term of each to be designated by the President, but their successors shall be appointed for terms of six years, except that any person chosen to fill a vacancy shall be appointed only for the unexpired term of the commissioner whom he shall succeed.

The first meeting of the Commission shall be held in the city of Washington at such time and place as the chairman of the Commission may fix. The Commission shall convene thereafter at such times and places as a majority of the Commission may determine, or upon call of the chairman thereof.

The Commission may appoint a secretary, and such clerks, special counsel, experts, examiners, and other employees as it may from time to time find necessary for the proper performance of its duties and as from time to time may be appropriated for by Congress.

The Commission shall have an official seal and shall annually make a full report of its operations to the Congress.

The members of the Commission shall receive compensation at the ratio of \$10,000 per annum, until such time as is otherwise provided for by law, and also their necessary traveling expenses. (Feb. 23, 1927, c. 169, § 3, 44 Stat. 1162, as amended Mar. 28, 1928, c. 263, § 2, 45 Stat. 373; Mar. 4, 1929, c. 701, § 2, 45 Stat. 1559; Dec. 18, 1929, c. 7, § 2, 46 Stat. 50.) The amendments affected the third and last paragraph.

3a. Radio Division abolished; transfer of duties, powers, etc., to Federal Radio Commission. The President is authorized, by Executive order, to transfer the duties, powers, and functions, of the Radio Division of the Department of Commerce to the Federal Radio Commission, and upon the issuance of such order—

a. The Radio Division shall be abolished;

b. All records and property, including office furniture and equipment of the division shall be transferred to the Federal Radio Commission; and

c. Such of the officers and employees of the division, as, in the judgment of the President, are indispensable to the efficient operation of the Federal Radio Commission, shall be transferred to such Commission and all officers and employees of the division and Commission not indispensable to the service shall be dismissed. (June 30, 1932, c. 314, sec. 511, 47 Stat. 417.)

(Annotation):

Sections 801 and 802 of the act cited to the text provided as follows:

SEC. 801. If any provision of this act, or the application thereof to any person or circumstances, is held invalid, the remainder of the act, and the application of such provisions to other persons or circumstances, shall not be affected thereby.

SEC. 802. All acts and parts of acts inconsistent or in conflict with those provisions of this act which are of temporary duration are hereby suspended during the period in which such provisions of this act are in effect. All acts or parts of acts inconsistent or in conflict with those provisions of this act which are of permanent nature are hereby repealed to the extent of such inconsistency or conflict.

3b. Same; transfer of officers and employees. Any transfer of officers or employees under section 3a of this title shall be without changes in classification or compensation, but the President is authorized to make such

changes in the titles, designations, and duties of such officers and employees as he may deem necessary to carry out the provisions of sections 3a to 3d, inclusive, of this title. (June 30, 1932, c. 314, sec. 512, 47 Stat. 417.)

3c. Same; orders, rules, regulations, laws, etc., continued. (a) All orders, determinations, rules, or regulations made or issued by the Department of Commerce in respect of the Radio Division, or by the Radio Division, and in effect at the time of such transfer, shall continue in effect to the same extent as if such transfer had not been made, until modified, superseded, or repealed by the Federal Radio Commission. (b) All provisions of law relating to the Radio Division shall continue in force with respect to the Federal Radio Commission, insofar as such provisions of law are not inconsistent with the provisions of section 3a or 3b of this title. (June 30, 1932, c. 314, sec. 513, 47 Stat. 417.)

3d. Same; appropriations transferred. Such parts of appropriations and unexpended balances of appropriations available for expenditure by the Radio Division as the President deems necessary shall be available for expenditure by the Federal Radio Commission in the same manner as if such commission had been named in the laws providing for such appropriations, and the remainder of such appropriations and such unexpended balances shall not be expended but shall be impounded and returned to the Treasury. (June 30, 1932, c. 314, sec. 514, 47 Stat. 417.)

SEC. 4. Except as otherwise provided in this act, the Commission, from time to time, as public convenience, interest, or necessity requires shall—

Powers and
duties of
Commission.

- a. Classify radio stations;
- b. Prescribe the nature of the service to be rendered by each class of licensed stations and each station within any class;
- c. Assign bands of frequencies or wave lengths to the various classes of stations, and assign frequencies or wave lengths for each individual station and determine the power which each station shall use and the time during which it may operate;
- d. Determine the location of classes of stations or individual stations;
- e. Regulate the kind of apparatus to be used with respect to its external effects and the purity and sharp-

ness of the emissions from each station and from the apparatus therein;

f. Make such regulations not inconsistent with law as it may deem necessary to prevent interference between stations and to carry out the provisions of this chapter: *Provided, however,* That changes in the wave lengths, authorized power, in the character of emitted signals, or in the times of operation of any station, shall not be made without the consent of the station licensee unless, in the judgment of the Commission, such changes will promote public convenience or interest or will serve public necessity or the provisions of this chapter will be more fully complied with;

g. Have authority to establish areas or zones to be served by any station;

h. Have authority to make special regulations applicable to radio stations engaged in chain broadcasting;

i. Have authority to make general rules and regulations requiring stations to keep such records of programs, transmissions of energy, communications, or signals as it may deem desirable;

j. Have authority to exclude from the requirements of any regulations in whole or in part any radio station upon railroad rolling stock, or to modify such regulations in its discretion;

k. Have authority to hold hearings, summon witnesses, administer oaths, compel the production of books, documents, and papers and to make such investigations as may be necessary in the performance of its duties. The Commission may make such expenditures (including expenditures for rent and personal services at the seat of government and elsewhere, for law books, periodicals, and books of reference, and for printing and binding) as may be necessary for the execution of the functions vested in the Commission and, as from time to time may be appropriated for by Congress. All expenditures of the Commission shall be allowed and paid upon the presentation of itemized vouchers therefor approved by the chairman. (Feb. 23, 1927, c. 169, par. 4, 44 Stat. 1163.)

½. In general

Purpose of regulating radio transmission is to prevent chaos and insure satisfactory service. It is in interest of public and common justice to owner that status of broadcasting station

constructed and maintained in good faith should not be injuriously affected except for compelling reasons. *Journal Co. v. Federal Radio Commission* (1931), 48 F. (2d) 461, 60 App. D.C. 92.

1. Restrictions of licensing power

The Radio Commission, in making orders relative to licenses, is subject to the following rule: Administrative orders, quasi judicial in character, are void, if a hearing was denied, or if that granted was inadequate or manifestly unfair, if the finding is contrary to the indisputable character of the evidence, or if the facts found do not as a matter of law support its order; it may not capriciously make findings by administrative fiat, as this would be inconsistent with rational justice, and come within the Constitution's condemnation of arbitrary exercise of power. *White v. Federal Radio Commission* (C.C.A.Ill. 1928), 29 F. (2d) 113.

Radio Commission's general order that no license or renewal will be issued to portable broadcasting stations after certain date held valid. *Carrell v. Federal Radio Commission* (App. D.C. 1929), 36 F. (2d) 117.

The Commission on renewal of license may require the station to share its wave length with another. *City of New York v. Federal Radio Commission* (App. D.C. 1929), 36 F. (2d) 115, certiorari denied (1930), 50 S.Ct. 246, 281 U.S. 729, 74 L. Ed. 1146.

2. Station operated by municipality

City in operating radio broadcasting station exercises private,

Sec. 4a. The commission is authorized to appoint a general counsel and pay him a salary of \$10,000 per annum and not to exceed three assistants to such general counsel, at salaries of \$7,500 each per annum. It may appoint such other legal assistants as it may from time to time find necessary for the proper performance of its duties and as from time to time may be appropriated for by Congress. (Mar. 4, 1929, c. 701, par. 5, 45 Stat. 1559.)

not governmental powers, and is subject to Radio Commission's regulation. Even if city's broadcasting station was partly used for governmental purposes, such use was subject to regulation by Federal Radio Commission. *City of New York v. Federal Radio Commission* (App.D.C. 1929), 36 F. (2d) 115, certiorari denied (1930), 50 S.Ct. 246, 281 U.S. 729, 74 L.Ed. 1146.

3. Modification

Broadcasting privileges are subject to reasonable regulatory power of United States, with public convenience, interest, and necessity paramount considerations. *Chicago Federation of Labor v. Federal Radio Commission* (59 App.D.C. 333), 41 F. (2d) 422.

Applicant for modification of broadcasting license was properly required to designate single frequency in its application. *Chicago Federation of Labor v. Federal Radio Commission* (59 App.D.C. 333), 41 F. (2d) 422.

Federal Radio Commission held to have properly refused application for modification of broadcasting license. *Chicago Federation of Labor v. Federal Radio Commission* (App.D.C. 1930), 41 F. (2d) 422.

(See also annotations under sec. 10 of this title.)

Necessity for hearing, see annotations under sec. 11 of this title.

General counsel and assistants.

Chief engineer
and assistants;
technical
assistants.

SEC. 4b. The commission is authorized to appoint a chief engineer who shall receive a salary of \$10,000 per annum, and not to exceed two assistants to such chief engineer at salaries not to exceed \$7,500 each per annum. It may appoint such other technical assistants as it may from time to time find necessary for the proper performance of its duties and as from time to time may be appropriated for by Congress. (Dec. 18, 1929, c. 7, par. 3, 46 Stat. 50.)

Powers and
authority of
Secretary of
Commerce;
appeals to
commission;
grant of station
license; waiver
affecting wave
length, etc.

SEC. 5. From and after 1 year after the first meeting of the Commission created by this act, all the powers and authority vested in the commission under the terms of this act, except as to the revocation of licenses, shall be vested in and exercised by the Secretary of Commerce; except that thereafter the Commission shall have power and jurisdiction to act upon and determine any and all matters brought before it under the terms of this section.

It shall also be the duty of the Secretary of Commerce—

(A) For and during a period of 1 year from the first meeting of the Commission created by this act, to immediately refer to the Commission all applications for station licenses or for the renewal or modification of existing station licenses.

(B) From and after 1 year from the first meeting of the Commission created by this act, to refer to the Commission for its action any application for a station license or for the renewal or modification of any existing station license as to the granting of which dispute, controversy, or conflict arises or against the granting of which protest is filed within 10 days after the date of filing said application by any party in interest and any application as to which such reference is requested by the applicant at the time of filing said application.

(C) To prescribe the qualifications of station operators, to classify them according to the duties to be performed, to fix the forms of such licenses, and to issue them to such persons as he finds qualified.

(D) To suspend the license of any operator for a period not exceeding 2 years upon proof sufficient to satisfy him that the licensee (a) has violated any provision of any act or treaty binding on the United States which the Secretary of Commerce or the Commission is authorized by this act to administer or by any regulation made by the Commission or the Secretary of Commerce under any such act or treaty; or (b) has failed to carry out the lawful

orders of the master of the vessel on which he is employed; or (c) has wilfully damaged or permitted radio apparatus to be damaged; or (d) has transmitted superfluous radio communications or signals or radio communications containing profane or obscene words or language; or (e) has wilfully or maliciously interfered with any other radio communications or signals.

(E) To inspect all transmitting apparatus to ascertain whether in construction and operation it conforms to the requirements of this act, the rules and regulations of the licensing authority, and the license under which it is constructed or operated.

(F) To report to the Commission from time to time any violations of this act, the rules, regulations, or orders of the Commission, or of the terms or conditions of any license.

(G) To designate call letters of all stations.

(H) To cause to be published such call letters and such other announcements and data as in his judgment may be required for the efficient operation of radio stations subject to the jurisdiction of the United States and for the proper enforcement of this act.

The Secretary may refer to the Commission at any time any matter, the determination of which is vested in him by the terms of this act.

Any person, firm, company, or corporation, any State or political division thereof aggrieved or whose interests are adversely affected by any decision, determination, or regulation of the Secretary of Commerce may appeal therefrom to the Commission by filing with the Secretary of Commerce notice of such appeal within thirty days after such decision or determination or promulgation of such regulation. All papers, documents, and other records pertaining to such application on file with the Secretary shall thereupon be transferred by him to the Commission. The Commission shall hear such appeal de novo under such rules and regulations as it may determine.

Decisions by the Commission as to matters so appealed and as to all other matters over which it has jurisdiction shall be final, subject to the right of appeal herein given.

No station license shall be granted by the Commission or the Secretary of Commerce until the applicant therefor shall have signed a waiver of any claim to the use of any particular frequency or wave length or of the ether as

against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise. (Feb. 23, 1927, c. 169, par. 5, 44 Stat. 1164; as amended May 19, 1932, c. 192, 47 Stat. 160.)

This section has been amended by act of December 18, 1929, c. 7, par. 1, 46 Stat. 50, providing as follows: "That all the powers and authority vested in the Federal Radio Commission by the Radio Act of 1927, as amended (this chapter), shall continue to be vested in and exercised by the Commission until otherwise provided for by law; and wherever any reference is made in such act to the period of one year after the first meeting of the Commission, such period of one year is hereby extended until such time as is otherwise provided for by law."

Earlier amendments which have expired by limitation are acts of March 28, 1928, c. 263, par. 1, 45 Stat. 373, and March 4, 1929, c. 701, par. 1, 45 Stat. 1559.

1. Waiver of claim

The act not invalid by reason of requirement that an applicant sign a waiver of claim to use of a frequency because of previous use of same. *White v. Federal Radio Commission*, 29 F. (2d) 113.

Government
radio stations;
regulations;
control of all
stations by
Government in
national
emergency;
stations on
vessels.

SEC. 6. Radio stations belonging to and operated by the United States shall not be subject to the provisions of sections 1, 4, and 5 of this act. All such Government stations shall use such frequencies or wave lengths as shall be assigned to each or to each class by the President. All such stations, except stations on board naval and other Government vessels while at sea or beyond the limits of the continental United States, when transmitting any radio communication or signal other than a communication or signal relating to Government business shall conform to such rules and regulations designed to prevent interference with other radio stations and the rights of others as the licensing authority may prescribe. Upon proclamation by the President that there exists war or a threat of war or a state of public peril or disaster or other national emergency, or in order to preserve the neutrality of the United States, the President may suspend or amend, for such time as he may see fit, the rules and regulations applicable to any or all stations within the jurisdiction of the United States as prescribed by the licensing authority, and may cause the closing of any station for radio communication and the removal therefrom of its apparatus and equipment, or he may authorize the use or control of any such station and/or its apparatus and equipment by any department of the Government under such

regulations as he may prescribe, upon just compensation to the owners. Radio stations on board vessels of the United States Shipping Board or the United States Shipping Board Merchant Fleet Corporation or the Inland and Coastwise Waterways Service shall be subject to the provision of this act. (Feb. 23, 1927, c. 169, § 6, 44 Stat. 1165.)

The title "United States Shipping Board Emergency Fleet Corporation" was changed to "United States Shipping Board Merchant Fleet Corporation" by act of February 11, 1927, c. 104, § 1, 44 Stat. 1083, constituting § 810a of Title 46. The change is incorporated in the text.

Federal Radio Commission Co. (1930) 59 App.D.C. 197; 37 F. (2d) 993, certiorari dismissed (1930) 50 S.Ct. 467, 281 U.S. 706, 74 L.Ed. 1129.

That certain station commenced broadcasting earlier than others, and was first to be assigned specified channel, held not controlling in allocating broadcasting time. *Great Lakes Broadcasting Co. v. Federal Radio Commission Co.* (1930) 59 App. D.C. 197; 37 F. (2d) 993, certiorari dismissed (1930) 50 S.Ct. 467, 281 U.S. 706, 74 L.Ed. 1129.

1. Allocation of wave lengths

Evidence established that two applicants were entitled to share equally operating time on same broadcasting channel, third being transferred to another frequency. *Great Lakes Broadcasting Co. v.*

SEC. 7. The President shall ascertain the just compensation for such use or control and certify the amount ascertained to Congress for appropriations and payment to the person entitled thereto. If the amount so certified is unsatisfactory to the person entitled thereto, such person shall be paid only 75 per centum of the amount and shall be entitled to sue the United States to recover such further sum as added to such payment of 75 per centum which will make such amount as will be just compensation for the use and control. Such suit shall be brought in the manner provided by paragraph 20 of section 24, or by section 145 of the Judicial Code, as amended. (Feb. 23, 1927, c. 169, § 7, 44 Stat. 1165.)

Compensation by Government for use or control of stations during national emergency.

SEC. 8. All stations owned and operated by the United States except mobile stations of the Army of the United States, and all other stations on land and sea, shall have special call letters designated by the Secretary of Commerce.

Special call letters for stations; application of section 1 to foreign ships.

Section 1 of this act shall not apply to any person, firm, company, or corporation sending radio communications or signals on a foreign ship while the same is within the jurisdiction of the United States, but such communications or signals shall be transmitted only in ac-

cordance with such regulations designed to prevent interference as may be promulgated under the authority of this chapter. (Feb. 23, 1927, c. 169, § 8, 44 Stat. 1166.)

Licenses and renewal of licenses; period.

SEC. 9. The licensing authority, if public convenience, interest, or necessity will be served thereby, subject to the limitations of this act, shall grant to any applicant therefor a station license provided for by this act.

It is hereby declared that the people of all the zones established by section 2 of this act are entitled to equality of radio broadcasting service, both of transmission and of reception, and in order to provide said equality the licensing authority shall as nearly as possible make and maintain an equal allocation of broadcasting licenses, of bands of frequency or wave lengths, of periods of time for operation, and of station power, to each of said zones when and insofar as there are applications therefor; and shall make a fair and equitable allocation of licenses, wave lengths, time for operation, and station power to each of the States, the District of Columbia, the Territories and possessions of the United States within each zone, according to population. The licensing authority shall carry into effect the equality of broadcasting service hereinbefore directed, whenever necessary or proper, by granting or refusing licenses or renewals of licenses, by changing periods of time for operation, and by increasing or decreasing station power, when applications are made for licenses or renewals of licenses: *Provided*, That if and when there is a lack of applications from any zone for the proportionate share of licenses, wave lengths, time of operation, or station power to which such zone is entitled, the licensing authority may issue licenses for the balance of the proportion not applied for from any zone, to applicants from other zones for a temporary period of 90 days each, and shall specifically designate that said apportionment is only for said temporary period. Allocations shall be charged to the State, District, Territory, or possession wherein the studio of the station is located and not where the transmitter is located.

No license granted for the operation of a broadcasting station shall be for a longer term than 3 years and no license so granted for any other class of station shall be for a longer term than 5 years, and any license granted may be revoked as hereinafter provided. Upon the expiration of any license, upon application therefor, a renewal of such license may be granted from time to time for a term of not to exceed 3 years in the case of broad-

casting licenses and not to exceed 5 years in the case of other licenses.

No renewal of an existing station license shall be granted more than 30 days prior to the expiration of the original license. (Feb. 23, 1927, c. 169, par. 9, 44 Stat. 1166, as amended Mar. 28, 1928, c. 263, par. 5, 45 Stat. 373.)

The third paragraph of this section was amended by par. 3 of act of March 28, 1928, c. 263, 45 Stat. 373, and by par. 3, of act of March 4, 1929, c. 701, 45 Stat. 1559, providing as follows: "Prior to January 1, 1931, the licensing authority shall grant no license or renewal of license under the Radio Act of 1927 [this chapter] for a broadcasting station for a period to exceed three months and no license or renewal of license for any other class of station for a period to exceed one year."

Prior to amendment by act of March 28, 1928, c. 263, par. 5, the second paragraph of this section read as follows: "In considering applications for licenses and renewals of licenses, when and insofar as there is a demand for the same, the licensing authority shall make such a distribution of licenses, bands of frequency of wave lengths, periods of time for operation, and of power among the different States and communities as to give fair, efficient, and equitable radio service to each of the same."

1. Equality of radio broadcasting service.

The following language appears in *Havens and Martin, Inc., v. Federal Radio Commission* (45 F. (2d) 295): "In respect to Commission's findings relative to facilities already enjoyed by the State of Virginia and by the city of Richmond, we may say that the findings are not against the evidence. An analysis of the quota to which the State is entitled according to population

discloses that it is over its quota in respect to national, regional, and local facilities."

See also, *Ansley v. Fed. Radio Commission*, 46 F. (2d) 600.

It would not be consistent with legislative policy to equalize broadcasting facilities of States or zones by unnecessarily injuring established stations rendering valuable services to their natural service areas. *Reading Broadcasting Co. v. Fed. Radio Commission*, 48 F. (2d) 458.

2. Allocation to Zones.

Radio Commission's finding that State in which applicant sought broadcasting station construction permit already enjoyed more than proper share of broadcasting facilities is presumed correct. *Ansley v. Federal Radio Commission* (1930), 46 F. (2d) 600, 60 App.D.C. 19.

Evidence sustained Radio Commission's refusal of broadcasting station construction permit on ground public interest, convenience, or necessity would not be served. *Ansley v. Federal Radio Commission* (1930), 46 F. (2d) 600, 60 App.D.C. 19.

Application by radio broadcasting station for power increase held properly denied, where increase in State and zone in question would violate statute. *WHB Broadcasting Co. v. Federal Radio Commission* (App.D.C. 1932), 56 F. (2d) 311.

Radio Commission has duty to establish and maintain, if possible, equality of radio broadcasting service among different zones, and States within zones, according to population. *WHB*

Broadcasting Co. v. Federal Radio Commission (App.D.C. 1932), 56 F. (2d) 311. *Radio Commission* (App.D.C. 1931), 55 F. (2d) 537, 60 App. D.C. 375.

This section is a valid exercise of the commerce power *Durham Life Ins. Co. v. Federal Radio Commission* (1931), 55 F. (2d) 537, 60 App.D.C. 375.

Commission's general orders prescribing schedule setting out unit value for each facility used in broadcasting, and providing for refusing to increase quota of overquota State held valid. *Durham Life Ins. Co. v. Federal*

The Commission in making allocations of frequency to States within a zone has the power to license operation by a station in an underquota State or a frequency theretofore assigned to a station in an overquota State, provided the Commission does not act arbitrarily or capriciously. *Federal Radio Commission v. Nelson Bros. Bond & Mortgage Co.*, 53 S.Ct. 627.

Application for license; conditions and restrictions in license.

SEC. 10. The licensing authority may grant station licenses only upon written application therefor addressed to it. All applications shall be filed with the Secretary of Commerce. All such applications shall set forth such facts as the licensing authority by regulation may prescribe as to the citizenship, character, and financial, technical, and other qualifications of the applicant to operate the station; the ownership and location of the proposed station and of the stations, if any, with which it is proposed to communicate; the frequencies or wave lengths and the power desired to be used; the hours of the day or other periods of time during which it is proposed to operate the station; the purposes for which the station is to be used; and such other information as it may require. The licensing authority at any time after the filing of such original application and during the term of any such license may require from an applicant or licensee further written statements of fact to enable it to determine whether such original application should be granted or denied or such license revoked. Such application and/or such statement of fact shall be signed by the applicant and/or licensee under oath or affirmation.

The licensing authority in granting any license for a station intended or used for commercial communication between the United States or any Territory or possession, continental or insular, subject to the jurisdiction of the United States, and any foreign country, may impose any terms, conditions, or restrictions authorized to be imposed with respect to submarine-cable licenses by section 2 of an act entitled "An act relating to the landing and the operation of submarine cables in the United States," approved May 24, 1921. (Feb. 23, 1927, c. 169; par. 10, 44 Stat. 1166.)

1. In general

Radio Commission, on application by broadcasting station for power increase, must consider public interest, convenience, or necessity throughout country. *WHB Broadcasting Co. v. Federal Radio Commission* (1932), 61 App.D.C. 14, 56 F. (2d) 311.

Commission's finding that reduction in power of certain other stations so as to grant increased power to applicant's broadcasting station would not be for public interest, convenience, or necessity held warranted. *Strawbridge & Clothier v. Federal Radio Commission* (1932), 61 App. D.C. 68, 57 F. (2d) 434.

Radio Commission's refusal of application by station limited to six sevenths time for increase in operating time held not arbitrary or capricious. *Woodmen of the World Life Ins. Ass'n. v. Federal Radio Commission* (1932), 61 App.D.C. 54, 57 F. (2d) 420.

Radio Commission's general order limiting 1,000-watt station to use of 1,000-watt transmitter held within Commission's reasonable regulatory authority, and not violative of statute or Constitution. *Pacific Development Radio Co. v. Federal Radio Commission* (1931), 55 F. (2d) 540, 60 App.D.C. 378.

Evidence sustained Commission's refusal of permit to increase broadcasting station's power output on ground public convenience and necessity would not be served, it appearing that interference would result, and that location in question had adequate radio facilities. *Havens & Martin, Inc., v. Federal Radio Commission* (1930), 45 F. (2d) 295, 59 App.D.C. 393.

No broadcasting station operated in good faith should be

subjected to frequency or power change or reduction of normal and established service area except for compelling reasons. *Journal Co. v. Federal Radio Commission* (1931), 48 F. (2d) 461, 60 App.D.C. 92.

It would not be consistent with legislative policy to equalize broadcasting facilities of States or zones by unnecessarily so modifying frequencies as to injure established stations rendering valuable services to their natural service areas. *Reading Broadcasting Co. v. Federal Radio Commission* (1931), 48 F. (2d) 458, 60 App.D.C. 92.

Applicant for modification of broadcasting license was properly required to designate single frequency in its application. *Chicago Federation of Labor v. Federal Radio Commission* (1930), 41 F. (2d) 422, 59 App. D.C. 333.

Federal Radio Commission held to have properly refused application for modification of broadcasting license. *Chicago Federation of Labor v. Federal Radio Commission* (1930), 41 F. (2d) 422, 59 App.D.C. 333.

Burden is on applicant seeking increased power to show that it will be for public interest, convenience, or necessity to reduce other broadcasting stations' power. *Strawbridge & Clothier v. Federal Radio Commission* (1932), 61 App.D.C. 68, 57 F. (2d) 434.

Evidence sustained refusal of application for increased power on ground that such increase would adversely affect services rendered by several other stations. *Strawbridge & Clothier v. Federal Radio Commission* (1932), 61 App.D.C. 68, 57 F. (2d) 434.

Issuance, renewal
or modification of
station licenses;
hearing; form;
terms.

SEC. 11. If upon examination of any application for a station license or for the renewal or modification of a station license the licensing authority shall determine that public interest, convenience, or necessity would be served by the granting thereof, it shall authorize the issuance, renewal, or modification thereof in accordance with said finding. In the event the licensing authority upon examination of any such application does not reach such decision with respect thereto, it shall notify the applicant thereof, shall fix and give notice of a time and place for hearing thereon, and shall afford such applicant an opportunity to be heard under such rules and regulations as it may prescribe.

Such station licenses as the licensing authority may grant shall be in such general form as it may prescribe, but each license shall contain, in addition to other provisions, a statement of the following conditions to which such license shall be subject:

(A) The station license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies or wave length designated in the license beyond the term thereof nor in any other manner than authorized therein.

(B) Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of this act.

(C) Every license issued under this act shall be subject in terms to the right of use or control conferred by section 6 hereof.

Until such time as is otherwise provided for by law, in cases of emergency, or on applications filed during said time for temporary changes in terms of licenses when the Commission is not in session and prompt action is deemed necessary, the Secretary of Commerce shall have authority to exercise the powers and duties of the Commission, except as to revocation of licenses, but all such exercise of powers shall be promptly reported to the members of the Commission, and any action by the Secretary authorized under this paragraph shall continue in force and have effect only until such time as the Commission shall act thereon. (Feb. 23, 1927, c. 169, § 11, 44 Stat. 1167, as amended Mar. 28, 1928, c. 263, § 1, 45 Stat. 373; Mar. 4, 1929, c. 701, § 1, 45 Stat. 1559; Dec. 18, 1929, c. 7, § 1, 46 Stat. 50.)

The amendments affected the last paragraph

1. In general

Operation under previous license gives no vested right against proper exercise of power to regulate. *White v. Federal Radio Commission* (C.C.A.Ill. 1928) 29 F. (2d) 113.

While Federal Radio Commission's refusal to renew license of radio broadcasting station, except as modified, should be sustained, if time limitation is reasonable, refusal to renew radio broadcasting license without limitation as to time held unreasonable, and not for public convenience, interest, and necessity. *General Electric Co. v. Federal Radio Commission* (1929), 31 F. (2d) 630, 58 App.D.C. 386, certiorari dismissed for want of jurisdiction (1930) 50 S.Ct. 389, 281 U.S. 464, 74 L.Ed. 969.

The Attorney General may sue in the name of the United States to enjoin unlicensed broadcasting though the acts sought to be enjoined are punishable criminally under section 32 of this act. *U.S. v. American Bond & Mortgage Co.* (D.C.Ill. 1929), 31 F. (2d) 448. Affirmed without reference to this point. (C.C.A. 1931, 52 F. (2d) 318; certiorari denied 1932) 52 S.Ct. 311, 76 L.Ed. 931.

Invalidity of an order denying a license is not a defense to a suit enjoining unlicensed broadcasting. *U.S. v. American Bond & Mortgage Co.* (D.C.Ill. 1929), 31 F. (2d) 448; affirmed without reference to this point (C.C.A. 1931), 52 F. (2d) 318, certiorari denied 1932, 52 S.Ct. 311, 76 L.Ed. 931.

It is in the interest of the public and common justice that a station constructed and maintained in good faith should not be injuriously affected except for compelling reasons. *Courier-Journal Co. v. Federal Radio Commission*, 46 F. (2d) 614.

Radio broadcasting business should not be a mere adjunct to a particular business and it is impressed with the public interest. *KFKB Broadcasting Association, Inc., v. Federal Radio Commission*, 47 F. (2d) 670; 60 App.D.C. 79.

In passing on a renewal application the Commission must consider character and quality of service to be rendered and in this connection past conduct of the station is important. *KFKB Broadcasting Association, Inc., v. Federal Radio Commission*, 47 F. (2d) 670.

Radio Commission's exclusion of oral and unverified written statements respecting services rendered by broadcasting station of applicant for renewal license, held not error. *Technical Radio Laboratory v. Federal Radio Commission* (App.D.C. 1929), 36 F. (2d) 111.

Radio Commission in hearing applications, may, under reasonable regulations, depart from strict rules of evidence applicable to court proceedings. *Technical Radio Laboratory v. Federal Radio Commission* (App.D.C. 1929), 36 F. (2d) 111.

Commission's order changing broadcasting station's frequency to become effective on date prior to hearing provided for in said order held erroneous. *Courier-Journal Co. v. Federal Radio Commission*, 46 F. (2d) 614. *Saltzman et al. v. Stromberg Carlson Co.*, 46 F. (2d) 612. See also *Westinghouse Electric & Mfg. Co. v. Federal Radio Commission*, 47 F. (2d) 415.

Applicant's past conduct is important consideration in passing on application to renew broadcasting license, especially where evidence clearly justifies conclusion applicant's future conduct will not differ from past conduct. *KFKB Broadcasting Assn., Inc., v. Federal Radio*

Commission (1931), 47 F. (2d) 670, 60 App.D.C. 79.

Operators of radio station cannot attack order of Radio Commission denying renewal of license, without first exhausting statutory remedies. *American Bond & Mortgage Co. v. U.S.* (C.C.A.III. 1931), 52 F. (2d) 318, affirming (D.C. 1929) 31 F. (2d) 448, certiorari denied (1932), 52 S.Ct. 311, 76 L.Ed. 931.

Operators of radio station, having accepted revocable license or Government permit with attendant benefits, can not subsequently assert rights surrendered and unconstitutionality of Radio Act, authorizing license. *American Bond & Mortgage Co. v. U.S.* (C.C.A.III. 1931), 52 F. (2d) 318, affirming (D.C. 1929), 31 F. (2d) 448, certiorari denied (1932), 52 S.Ct. 311, 76 L.Ed. 931.

When parties interested in application for modification of radio broadcasting station's license are located in same city, better practice is to attempt to serve opposite counsel with exception to examiner's report, and, in event mailing is necessary, notice should be sent by registered mail. *Unity School of Christianity v. Federal Radio Commission*, 64 F. (2d) 250; (1933), — App.D.C. —.

Where broadcasting station files exception to the examiner's report recommending denial of application for modification of its license, it was Radio Commission's duty before decision thereon to notify other broadcasting station sharing time with applicant, since otherwise there would be denial of due process. *Unity School of Christianity v. Federal Radio Commission*, 64 F. (2d) 250; (1933), — App.D.C. —.

1½. Necessity of hearing

A modification order made without hearing, and taking effect before a hearing can be had on application of the license is void. *Saltzman et al v. Stromberg-Carlson Telephone Mfg. Co.* (App.D.C. 1931), 46 F. (2d) 612, 60 App.D.C. 31; *Courier-Journal Co. v. Federal Radio Commission* (1931), 46 F. (2d) 614, 60 App.D.C. 33.

2. Notice of hearing

Applicant appearing at hearings on application for renewal of radio broadcasting license and participating therein could not complain of lack of notice. *Technical Radio Laboratory v. Federal Radio Commission* (1929), 59 App.D.C. 125, 36 F. (2d) 111.

Where a station occupies a certain frequency and the Commission increases the power of another station on the same channel and makes other shifts in stations which affects the same channel held that failure to give notice to appellant station and afford it opportunity to be heard was error. *Journal Co. v. Federal Radio Commission*, — F. (2d) —.

Operator of radio broadcasting station is entitled to due notice and hearing before Federal Radio Commission on proposed changes in permit. *Westinghouse Electric and Mfg. Co. v. Federal Radio Commission* (1931), 47 F. (2d) 415, 53 App. D.C. 53.

3. Hearing and evidence

Contention that Radio Commission's decision denying application for renewal of broadcasting license was void, because one of commissioners retired when charged with prejudice,

held not sustained. *Technical Radio Laboratory v. Federal Radio Commission* (1929), 59 App.D.C. 125, 36 F. (2d) 111.

The burden is on the applicant for a license to show his right thereto. *U.S. v. American Bond & Mortgage Co.* (D.C.III. 1929), 31 F. (2d) 448; affirmed without reference to this point. (C.C.A. 1931), 52 F. (2d) 318, certiorari denied (1932), 52 S.Ct. 311, 76 L.Ed. 931; *KFKB Broadcasting Association, Inc., v. Federal Radio Commission*, 47 F. (2d) 670, 60 App.D.C. 79.

Commission's ex parte findings on evidence undisclosed to applicant for renewal of license held insufficient to make prima facie case requiring applicant to show cause. *Saltzman et al. v. Stromberg-Carlson Co.*, 46 F. (2d) 612, 60 App.D.C. 31.

Radio Commission's finding station belonging to applicant for renewal of broadcasting license had been conducted only in applicant's personal interest and was inimical to public health and safety held sustained by evidence. *KFKB Broadcasting Ass'n., Inc., v. Federal Radio Commission* (1931), 47 F. (2d) 670, 60 App.D.C. 79.

Evidence respecting applicant's insolvency warranted Radio Commission in denying application for renewal of license for radio broadcasting station. *Sproul v. Federal Radio Commission* (1931) 54 F. (2d) 444, 60 App.D.C. 333.

Radio Commission, in considering and passing on application for renewal of broadcasting license without hearing oral argument thereon, did not abuse discretion. *Sproul v. Federal Radio Commission* (1931), 54 F. (2d) 444, 60 App.D.C. 333.

In proceedings before Federal Radio Commission to obtain

renewal license, rejecting as evidence unverified written statement of applicant's engineer held not error. *Riker v. Federal Radio Commission* (1931), 55 F. (2d) 535, 60 App.D.C. 373.

Applicant for renewal license to operate radio broadcasting station has burden of proof on issues on which right depends. *Riker v. Federal Radio Commission* (1931), 55 F. (2d) 535, 60 App.D.C. 373.

Radio Commission's exclusion of oral and unverified written statement respecting services rendered by broadcasting station of applicant for renewal license held not error. *Technical Radio Laboratory v. Federal Radio Commission* (1929), 36 F. (2d) 111, 59 App.D.C. 125.

Radio Commission in hearing applications, may, under reasonable regulations, depart from strict rules of evidence applicable to court proceedings. *Technical Radio Laboratory v. Federal Radio Commission* (1929), 36 F. (2d) 111, 59 App.D.C. 125; *Beebe v. Federal Radio Commission*, 61 F. (2d) 914, (1932) 61 App.D.C. 273.

On application for renewal of license for radio broadcasting station, applicant has burden to establish that renewal would be in public interest. *Beebe v. Federal Radio Commission*, 61 F. (2d) 914; (1932) 61 App.D.C. 273.

Evidence sustained findings of Federal Radio Commission denying application to renew license of broadcasting station. *Beebe v. Federal Radio Commission*, 61 F. (2d) 914; (1932) 61 App.D.C. 273.

On hearing before the Federal Radio Commission to determine whether license for use of old equipment in broadcasting station should be renewed, applicant's intention to procure new

transmitter held immaterial. *Beebe v. Federal Radio Commission*, 61 F. (2d) 914; (1932) 61 App.D.C. 273.

Where several radio stations apply for same frequency, Federal Radio Commission must grant either party asking it a hearing. *Symons Broadcasting Co. v. Federal Radio Commission*, 64 F. (2d) 381; (1933) — App. D.C. —.

Refusal of Federal Radio Commission after granting particular frequency, to hear protest by another radio station, which applied for same frequency, held error. *Symons Broadcasting Co. v. Federal Radio Commission*,

64 F. (2d) 381; (1933) — App. D.C. —.

Function of examiner for Radio Commission is that of auditor or special master and his report has similar weight. *Unity School of Christianity v. Federal Radio Commission*, 64 F. (2d) 250; (1933) — App.D.C. —.

4. Rights of unlicensed station

Company engaged in operating broadcasting station without required licenses could not recover for breach of broadcasting contract. *People's Broadcasting Corporation v. George Batten Co., Inc.* (1931), 247 N.Y.S. 569, 231 App. Div. 367.

SEC. 12. The station license required hereby shall not be granted to, or after the granting thereof such license shall not be transferred in any manner, either voluntarily or involuntarily, to (a) any alien or the representative of any alien; (b) to any foreign government, or the representative thereof; (c) to any company, corporation, or association organized under the laws of any foreign government; (d) to any company, corporation, or association of which any officer or director is an alien, or of which more than one fifth of the capital stock may be voted by aliens or their representatives or by a foreign government or representative thereof, or by any company, corporation, or association organized under the laws of a foreign country.

The station license required hereby, the frequencies or wave length or lengths authorized to be used by the licensee, and the rights therein granted shall not be transferred, assigned, or in any manner, either voluntarily or involuntarily, disposed of to any person, firm, company, or corporation without the consent in writing of the licensing authority (Feb. 23, 1927, c. 169, par. 12, 44 Stat. 1167).

SEC. 13. The licensing authority is hereby directed to refuse a station license and/or the permit hereinafter required for the construction of a station to any person, firm, company, or corporation, or any subsidiary thereof, which has been finally adjudged guilty by a Federal court of unlawfully monopolizing or attempting unlawfully to monopolize, after February 23, 1927, radio com-

Restrictions on grants and transfers of station licenses.

Refusal of station license to persons guilty of monopoly; liability to prosecution under laws against monopoly.

munication, directly or indirectly, through the control of the manufacture or sale of radio apparatus, through exclusive traffic arrangements, or by any other means or to have been using unfair methods of competition. The granting of a license shall not estop the United States or any person aggrieved from proceeding against such person, firm, company, or corporation for violating the law against unfair methods of competition or for a violation of the law against unlawful restraints and monopolies and/or combinations, contracts, or agreements in restraint of trade, or from instituting proceedings for the dissolution of such firm, company, or corporation (Feb. 23, 1927, c. 169, par. 13, 44 Stat. 1167).

SEC. 14. Any station license shall be revocable by the Commission for false statements either in the application or in the statement of fact which may be required by section 10 hereof, or because of conditions revealed by such statements of fact as may be required from time to time which would warrant the licensing authority in refusing to grant a license on an original application, or for failure to operate substantially as set forth in the license, for violation of or failure to observe any of the restrictions and conditions of this act, or of any regulation of the licensing authority authorized by this act or by a treaty ratified by the United States, or whenever the Interstate Commerce Commission, or any other Federal body in the exercise of authority conferred upon it by law, shall find and shall certify to the Commission that any licensee bound so to do, has failed to provide reasonable facilities for the transmission of radio communications, or that any licensee has made any unjust and unreasonable charge, or has been guilty of any discrimination, either as to charge or as to service or has made or prescribed any unjust and unreasonable classification, regulation, or practice with respect to the transmission of radio communications or service: *Provided*, That no such order of revocation shall take effect until 30 days' notice in writing thereof, stating the cause for the proposed revocation, has been given to the parties known by the Commission to be interested in such license. Any person in interest aggrieved by said order may make written application to the Commission at any time within said 30 days for a hearing upon such order, and upon the filing of such written application said order of revocation shall stand suspended until the conclusion of

Revocation of
station license;
notice of
revocation;
hearing.

the hearing herein directed. Notice in writing of said hearing shall be given by the Commission to all the parties known to it to be interested in such license 20 days prior to the time of said hearing. Said hearing shall be conducted under such rules and in such manner as the Commission may prescribe. Upon the conclusion hereof the Commission may affirm, modify, or revoke said orders of revocation. (Feb. 23, 1927, c. 169, par. 14, 44 Stat. 1168.)

Application of laws against monopolies to radio combinations; revocation of licenses.

SEC. 15. All laws of the United States relating to unlawful restraints and monopolies and to combinations, contracts, or agreements in restraint of trade are hereby declared to be applicable to the manufacture and sale of and to trade in radio apparatus and devices entering into or affecting interstate or foreign commerce and to interstate or foreign radio communications. Whenever in any suit, action, or proceeding, civil or criminal, brought under the provisions of any of said laws or in any proceedings brought to enforce or to review findings and orders of the Federal Trade Commission or other governmental agency in respect of any matters as to which said Commission or other governmental agency is by law authorized to act, any licensee shall be found guilty of the violation of the provisions of such laws or any of them, the court, in addition to the penalties imposed by said laws, may adjudge, order, and/or decree that the license of such licensee shall, as of the date the decree or judgment becomes finally effective or as of such other date as the said decree shall fix, be revoked and that all rights under such license shall thereupon cease: *Provided, however,* That such licensee shall have the same right of appeal or review as is provided by law in respect of other decrees and judgments of said court. (Feb. 23, 1927, c. 169, par. 15, 44 Stat. 1168.)

Appeals in matters affecting permit and licenses.

SEC. 16. (a) An appeal may be taken, in the manner hereinafter provided, from decisions of the Commission to the Court of Appeals of the District of Columbia in any of the following cases:

(1) By any applicant for a station license, or for renewal of an existing station license, or for modification of an existing station license, whose application is refused by the Commission.

(2) By any licensee whose license is revoked, modified, or suspended by the Commission.

(3) By any other person, firm, or corporation aggrieved or whose interests are adversely affected by any decision

of the Commission granting or refusing any such application or by any decision of the Commission revoking, modifying, or suspending an existing station license.

Such appeal shall be taken by filing with said court within 20 days after the decision complained of is effective, notice in writing of said appeal and a statement of the reasons therefor, together with proof of service of a true copy of said notice and statement upon the Commission. Unless a later date is specified by the Commission as part of its decision, the decision complained of shall be considered to be effective as of the date on which public announcement of the decision is made at the office of the Commission in the city of Washington.

(b) The Commission shall thereupon immediately, and in any event not later than 5 days from the date of such service upon it, mail or otherwise deliver a copy of said notice of appeal to each person, firm, or corporation shown by the records of the Commission to be interested in such appeal and to have a right to intervene therein under the provisions of this section, and shall at all times thereafter permit any such person, firm, or corporation to inspect and make copies of the appellant's statement of reasons for said appeal at the office of the Commission in the city of Washington. Within 30 days after the filing of said appeal the Commission shall file with the court the originals or certified copies of all papers and evidence presented to it upon the application involved or upon its order revoking, modifying, or suspending a license, and also a like copy of its decision thereon, and shall within 30 days thereafter file a full statement in writing of the facts and grounds for its decision as found and given by it, and a list of all interested persons, firms, or corporations to whom it has mailed or otherwise delivered a copy of said notice of appeal.

(c) Within 30 days after the filing of said appeal any interested person, firm, or corporation may intervene and participate in the proceedings had upon said appeal by filing with the court a notice of intention to intervene and a verified statement showing the nature of the interest of such party, together with proof of service of true copies of said notice and statement, both upon appellant and upon the Commission. Any person, firm, or corporation who would be aggrieved or whose interests would be adversely affected by a reversal or modification of the decision of the Commission complained of shall be considered an interested party.

(d) At the earliest convenient time the court shall hear and determine the appeal upon the record before it, and shall have power, upon such record, to enter a judgment affirming or reversing the decision of the Commission, and, in event the court shall render a decision and enter an order reversing the decision of the Commission, it shall remand the case to the Commission to carry out the judgment of the court: *Provided, however,* That the review by the court shall be limited to questions of law and that findings of fact by the Commission, if supported by substantial evidence, shall be conclusive unless it shall clearly appear that the findings of the Commission are arbitrary or capricious. The court's judgment shall be final, subject, however, to review by the Supreme Court of the United States upon writ of certiorari on petition therefor under section 347 of title 28 by appellant, by the Commission, or by any interested party intervening in the appeal.

(e) The court may, in its discretion, enter judgment for costs in favor of or against an appellant, and/or other interested parties intervening in said appeal, but not against the Commission, depending upon the nature of the issues involved upon said appeal and the outcome thereof: *Provided, however,* That this section shall not relate to or affect appeals which were filed in said Court of Appeals prior to July 1, 1930. (Feb. 23, 1927, c. 169, par. 16, 44 Stat. 1169, as amended July 1, 1930, c. 788, 46 Stat. 844.)

See also note 2 in annotation under section 11 of this title; note 3 under section 1 of this title.

1. In general

The remedy for refusal to grant a license is by appeal under this section. *U.S. v. American Bond & Mortgage Co.* (D.C.Ill. 1929), 31 F. (2d) 448.

Order of Federal Radio Commission authorizing reissuance of construction permits theretofore surrendered was not appealable decision. *Universal Service Wireless, Inc., v. Federal Radio Commission* (App.D.C. 1930), 41 F. (2d) 113; 59 App.D.C. 319.

Order denying license must stand unless it is arbitrary or without evidence to sustain it. *U.S. v. American Bond & Mortgage Co.* (D.C.Ill. 1929), 31 F. (2d) 448.

Right of appeal from decision of Federal Radio Commission being statutory, court cannot dispense with express provisions, even to extent of doing equity. *Universal Service Wireless, Inc., v. Federal Radio Commission* (App.D.C. 1930), 41 F. (2d) 113; 59 App.D.C. 319.

Applicant for renewal of broadcasting license must show that Radio Commission's refusal is contrary to evidence, and that

station serves public interest, convenience, and necessity. *Technical Radio Laboratory v. Federal Radio Commission* (1929) 59 App.D.C. 125, 36 F. (2d) 111, holding evidence sufficient to sustain refusal to renew license of small station.

"The powers confided to the Commission respecting the granting and renewal of station licenses are purely administrative, and the provision for appeals to the Court of Appeals does no more than make that court a superior and revising agency in the same field. The court's province under that provision is essentially the same as its province under the legislation which up to a recent date permitted appeals to it from administrative decisions of the Commissioner of Patents. Indeed, the provision in the act of 1927 is patterned largely after that legislation. And while a few differences are found there is none that is material here." *Federal Radio Commission v. General Electric Co.* (1930), 50 S. Ct. 389, 281 U.S. 464, 74 L. Ed. 969, dismissing certiorari (1929), 31 F. (2d) 630, 58 App.D.C. 386.

That radio broadcasting license would have long since expired if it had been granted held not to render moot appeal from denial of application. *Technical Radio Laboratory v. Federal Radio Commission* (1929) 59 App.D.C. 125, 36 F. (2d) 111.

On appeal from denial of license the court cannot consider a request to modify the license by granting right to use more power. *Technical Radio Laboratory v. Federal Radio Commission*, 36 F. (2d) 111, 59 App. D.C. 125.

Decisions of the Commission denying a construction permit

held not contrary to or *manifestly against* the evidence. *Havens and Martin, Inc., v. Fed. Radio Comm.*, 45 F. (2d) 295. Also see *Ansley v. Fed. Radio Comm.*, 46 F. (2d) 600.

Successful applicants having become insolvent pending unsuccessful applicant's appeals, the Commission was authorized by modification of stay orders, to reallocate permits for construction. *Intercity Radio Telegraph Co. v. Fed. Radio Comm.*, 46 F. (2d) 602.

Decision of the Commission denying application for renewal of license on ground of interference must be sustained unless *manifestly against* the evidence. *General Broadcasting System, Inc., v. Fed. Radio Comm.*, 47 F. (2d) 426. That decision of Commission be *manifestly against* the evidence for the court to reverse the Commission, see also *Marquette University v. Federal Radio Commission*, 47 F. (2d) 406, and *The Journal Co. v. Fed. Radio Comm.*, 48 F. (2d) 461, 60 App.D.C. 92 and *KFKB Broadcasting Assoc., Inc., v. Fed. Radio Comm.*, 47 F. (2d) 670.

A decision of the Commission supported by competent evidence should be sustained by the reviewing court. *Reading Broadcasting Co. v. Fed. Radio Comm.*, 60 App.D.C. 89, 48 F. (2d) 458; *Marquette University v. Federal Radio Commission* (1931), 47 F. (2d) 406, 60 App. D.C. 44; *Ansley v. Federal Radio Commission* (1930), 46 F. (2d) 600, 60 App.D.C. 19.

If an unsuccessful applicant claims the unconstitutionality of the act, he may test the same by bill for an injunction in a Federal district court. In such a proceeding he may not be heard to complain about proceedings before the Commission

as he has not exhausted his remedy provided in this section. *White v. Federal Radio Com.*, 29 F. (2d) 113.

Findings of fact by Federal Radio Commission, if supported by substantial evidence, are conclusive, unless clearly arbitrary or capricious. *Riker v. Federal Radio Commission* (1931) 55 F. (2d) 535, 60 App.D.C. 373.

Decision of Federal Radio Commission refusing renewal license to operate radio broadcasting station held not arbitrary or capricious, in view of examiner's findings, sustained by Commission. *Riker v. Federal Radio Commission* (1931), 55 F. (2d) 535, 60 App.D.C. 373; *Pacific Development Radio Co. v. Federal Radio Commission* (1931), 55 F. (2d) 540, 60 App.D.C. 378; *Durham Life Ins. Co., v. Federal Radio Commission* (1931) 55 F. (2d) 537, 60 App.D.C. 375.

Application for permit to increase broadcasting station's power held not applicable for "construction permit", but for modification of existing license; hence denial was appealable. *Durham Life Ins. Co. v. Federal Radio Commission* (1931), 55 F. (2d) 537, 60 App.D.C. 375.

Radio Commission's denial of application for permit for modification of existing broadcasting station license is appealable. *Pacific Development Radio Co. v. Federal Radio Commission* (1931), 55 F. (2d) 540, 60 App.D.C. 378.

The amendment of 1930 to this section is not applicable to appeals perfected before its enactment. *Ansley v. Federal Radio Commission* (1930), 46 F. (2d) 600, 60 App.D.C. 19.

Radio Commission's finding that four stations assigned same frequency as appellant's station

could be simultaneously operated without intolerable interference held manifestly against evidence. *Journal Co. v. Federal Radio Commission* (1931), 48 F. (2d) 461, 60 App.D.C. 92.

Appeal from Radio Commission's decision which, though granting renewal of broadcasting license, increased power of another station assigned to same frequency, held not maintainable as appeal from "refusal of application". *Journal Co. v. Federal Radio Commission* (1931) 48 F. (2d) 461, 60 App.D.C. 92.

Evidence sustained Radio Commission's refusal of broadcasting station construction permit on ground public interest, convenience, or necessity would not be served. *Ansley v. Federal Radio Commission* (1930), 46 F. (2d) 600, 60 App.D.C. 19.

Radio Commission's finding that State in which applicant sought broadcasting station construction permit already enjoyed more than proper share of broadcasting facilities is presumed correct. *Ansley v. Federal Radio Commission* (1930), 46 F. (2d) 600, 60 App.D.C. 19.

Appeal from order changing the frequency allotted to a station, without allowing a hearing is not rendered moot by the offering of a hearing pending the appeal. *Courier-Journal Co. v. Federal Radio Commission* (1931), 60 App.D.C. 33, 46 F. (2d) 614, 60 App.D.C. 33.

Appellant must show an appealable interest. *Telegraph Herald Co. v. Federal Radio Commission*, 66 F. (2d) 220; decided June 26, 1933; — App.D.C. —.

Evidence sustained Radio Commission's finding that granting application for change of broadcasting station's frequency would result in objectionable interference with other stations.

Davidson v. Federal Radio Commission, 61 F. (2d) 401; (1932) 61 App.D.C. 249.

Radio Commission's decision of fact question respecting renewing broadcasting station's license and modification thereof, supported by substantial evidence and not arbitrary or capricious, was affirmed. *Radio Investment Company, Incorporated, v. Federal Radio Commission*, 62 F. (2d) 381; (1932) 61 App.D.C. 296.

Findings of Commission, where supported by substantial evidence, are conclusive. *Riker v. Federal Radio Commission*, 60 App.D.C. 373; 55 F. (2d) 535; *WOW v. Federal Radio Commission*, 65 F. (2d) 484; *Goss v. Federal Radio Commission*, — F. (2d) decided June 19, 1933; — App.D.C. —.

An inquiry into the facts before the Commission in order to ascertain whether its findings are vitiated belongs to the judicial province and does not trench upon or involve the exercise of administrative authority. Such an examination is not concerned with the weight of evidence or with the wisdom or expediency of the administrative action. *Federal Radio Commission v. Nelson Bros. Bond & Mortgage Co.*, 53 S.Ct. 627.

Court of Appeals cannot give decisions which are merely advisory, nor can it exercise functions which are essentially legislative or administrative. *Federal Radio Commission v. Nelson Bros. Bond & Mortgage Co.*, 53 S.Ct. 627.

SEC. 17. After the passage of this act, no person, firm, company, or corporation now or hereafter directly or indirectly through any subsidiary, associated, or affiliated person, firm, company, corporation, or agent, or otherwise, in the business of transmitting and/or receiving

2. Review by United States Supreme Court

Judgment of Court of Appeals of District of Columbia requiring Federal Radio Commission to renew broadcasting license was not reviewable by Supreme Court, since proceeding was not "case or controversy." *Federal Radio Commission v. General Electric Co.* (1930), 50 S.Ct. 389, 281 U.S. 464, 74 L.Ed. 969, dismissing certiorari (1929) 31 F. (2d) 630, 58 App.D.C. 386.

3. Insolvency of appellant

Successful applicants having become insolvent or bankrupt pending unsuccessful applicants' appeals, Radio Commission was authorized, by modification or stay orders, to reallocate permits for construction permits. *Intercity Radio Telegraph Co. v. Federal Radio Commission* (1931) 46 F. (2d) 602, 60 App.D.C. 21.

Finding of Commission that no showing was made by appellant of sufficient financial resources to insure proper operation of station not arbitrary or capricious. *Boston Broadcasting Co. et al. v. Federal Radio Commission*, — F. (2d) —, decided June 19, 1933, — App.D.C. —; *Goss v. Federal Radio Commission*, — F. (2d) decided June 19, 1933, — App.D.C. —.

Stay pending appeal

The Court of Appeals of the District of Columbia has no power to stay orders of the Radio Commission pending appeal. *General Broadcasting System, Inc. v. Bridgeport Broadcasting Station, Inc.* (D.C.Conn. 1931), 53 F. (2d) 664.

Control by radio interests of cable, wire, telegraph or telephone system; prohibition.

for hire energy, communications, or signals by radio in accordance with the terms of the license issued under this act, shall by purchase, lease, construction, or otherwise, directly or indirectly, acquire, own, control, or operate any cable or wire telegraph or telephone line or system between any place in any State, Territory, or possession of the United States or in the District of Columbia, and any place in any foreign country—or shall acquire, own, or control any part of the stock or other capital share of any interest in the physical property and/or other assets of any such cable, wire, telegraph, or telephone line or system, if in either case the purpose is and/or the effect thereof may be to substantially lessen competition or to restrain commerce between any place in any State, Territory, or possession of the United States or in the District of Columbia and any place in any foreign country, or unlawfully to create monopoly in any line of commerce; nor shall any person, firm, company, or corporation now or hereafter engaged directly or indirectly through any subsidiary, associated, or affiliated person, company, corporation, or agent, or otherwise, in the business of transmitting and/or receiving for hire messages by any cable, wire, telegraph, or telephone line or system (a) between any place in any State, Territory, or possession of the United States or in the District of Columbia, and any place in any other State, Territory, or possession of the United States; or (b) between any place in any State, Territory, or possession of the United States, or the District of Columbia, and any place in any foreign country, by purchase, lease, construction, or otherwise, directly or indirectly acquire, own, control, or operate any station or the apparatus therein, or any system for transmitting and/or receiving radio communications or signals between any place in any State, Territory, or possession of the United States or in the District of Columbia, and any place in any foreign country, or shall acquire, own, or control any part of the stock or other capital share or any interest in the physical property and/or other assets of any such radio station, apparatus, or system, if in either case the purpose is and/or the effect thereof may be to substantially lessen competition or to restrain commerce between any place in any State, Territory, or possession of the United States or in the District of Columbia, and any place in any foreign country, or unlawfully to create monopoly in any line of commerce. (Feb. 23, 1927, c. 169, § 17, 44 Stat. 1169.)

SEC. 18. If any licensee shall permit any person who is a legally qualified candidate for any public office to use a broadcasting station, he shall afford equal opportunities to all other such candidates for that office in the use of such broadcasting station, and the licensing authority shall make rules and regulations to carry this provision into effect: *Provided*, That such licensee shall have no power of censorship over the material broadcast under the provisions of this section. No obligation is hereby imposed upon any licensee to allow the use of its station by any such candidate. (Feb. 23, 1927, c. 169, § 18, 44 Stat. 1170.)

Use of broadcasting stations by legally qualified candidates; censorship.

SEC. 19. All matter broadcast by any radio station for which service, money, or any other valuable consideration is directly or indirectly paid, or promised to or charged or accepted by, the station so broadcasting, from any person, firm, company, or corporation, shall, at the time the same is so broadcast, be announced as paid for or furnished, as the case may be, by such person, firm, company, or corporation. (Feb. 23, 1927, c. 169, § 19, 44 Stat. 1170.)

Broadcasting matter for valuable consideration; announcement of person furnishing.

SEC. 20. The actual operation of all transmitting apparatus in any radio station for which a station license is required by this act shall be carried on only by a person holding an operator's license issued hereunder. No person shall operate any such apparatus in such station except under and in accordance with an operator's license issued to him by the Secretary of Commerce. (Feb. 23, 1927, c. 169, § 20, 44 Stat. 1170.)

Operation of transmitting apparatus in radio station; operator's license.

For convictions of violations of this section and others, see annotations under section 32 of this act.

SEC. 21. No license shall be issued under the authority of this act for the operation of any station the construction of which is begun or is continued after February 23, 1927, unless a permit for its construction has been granted by the licensing authority upon written application therefor. The licensing authority may grant such permit if public convenience, interest, or necessity will be served by the construction of the station. This application shall set forth such facts as the licensing authority by regulation may prescribe as to the citizenship, character, and the financial, technical, and other ability of the applicant to construct and operate the station, the ownership and location of the proposed station and of the station or stations with which it is proposed to communicate, the frequencies and wave length or wave lengths desired to

Permits for construction of stations; licenses for operation.

be used, the hours of the day or other periods of time during which it is proposed to operate the station, the purpose for which the station is to be used, the type of transmitting apparatus to be used, the power to be used, the date upon which the station is expected to be completed and in operation, and such other information as the licensing authority may require. Such application shall be signed by the applicant under oath or affirmation.

Such permit for construction shall show specifically the earliest and latest dates between which the actual operation of such station is expected to begin, and shall provide that said permit will be automatically forfeited if the station is not ready for operation within the time specified or within such further time as the licensing authority may allow, unless prevented by causes not under the control of the grantee. The rights under any such permit shall not be assigned or otherwise transferred to any person, firm, company, or corporation without the approval of the licensing authority. A permit for construction shall not be required for Government stations, amateur stations, or stations upon mobile vessels, railroad rolling stock, or aircraft. Upon the completion of any station for the construction or continued construction for which a permit has been granted, and upon it being made to appear to the licensing authority that all the terms, conditions, and obligations set forth in the application and permit have been fully met, and that no cause or circumstance arising or first coming to the knowledge of the licensing authority since the granting of the permit would, in the judgment of the licensing authority, make the operation of such station against the public interest, the licensing authority shall issue a license to the lawful holder of said permit for the operation of said station. Said license shall conform generally to the terms of said permit. (Feb. 23, 1927, c. 169, par. 21, 44 Stat. 1170.)

1. In general

Where the person receiving a permit for the construction of a radio station proceeded with due diligence and expended a substantive sum in so doing but was prevented from completing it in time by causes beyond his control an extension should be allowed. *Richmond Development Corporation v. Federal Radio Commission* (1929) 59 App.D.C. 113; 35 F. (2d) 883. Facts known at the time of granting a permit for construction of a station cannot be urged against an application for an extension of time in which to complete it. *Richmond Development Corporation v. Federal Radio Commission* (1929), 59 App.D.C. 113; 35 F. (2d) 883.

SEC. 22. The licensing authority is authorized to designate from time to time radio stations the communications or signals of which, in its opinion, are liable to interfere with the transmission or reception of distress signals of ships. Such stations are required to keep a licensed radio operator listening in on the wave lengths designated for signals of distress and radio communications relating thereto during the entire period the transmitter of such station is in operation. (Feb. 23, 1927, c. 169, par. 22, 44 Stat. 1171.)

Stations interfering with distress signals of ships; regulation.

SEC. 23. Every radio station on shipboard shall be equipped to transmit radio communications or signals of distress on the frequency or wave length specified by the licensing authority, with apparatus capable of transmitting and receiving messages over a distance of at least 100 miles by day or night. When sending radio communications or signals of distress and radio communications relating thereto the transmitting set may be adjusted in such a manner as to produce a maximum of radiation irrespective of the amount of interference which may thus be caused.

Radio stations on ships; equipment and regulation.

All radio stations, including Government stations and stations on board foreign vessels when within the territorial waters of the United States, shall give absolute priority to radio communications or signals relating to ships in distress; shall cease all sending on frequencies or wave lengths which will interfere with hearing a radio communication or signal of distress, and, except when engaged in answering or aiding the ship in distress, shall refrain from sending any radio communications or signals until there is assurance that no interference will be caused with the radio communications or signals relating thereto, and shall assist the vessel in distress, so far as possible, by complying with its instructions. (Feb. 23, 1927, c. 169, par. 23, 44 Stat. 1171.)

SEC. 24. Every shore station open to general public service between the coast and vessels at sea shall be bound to exchange radio communications or signals with any ship station without distinction as to radio systems or instruments adopted by such stations, respectively, and each station on shipboard shall be bound to exchange radio communications or signals with any other station on shipboard without distinction as to radio systems or instruments adopted by each station. (Feb. 23, 1927, c. 169, § 24, 44 Stat. 1171.)

Shore stations and ship stations; exchanging radio communications and signals.

Proximity of Government and private or commercial stations causing interference; regulation.

SEC. 25. At all places where Government and private or commercial radio stations on land operate in such close proximity that interference with the work of Government stations cannot be avoided when they are operating simultaneously such private or commercial stations as do interfere with the transmission or reception of radio communications or signals by the Government stations concerned shall not use their transmitters during the first 15 minutes of each hour, local standard time.

The Government stations for which the above-mentioned division of time is established shall transmit radio communications or signals only during the first 15 minutes of each hour, local standard time, except in case of signals or radio communications relating to vessels in distress and vessel requests for information as to course, location, or compass direction. (Feb. 23, 1927, c. 169, § 25, 44 Stat. 1172.)

Limit on amount of power used at stations.

SEC. 26. In all circumstances, except in case of radio communications or signals relating to vessels in distress, all radio stations, including those owned and operated by the United States, shall use the minimum amount of power necessary to carry out the communication desired. (Feb. 23, 1927, c. 169, § 26, 44 Stat. 1172.)

Divulging and publishing radio communications.

SEC. 27. No person receiving or assisting in receiving any radio communication shall divulge or publish the contents, substance, purport, effect, or meaning thereof except through authorized channels of transmission or reception to any person other than the addressee, his agent, or attorney, or to a telephone, telegraph, cable, or radio station employed or authorized to forward such radio communication to its destination, or to proper accounting or distributing officers of the various communicating centers over which the radio communication may be passed, or to the master of a ship under whom he is serving, or in response to a subpoena issued by a court of competent jurisdiction, or on demand of other lawful authority; and no person not being authorized by the sender shall intercept any message and divulge or publish the contents, substance, purport, effect, or meaning of such intercepted message to any person; and no person not being entitled thereto shall receive or assist in receiving any radio communication and use the same or any information therein contained for his own benefit or for the benefit of another not entitled thereto; and no person having received such intercepted

radio communication or having become acquainted with the contents, substance, purport, effect, or meaning of the same or any part thereof, knowing that such information was so obtained, shall divulge or publish the contents, substance, purport, effect, or meaning of the same or any part thereof, or use the same or any information therein contained for his own benefit or for the benefit of another not entitled thereto: *Provided*, That this section shall not apply to the receiving, divulging, publishing, or utilizing the contents of any radio communication broadcasted or transmitted by amateurs or others for the use of the general public or relating to ships in distress. (Feb. 23, 1927, c. 169, § 27, 44 Stat. 1172.)

SEC. 28. No person, firm, company, or corporation within the jurisdiction of the United States shall knowingly utter or transmit, or cause to be uttered or transmitted, any false or fraudulent signal of distress, or communication relating thereto, nor shall any broadcasting station rebroadcast the program or any part thereof of another broadcasting station without the express authority of the originating station. (Feb. 23, 1927, c. 169, par. 28, 44 Stat. 1172.)

False and fraudulent signals of distress and communications; rebroadcasting programs without authority.

SEC. 29. Nothing in this act shall be understood or construed to give the licensing authority the power of censorship over the radio communications or signals transmitted by any radio station, and no regulation or condition shall be promulgated or fixed by the licensing authority which shall interfere with the right of free speech by means of radio communications. No person within the jurisdiction of the United States shall utter any obscene, indecent, or profane language by means of radio communication. (Feb. 23, 1927, c. 169, par. 29, 44 Stat. 1172.)

Censorship over radio communications and signals; protection of free speech; obscene language.

1. Censorship

Commission's refusal to renew license on ground public interest, convenience, or necessity would not be served held not to constitute "censorship" because there was no attempt to subject matter broadcast to scrutiny prior to its release. *KFKB Broadcasting Assoc., Inc., v. Fed. Radio Comm.*, 60 App.D.C. 79, 47 F. (2d) 670.

2. Obscene, indecent, and profane language

Defined in *Duncan v. U.S.*, 48 F. (2d) 128.

The prohibition against the use of certain kinds of language sustained as a constitutional exercise of the power to regulate commerce. *Duncan v. U.S.*, 48 F. (2d) 128.

The last sentence of this section, taken in connection with

section 113 of this title, creates an offense punishable under the last-named section. *Duncan v. U.S.* (C.C.A.Or. 1931) 48 F. (2d) 128, certiorari denied (1931), 51 S.Ct. 656, 283 U.S. 863, 75 L.Ed. 1468.

Rough and abusive language is not obscene or indelcent within this section. *Duncan v. U.S.* (C.C.A.Or. 1931), 48 F. (2d) 128, certiorari denied (1931), 51 S.Ct. 656, 283 U.S. 863, 75 L. Ed. 1468.

Use of "damn" and of the words "By God" in an irreverent sense, coupled with a threat to "put on the mantle of the Lord and call down the curse of God" on certain persons is profane language within this section. *Duncan v. U.S.* (C.C.A. Or. 1931), 48 F. (2d) 128, certiorari denied (1931), 51 S.Ct. 656, 283 U.S. 863, 75 L.Ed. 1468.

Use of United States owned radio stations and apparatus by Secretary of Navy for transmission of press messages, etc.

Sec. 30. The Secretary of the Navy is hereby authorized unless restrained by international agreement, under the terms and conditions and at rates prescribed by him, which rates shall be just and reasonable, and which, upon complaint, shall be subject to review and revision by the Interstate Commerce Commission, to use all radio stations and apparatus wherever located, owned by the United States and under the control of the Navy Department (a) for the reception and transmission of press messages offered by any newspaper published in the United States, its Territories or possessions, or published by citizens of the United States in foreign countries, or by any press association of the United States, and (b) for the reception and transmission of private commercial messages between ships, between ship and shore, between localities in Alaska and between Alaska and the continental United States: *Provided*, That the rates fixed for the reception and transmission of all such messages, other than press messages between the Pacific coast of the United States, Hawaii, Alaska, the Philippine Islands, and the Orient, and between the United States and the Virgin Islands, shall not be less than the rates charged by privately owned and operated stations for like messages and service: *Provided further*, That the right to use such stations for any of the purposes named in this section shall terminate and cease as between any countries or localities or between any locality and privately operated ships whenever privately owned and operated stations are capable of meeting the normal communication requirements between such countries or localities or between any locality and privately operated ships, and the licensing authority shall have notified the Secretary

of the Navy thereof. (Feb. 23, 1927, c. 169, par. 30, 44 Stat. 1173.)

Executive Order No. 4239, dated June 4, 1925, transferring the Bureau of Mines to the Department of Commerce, has the effect of putting Government fuel yards established by this section in that Department.

They were and still are administered by the Bureau of Mines, and appropriations for the yards in recent appropriation acts, are covered along with the Bureau of Mines, Department of Commerce.

SEC. 31. The expression "radio communication" or "radio communications" wherever used in this act means any intelligence, message, signal, power, pictures, or communication of any nature transferred by electrical energy from one point to another without the aid of any wire connecting the points from and at which the electrical energy is sent or received and any system by means of which such transfer of energy is effected. (Feb. 23, 1927, c. 169, par. 31, 44 Stat. 1173.)

"Radio communication" defined.

SEC. 32. Any person, firm, company, or corporation failing or refusing to observe or violating any rule, regulation, restriction, or condition made or imposed by the licensing authority under the authority of this act or of any international radio convention or treaty ratified or adhered to by the United States, in addition to any other penalties provided by law, upon conviction thereof by a court of competent jurisdiction, shall be punished by a fine of not more than \$500 for each and every offense. (Feb. 23, 1927, c. 169, par. 32, 44 Stat. 1173.)

Penalties for violation of rules of licensing authority, etc.

FOUR EACH DAY -

I. Violations of statutes

U.S. v. Lankford, Seymour, Tex. Plea of guilty to unlawfully operating radio station.

U.S. v. Spencer, Pittsburgh, Pa. Convicted upon 10 separate counts for the unlawful operation of a radio broadcasting station and operation of said station without an operator's license.

U.S. v. Miles, Ashland, Nebr. Plea of guilty to the unlawful operation of radio station.

U.S. v. Scholtz and Bloom, Brooklyn, N.Y. Plea of guilty to conspiracy to violate Radio Act of 1927.

U.S. v. Simpson, Trenton, N.J. Plea of guilty to the unlawful operation of a radio station

whose signals were used in connection with rum-running boats.

U.S. v. Kaplan and Carman, eastern district of New York. Plea of guilty in both cases for illegal operation of unlicensed radio station.

U.S. v. Klebb (alias Clem), eastern district of New York. Plea of guilty for operation of unlicensed radio station.

U.S. v. Renner, eastern district of New York. Indicted for illegal operation of radio station; no operator's license; plea of guilty.

U.S. v. Splane and Borra, Brooklyn, N.Y. Plea of guilty for illegal operation of radio station.

U.S. v. Geiger, eastern district of New York, Brooklyn. Indicted for illegal operation of radio station; plea of guilty; equipment forfeited.

U.S. v. Donaldson, northern district of New York. Indicted for illegal operation of radio station and operating station without operator's license; plea of guilty.

U.S. v. Monas and Butler, district of New Jersey. Indicted for illegal operation of unlicensed radio station; also, failure to have operator's license; found guilty.

U.S. v. Baden, eastern district of Arkansas. Defendant

reindicted for unlicensed operation of broadcasting station; found not guilty.

U.S. v. Fowler, Bridgeport, Conn. Indicted for unlicensed operation of broadcasting station by wired radio; plea of guilty.

U.S. v. Heftling, New Philadelphia, Ohio. Indicted for operating illegal broadcasting station; plea of guilty.

U.S. v. Cohen, district of Connecticut. Found guilty of operating station without operator's license or station license.

Penalties violation of statutory provisions; perjury.

SEC. 33. Any person, firm, company, or corporation who shall violate any provision of this act, or shall knowingly make any false oath or affirmation in any affidavit required or authorized by this act, or shall knowingly swear falsely to a material matter in any hearing authorized by this act, upon conviction thereof in any court of competent jurisdiction shall be punished by a fine of not more than \$5,000 or by imprisonment for a term of not more than five years or both for each and every such offense. (Feb. 23, 1927, c. 169, par. 33, 44 Stat. 1173.)

1. In general

Use over the radio of obscene, indecent, or profane language in violation of section 109 of this title is punishable under this section. *Duncan v. U.S.* (C.C.A.Or. 1931), 48 F. (2d) 128, certiorari denied (1931), 51 S.Ct. 656; 283 U.S. 863; 75 L.Ed. 1468.

license was required, without operator's license, held sufficient, though not expressly charging operation for purpose of transmitting signals beyond State. *U.S. v. Molyneaux* (C.C.A.N.Y. 1932), 55 F. (2d) 912.

Evidence held insufficient to sustain conviction of one of two defendants for operating radio apparatus without license. *U.S. v. Molyneaux* (C.C.A.N.Y. 1932), 55 F. (2d) 912.

2. Operation without license

Indictment alleging operation of apparatus, for which radio

Jurisdiction of offenses.

SEC. 34. The trial of any offense under this act shall be in the district in which it is committed; or if the offense is committed upon the high seas, or out of the jurisdiction of any particular State or district, the trial shall be in the district where the offender may be found or into which he shall be first brought. (Feb. 23, 1927, c. 169, § 34, 44 Stat. 1173.)

SEC. 35. This act shall not apply to the Philippine Islands or to the Canal Zone. In international radio matters the Philippine Islands and the Canal Zone shall be represented by the Secretary of State. (Feb. 23, 1927, c. 169, § 35, 44 Stat. 1174.)

Philippine Islands and Canal Zone; application of act.

SEC. 36. The licensing authority is authorized to designate any officer or employee of any other department of the Government on duty in any territory or possession of the United States other than the Philippine Islands and the Canal Zone, to render therein such services in connection with the administration of the radio laws of the United States as such authority may prescribe: *Provided*, That such designation shall be approved by the head of the department in which such person is employed. (Feb. 23, 1927, c. 169, § 36, 44 Stat. 1174.)

Administration of radio laws in territories and insular possessions.

SEC. 37. (This section deleted, inasmuch as it refers only to appropriations.)

Appropriations.

SEC. 38. If any provision of this act or the application thereof to any person, firm, company, or corporation, or to any circumstances, is held invalid, the remainder of the act and the application of such provision to other persons, firms, companies, or corporations, or to other circumstances, shall not be affected thereby. (Feb. 23, 1927, c. 169, § 38, 44 Stat. 1174.)

Invalidity of part of act; effect as to remainder.

SEC. 39. The act entitled "An act to regulate radio communication," approved August 13, 1912, the joint resolution to authorize the operation of Government-owned radio stations for the general public, and for other purposes, approved June 5, 1920, as amended, and the joint resolution entitled "Joint resolution limiting the time for which licenses for radio transmission may be granted, and for other purposes," approved December 8, 1926, are hereby repealed.

Repeal, radio-telegraphs; effect of repeal on existing rights.

Such repeal, however, shall not affect any act done or any right accrued or any suit or proceeding had or commenced in any civil cause prior to said repeal, but all liabilities under said laws shall continue and may be enforced in the same manner as if committed; and all penalties, forfeitures, or liabilities incurred prior to taking effect hereof, under any law embraced in, changed, modified, or repealed by this act, may be prosecuted and punished in the same manner and with the same effect as if this act had not been passed.

Nothing in this section shall be construed as authorizing any person now using or operating any apparatus for

the transmission of radio energy or radio communications or signals to continue such use except under and in accordance with this act and with a license granted in accordance with the authority hereinbefore conferred. (Feb. 23, 1927, c. 169, § 39, 44 Stat. 1174.)

Act shall take effect.

SEC. 40. (This section deleted, inasmuch as it provides only for the effective date of the act.)

Citation of act as "Radio Act of 1927."

SEC. 41. This act may be referred to and cited as the Radio Act of 1927. (Feb. 23, 1927, c. 169, § 41, 44 Stat. 1174.)

Canal Zone; equipment on ocean-going vessels using ports of Canal Zone.

SEC. 42. It shall be unlawful for any ocean-going vessel carrying 50 or more persons, including passengers and crew, to leave or attempt to leave any port of the Canal Zone unless such vessel shall be equipped with an efficient apparatus for radio communication, in good working order, in charge of a person skilled in the use of such apparatus, which apparatus shall be capable of transmitting and receiving messages for a distance of at least 100 miles, night or day. This requirement shall not apply to vessels merely transiting the canal or to vessels plying between Canal Zone ports and ports less than 200 miles therefrom. (July 5, 1932, c. 421, sec. 1, 47 Stat. 576.)

Same; jurisdiction of violations; penalties.

SEC. 43. Any vessel leaving or attempting to leave a Canal Zone port not equipped as required by section 120 of this title shall be liable to a fine not to exceed \$5,000, and each such departure or attempted departure shall constitute a separate offense. Fines shall be recovered in the district court of the Canal Zone, and the amount so recovered shall be a lien upon such vessel, and it may be seized and sold to satisfy same, as well as all costs of the court proceedings. (July 5, 1932, c. 421, sec. 2, 47 Stat. 576.)



C. Messinger
Do any infractions, violations,
etc of the amendments act of
1937, a fines. shall of 10,000 ⁵⁰ or
2 yrs imprisonment, or both may
be imposed.

2 - Do any infractions, violations,
of any regulations of the Fed. Comm
Commission a fine of 500 or per day
for each violation, or both, during
which the infraction occurs,
may be imposed.

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