

FCC Regulations Governing Standard Broadcast Services

Part 3 of Rules and Regulations, Effective June 25, 1940, as Revised to Jan. 1, 1942

[See page 328 for Subpart B, Specific Rules Governing High-Frequency (FM) Broadcast Stations]

SUBPART A—RULES GOVERNING STANDARD BROADCAST STATIONS

Definitions¹

3.1 *Standard broadcast station.* The term "standard broadcast station" means a station licensed for the transmission of radio-telephone emissions primarily intended to be received by the general public and operated on a channel in the band 550-1600 kilocycles, inclusive.

3.2 *Standard broadcast band.* The term "standard broadcast band" means the band of frequencies extending from 550-1600 kilocycles, inclusive, both 550 kilocycles and 1600 kilocycles being the carrier frequencies of broadcast channels.

3.3 *Standard broadcast channel.* The term "standard broadcast channel" means the band of frequencies occupied by the carrier and two side bands of a broadcast signal with the carrier frequency at the center. Channels shall be designated by their assigned carrier frequencies. Carrier frequencies assigned to standard broadcast stations shall begin at 550 kilocycles and be in successive steps of 10 kilocycles.

3.4 *Dominant station.* The term "dominant station" means a class I station, as hereinafter defined, operating on a clear channel.

3.5 *Secondary station.* The term "secondary station" means any station except a class I station operating on a clear channel.

3.6 *Daytime.* The term "daytime" means that period of time between local sunrise and local sunset.

3.7 *Nighttime.* The term "nighttime" means that period of time between local sunset and 12 midnight local standard time.

3.8 *Sunrise and sunset.* The terms "sunrise and sunset" mean, for each particular location and during any particular month, the average time of sunrise and sunset as specified in the license of a broadcast station. (For tabulation of average sunrise and sunset times for each month at various points in the United States, see "Average Sunrise and Sunset Time".)

3.9 *Broadcast day.* The term "broadcast day" means that period of time between local sunrise and 12 midnight local standard time.

3.10 *Experimental period.* The term "experimental period" means that time between 12 midnight and local sunrise. This period may be used for experimental purposes in testing and maintaining apparatus by the licensee of any standard 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. No station licensed for "daytime" or "specified hours" of operation may broadcast any regular or scheduled program during this period.

3.11 *Service Areas.* (a) The term "primary service area" of a broadcast station means the area in which the ground wave is not subject to objectionable interference or objectionable fading.

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

(c) The term "intermittent service area" of a broadcast station means the area receiving service from the ground wave but beyond the primary service area and subject to some interference and fading.

3.12 *Main studio.* The term "main studio" means, as to any station, 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.

3.13 *Portable transmitter.* The term "portable transmitter" means a transmitter 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 standard broadcast band, such a transmitter is used in making field intensity measurements for locating a transmitter site for a standard broadcast station. A portable broadcast station will not be licensed in the standard broadcast band for regular transmission of programs intended to be received by the public.

3.14 *Auxiliary transmitter.* The term "auxiliary transmitter" means a transmitter maintained only for transmitting the regular programs of a station in case of failure of the main transmitter.

3.15 *Combined audio harmonics.* The term "combined audio harmonics" means the arithmetical sum of the amplitudes of all the separate harmonic components. Root sum square harmonic readings may be accepted under conditions prescribed by the Commission.

3.16 *Effective field.* The term "effective field" or "effective field intensity" is the root-mean-square (RMS) value of the inverse distance fields at a distance of 1 mile from the antenna in all directions in the horizontal plane.

ALLOCATION OF FACILITIES

3.21 *Three classes of standard broadcast channels.*

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

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

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

3.22 *Classes and power of standard broadcast stations.*

(a) *Class I station.* A "class I station" is a dominant station operating on a clear channel and designed to render primary and secondary service over

an extended area and at relatively long distances. Its primary service area is free from objectionable interference from other stations on the same and adjacent channels, and its secondary service area free from interference, except from stations on the adjacent channel, and from stations on the same channel in accordance with the channel designation in section 3.25 or in accordance with the "Engineering Standards of Allocation." The operating power shall be not less than 10 kilowatts nor more than 50 kilowatts. (Also see section 3.25 (a) for further power limitation.)

(b) *Class II station.* A "class II station" is a secondary station which operates on a clear channel (see section 3.25) and is designed to render service over a primary service area which is limited by and subject to such interference as may be received from class I stations. A station of this class shall operate with power not less than 0.25 kilowatts nor more than 50 kilowatts. Whenever necessary, a class II station shall use a directional antenna or other means to avoid interference with class I stations and with other class II stations, in accordance with the Engineering Standards of Allocation.

(c) *Class III station.* A "class III station" is a station which operates on a regional channel and is designed to render service primarily to a metropolitan district¹ and the rural area contiguous thereto. Class III stations are subdivided into two classes:

(1) *Class III-A station.* A "class III-A station" is a class III station which operates with power not less than 1 kilowatt nor more than 5 kilowatts, and the service area of which is subject to interference in accordance with the Engineering Standards of Allocation.

(2) *Class III-B station.* A "class III-B station" is a class III station which operates with a power not less than 0.5 kilowatt nor more than 1 kilowatt night and 5 kilowatts daytime, and the service area of which is subject to interference in accordance with the Engineering Standards of Allocation.

(d) *Class IV station.* A "class IV station" is a station operating on a local channel and designed to render service primarily to a city or town and the suburban and rural areas contiguous thereto. The power of a station of this class shall not be less than 0.1 kilowatt nor more than 0.25 kilowatt, and its service area is subject to interference in accordance with the Engineering Standards of Allocation.

3.23 *Time of operation of the several classes of stations.*² The several classes of standard broadcast stations may be licensed to operate in accordance with the following:

(a) "Unlimited time" permits operation without a maximum limit as to time.

(b) "Limited time" is applicable to Class II (secondary stations) operating on a clear channel only. It permits operation of the secondary station during daytime, and until local sunset if located west of the dominant station on the channel, or if located east thereof, until sunset at the dominant station, and in addition during night hours, if any, not used by the dominant station or stations on the channel.

(c) "Daytime" permits operation during the hours between average monthly local sunrise and average monthly local sunset. (For exact time of sunset at any location, see "Average and Sunset Times.")

(d) "Sharing time" permits operation during hours which are so restricted by the station license as to require a division of time with one or more other stations using the same channel.

(e) "Specified hours" means that the exact operating hours are specified in the license. (The minimum hours that any station shall operate are specified in section 3.71.)

3.24 *Broadcast facilities; showing required.* An authorization for a new standard broadcast station or increase in facilities of an existing station³ will be issued only after a satisfactory showing has been made in regard to the following, among others:

(a) That the proposed assignment will tend to effect a fair, efficient, and equitable distribution of radio service among the several states and communities.

(b) That objectionable interference will not be caused to existing stations or that if interference will be caused the need for the proposed service outweighs the need for the service which will be lost by reason of such interference. That the proposed station will not suffer interference to such an extent that its service would be reduced to an unsatisfactory degree. (For determining objectionable interference, see Engineering Standards of Allocation and Field Intensity Measurements in Allocation.)

(c) That the applicant is financially qualified to construct and operate the proposed station.⁴

(d) That the applicant is legally qualified. That the applicant (or the person or persons in control of an applicant corporation or other organization) is of good character and possesses other qualifications sufficient to provide a satisfactory public service.

(e) That the technical equipment proposed, the location of the transmitter, and other technical phases of operation comply with the regulations governing the same, and the requirements of good engineering practice. (See technical regulations herein and Locations of Transmitters of Standard Broadcast Stations.)

(f) That the facilities sought are subject to assignment as requested under existing international agreements and the Rules and Regulations of the Commission.

(g) That the public interest, convenience, and necessity will be served through the operation under the proposed assignment.

¹ The term "metropolitan district" as used in this paragraph is not limited in accordance with the definition given by the Bureau of the Census but includes any principal center of population in any area.

² Formal application required for change in time of operation of existing broadcast station.

³ See Standards of Good Engineering Practice for form number.

⁴ Formal application required. See Standards of Good Engineering Practice for form number.

⁵ See Money Required to Construct and Complete Electrical Tests of Stations of Different Classes and Powers.

¹ Other definitions which may pertain to standard broadcast stations are included in sections 2.1 to 2.35 and the Communications Act of 1934, as amended.

FREQUENCY ALLOCATIONS BY CLASSES OF STATIONS

§3.25 *Clear channels: Class I and II stations.*—The frequencies in the following tabulation are designated as clear channels and assigned for use by the classes of stations are given:

(a) To each of the channels below there will be assigned one class I station and there may be assigned one or more class II stations, operating limited time or daytime only: 640, 650, 660, 670, 700, 720, 750, 760, 770, 780, 820, 830, 840, 870, 880, 890, 1020, 1040, 1100, 1120, 1160, 1180, 1200, and 1210 kilocycles. The power of the class I stations on these channels shall not be less than 50 kilowatts.

(b) To each of the channels below there may be assigned class I and class II stations: 680, 710, 810, 850, 940, 1000, 1030, 1060, 1070, 1080, 1090, 1110, 1130, 1140, 1170, 1190, 1500, 1510, 1520, 1530, 1550, and 1560 kilocycles.

(c) For class II stations located not less than 650 miles from the nearest Canadian Border and which will not deliver over 5 microvolts per meter ground wave or 25 microvolts per meter 10 per cent time sky wave at any point on said border, 690, 740, 860, 990, 1010^a, and 1580 kilocycles.

(d) For class II stations which operate daytime only with power not in excess of 1 kilowatt and which will not deliver over 5 microvolts per meter ground wave at any point on the nearest Mexican Border, 730, 800, 900, 1050^b, 1220^c, and 1570 kilocycles.

(e) For class II stations located not less than 650 miles from the nearest Cuban Border and which will not deliver over 5 microvolts per meter ground wave or 25 microvolts per meter 10 per cent time sky wave at any point on said border, 1540 kilocycles.

§3.26 *Regional channels: Classes III-A and III-B stations.*—The following frequencies are designated as regional channels and are assigned for use by class III-A and III-B stations^d: 550, 560^e, 570^e, 580, 590^e, 600, 610, 620, 630^e, 790, 910, 920, 930, 950, 960, 970, 980, 1150, 1250, 1260, 1270^e, 1280, 1290, 1300, 1310, 1320, 1330, 1350, 1360, 1370, 1380, 1390, 1410, 1420, 1430, 1440, 1460, 1470, 1480, 1590, and 1600 kilocycles.

§3.27 *Local channels: Class IV stations.*—The following frequencies are designated as local channels and are assigned for use by class IV stations: 1230, 1240, 1340, 1400, 1450, and 1490 kilocycles.

§3.28 *Assignment of stations to channels.*—(a) The individual assignments of stations to channels which may cause interference to other United States stations only shall be made in accordance with the standards of good engineering practice prescribed and published from time to time by the Commission for the respective classes of stations involved. (For determining objectionable interference see "Engineering Standards of Allocation" and "Field Intensity Measurements in Allocation", Section C.)

(b) In all cases where an individual station assignment may cause interference with or may involve a channel assigned for priority of use by a station in another North American country, the classifications, allocation requirements and engineering standards set forth in the North American Regional Broadcasting Agreement shall be observed.

§3.29 *Assignment of class IV stations to regional channels.*—On condition that interference will not be caused to any class III station, and that the channel is used fully for class III stations and subject to interference as may be received from class III stations, class IV stations may be assigned to regional channels.

§3.30 *Station location.*—(a) Each standard broadcast station shall be considered located in the State and city where the main studio is located.

(b) The transmitter of each standard broadcast station shall be so located that primary service is delivered to the borough or city in which the main studio is located in accordance with the Standards of Good Engineering Practice, prescribed by the Commission.

§3.31 *Authority to move main studio.*—The licensee of a standard broadcast station shall not move its main studio outside the borders of the borough or city, State, district, Territory, or possession in which it is located without first making written application^f to the Commission for authority to so move, and securing written permission for such removal. The licensee shall promptly notify the Commission of any other change in location of the main studio.

§3.32 *Special experimental authorizations.*—(a) Special experimental authorization^g may be issued to the licensee of a standard broadcast station in addition to the regular license upon proper application therefor^h and satisfactory showing in regard to the following, among others:

(1) That the applicant has a program of research and experimentation which indicates reasonable promise of contribution to the development and practical application of broadcasting, and will be in addition to and advancement of the work that can be accomplished under its regular license.

(2) That the experimental operation and experimentation will be under the direct supervision of a qualified engineer with an adequate staff of engineers qualified to carry on the program of research and experimentation.

(3) That the public interest, convenience, and necessity will be served by granting the authorization requested.

(b) ⁱIn case a special experimental authorization permits additional hours of operation, no licensee shall transmit any commercial or sponsored program or make any commercial announcement during such time of operation. In case of other additional facilities, no additional charge shall be made by reason of transmission with such facilities.

(c) A special experimental authorization will not be extended after the actual experimentation is concluded.

(d) The program of research and experimentation as outlined in the application for a special experimental authorization shall be adhered to in the main unless the licensee is authorized to do otherwise by the Commission.

(e) The Commission may require from time to time a broadcast station holding such experimental authorization to conduct experiments that are deemed desirable and reasonable.

(f) A supplemental report shall be filed with and made a part of each ap-

^aA station on 1010 kilocycles shall also protect a class I-B station at Havana, Cuba.

^bSee North American Regional Broadcasting Agreement for use of this channel by a station in New York (Appendix I, Table IV.)

^cSee Agreement with Mexico for further use of this channel.

^dSee section 3.29 in regard to assigning class IV stations to regional channels.

^eSee North American Regional Broadcasting Agreement for special provisions concerning the assigning of class II stations in other countries of North America to these regional channels. Such stations shall be protected from interference in accordance with appendix II, Table I, of said Agreement.

^fFormal application required. See Standards of Good Engineering Practice for form number.

^gSpecial authorizations which do not involve experimental operation may be granted pursuant to section 1.365.

^hThe Commission on May 27, 1941, advanced the effective date of section 3.32(b) to July 29, 1941.

plication for an extension of a special experimental authorization and shall include statements of the following:

(1) Comprehensive summary of all research and experimentation conducted.

(2) Conclusions and outline of proposed program for further research and development.

(3) Comprehensive summary and conclusions as to the social and economic effects of its use.

§3.33 *Directional antenna; showing required.*—(a) No application for authority to install a directional antenna⁹ will be accepted unless a definite site and full details of the design of the directional antenna are given with the application. (See Data Required with Applications Involving Directional Antenna Systems.)

(b) No application for an authorization to operate a directional antenna during the broadcast day will be accepted unless proof of performance of the directional antenna taken during equipment test period is submitted with the application. (See Field Intensity Measurements in Allocation, section B.)

§3.34 *Normal license period.*—All standard broadcast station licenses will be issued so as to expire at the hour of 3 a. m., Eastern Standard Time, and will be issued for a normal license period of 2 years, expiring as follows: ¹⁰a

(a) For stations operating on the frequencies 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 940 kilocycles, February 1, even years.

(b) For stations operating on the frequencies 990, 1000, 1010, 1020, 1030, 1040, 1050, 1060, 1070, 1080, 1090, 1100, 1110, 1120, 1130, 1140, 1160, 1170, 1180, 1190, 1200, 1210, 1220, 1500, 1510, 1520, 1530, 1540, 1550, 1560, 1570, 1580 kilocycles, April 1, even years.

(c) For stations operating on the frequencies 550, 560, 570, 580, 590, 600, 610, 620, 630, 790 kilocycles, June 1, even years.

(d) For stations operating on the frequencies 910, 920, 930, 950, 960, 970, 980, 1150, 1250 kilocycles, August 1, even years.

(e) For stations operating on the frequencies 1260, 1270, 1280, 1290, 1300, 1310, 1320, 1330, 1350, 1360 kilocycles, October 1, even years.

(f) For stations operating on the frequencies 1370, 1380, 1390, 1410, 1420, 1430, 1440, 1460, 1470, 1480, 1590, 1600 kilocycles December 1, even years.

(g) For stations operating on the frequency 1230 kilocycles, February 1, odd years.

(h) For stations operating on the frequency 1240 kilocycles, April 1, odd years.

(i) For stations operating on the frequency 1340 kilocycles, June 1, odd years.

(j) For stations operating on the frequency 1400 kilocycles, August 1, odd years.

(k) For stations operating on the frequency 1450 kilocycles, October 1, odd years.

(l) For stations operating on the frequency 1490 kilocycles, December 1, odd years.

EQUIPMENT

3.41 *Maximum rated carrier power; tolerances.* The maximum rated carrier power of a standard broadcast transmitter shall not be less than the authorized power nor shall it be greater than the value specified in the following table:

Class of station	Maximum power authorized to station	Maximum rated carrier power permitted to be installed ¹
		watts
Class IV.....	100 or 250 watts.....	250
Class III.....	500 or 1,000 watts.....	1,000
	5,000 watts.....	5,000
Class II.....	250, 500, or 1,000 watts.....	1,000
	5,000 or 10,000 watts.....	10,000
	25,000 or 50,000 watts.....	50,000
Class I.....	10,000 watts.....	10,000
	25,000 or 50,000 watts.....	50,000

¹ The maximum rated carrier power must be distinguished from the operating power. (See sections 2.13 and 2.19.)

3.42 *Maximum rated carrier power; how determined.* The maximum rated carrier power of a standard broadcast transmitter shall be determined as the sum of the applicable power ratings of the vacuum tubes employed in the last radio stage.

(a) The power rating of vacuum tubes shall apply to transmitters employing the different classes of operation or systems of modulation as specified in Power Rating of Vacuum Tubes prescribed by the Commission.

(b) If the maximum rated carrier power of any broadcast transmitter, as determined by paragraph (a) of this section, does not give an exact rating as recognized in the Commission's plan of allocation, the nearest rating thereto shall apply to such transmitter.

(c) Authority will not be granted to employ, in the last radio stage of a standard broadcast transmitter, vacuum tubes from a manufacturer or of a type number not listed until the manufacturer's rating for the class of operation or system of modulation is submitted to and approved by the Commission. These data must be supplied by the manufacturer in accordance with Requirements for the Approval of the Power Rating of Vacuum Tubes, prescribed by the Commission.

3.43 *Changes in equipment; authority for.* No licensee shall change, in the last radio stage, the number of vacuum tubes to vacuum tubes of different power rating or class of operation, nor shall it change system of modulation without the authority of the Commission.¹⁰

3.44 *Other changes in equipment.* Other changes except as provided for in these rules or Standards of Good Engineering Practice, prescribed by the Commission, 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 Commission, but in the next succeeding application for renewal of license such changes which affect the information already on file shall be shown in full.

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⁹Formal application required. See Standards of Good Engineering Practice for form number.

¹⁰Licenses will be renewed according to the schedules set out in these rules upon the expiration of existing licenses.

¹¹Formal application required. See Standards of Good Engineering Practice for form number.

FCC Regulations Governing Standard Broadcast Services

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3.45 Radiating system.

(a) All applicants for new, additional, or different broadcast facilities and all licensees requesting authority to move the transmitter of an existing station shall specify a radiating system the efficiency of which complies with the requirements of good engineering practice for the class and power of the station. (Also see Use of Common Antenna by Standard Broadcast Stations or Another Radio Station.)

(b) The Commission will publish from time to time specifications deemed necessary to meet the requirements of good engineering practice. (See Minimum Antenna Heights or Field Intensity Requirements and Field Intensity Measurements in Allocation, section A.)

(c) No broadcast station licensee shall change the physical height of the transmitting antenna, or supporting structures, or make any changes in the radiating system which will measurably alter the radiation patterns, except upon written application to and authority from the Commission.¹¹

(d) The antenna and/or supporting structure shall be painted and illuminated in accordance with the specifications supplied by the Commission pursuant to section 303 (g) of the Communications Act of 1934, as amended. (See Standard Lamps and Paints.)

(e) The simultaneous use of a common antenna or antenna structure by two standard broadcast stations or by a standard broadcast station and a station of any other class or service will not be authorized unless both stations are licensed to the same licensee. (See Use of Common Antenna by Standard Broadcast Stations or Another Radio Station.)

3.46 Transmitter.

(a) The transmitter proper and associated transmitting equipment of each broadcast station shall be designed, constructed, and operated in accordance with the standards of good engineering practice in all phases not otherwise specifically included in these regulations.

(b) The transmitter shall be wired and shielded in accordance with good engineering practice and shall be provided with safety features in accordance with the specifications of article S10 of the current National Electrical Code as approved by the American Standards Association.

(c) The station equipment shall be so operated, tuned, and adjusted that emissions are not radiated outside the authorized band¹² which cause or which, in accordance with the Standards of Good Engineering Practice, are considered as being capable of causing interference to the communications of other stations. The spurious emissions, including radio frequency harmonics and audio frequency harmonics, shall be maintained at as low level as required by good engineering practice. The audio distortion, audio frequency range, carrier hum, noise level, and other essential phases of the operation which control the external effects shall at all times conform to the requirements of good engineering practice.

(d) Whenever, in this section, the term "good engineering practice" is used, the specifications deemed necessary to meet the requirements thereof will be published from time to time. (See Construction, General Operation and Safety of Life Requirements.)

TECHNICAL OPERATIONS

3.51 *Operating power; how determined.* The operating power of each standard broadcast station shall be determined by:

(a) Direct measurement of the antenna power in accordance with section 3.54.¹³

(1) Each new standard broadcast station.

(2) Each existing standard broadcast station after June 1, 1941.

(b) Indirect measurement by means of the plate input power to the last radio stage on a temporary basis in accordance with sections 3.52 and 3.53.

(1) In the case of existing standard broadcast stations and pending compliance with paragraph (a) (2) of this section.

(2) In case of an emergency where the licensed antenna has been damaged or destroyed by storm or other cause beyond the control of the licensee or pending completion of authorized changes¹⁴ in the antenna system.

(c) Upon making any change¹⁵ in the antenna system, or in the antenna current measuring instruments, or any other change which may change the characteristics of the antenna, the licensee shall immediately make a new determination of the antenna resistance (see section 3.54) and shall submit application for authority to determine power by the direct method on the basis of the new measurements.

3.52 *Operating power; indirect measurement.* The operating power determined by indirect measurement from the plate input power of the last radio stage is the product of the plate voltage (E_p), the total plate current of the last radio stage (I_p) and the proper factor (F) given in the following tables: that is

¹¹ Informal application may be made, except in controversial cases or directional antenna: then formal application shall be made.

¹² See Construction, General Operation and Safety of Life Requirements.

¹³ Program tests on equipment, including a new or different antenna system, will not be authorized unless application for authority to determine power by the direct method has been granted or is submitted simultaneously with the application for license to cover the construction permit and the application for license will not be granted until such time as the application for direct measurement is approved.

¹⁴ Changes shall not be made except upon making proper request and obtaining approval thereof in accordance with sections 3.45 and 3.58.

Operating power= $E_p \times I_p \times F$

A. Factor to be used for stations employing plate modulation in the last radio stage¹

Maximum rated carrier power of transmitter:²
100-1,000 watts..... 0.70
5,000 and over watts..... .80

B. Factor to be used for stations of all powers using low-level modulation¹

Class of power amplifier in the last radio stage:
Class B..... 0.35
Class BC³..... .65

C. Factors to be used for stations of all powers employing grid modulation in the last radio stage¹

Type of tube in the last radio stage:
Table C¹..... 0.25
Table D¹..... .35

¹ See Power Rating of Vacuum Tubes.

² The maximum rated carrier power must be distinguished from the operating power. (See section 2.18 and 2.19.)

³ All linear amplifier operation where efficiency approaches that of class C operation.

3.53 *Application of efficiency factors.* 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. (See Plate Efficiency of Last Radio Stage.)

3.54 *Operating power; direct measurement.* 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.¹⁵ 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.¹⁶ 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. (See Further Requirements for Direct Measurements of Power.)

3.55 Modulation.

(a) 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 at least 85 percent. When the transmitter is operated with 85 percent modulation, not over 10 percent combined audio frequency harmonics shall be generated by the transmitter.

(b) All broadcast stations shall have in operation a modulation monitor approved by the Commission.

(c) The operating percentage of modulation of all stations shall be maintained as high as possible consistent with good quality of transmission and good broadcast practice and in no case less than 85 percent on peaks of frequent recurrence during any selection which normally is transmitted at the highest level of the program under consideration.

(d) The Commission will, from time to time, publish the specifications, requirements for approval, and a list of approved modulation monitors. (See Approved Modulation Monitors and also Requirements for Approval of Modulation Monitors.)

3.56 *Modulation; data required.* A licensee of a broadcast station claiming a greater percentage of modulation than the fundamental design indicates can he 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 85 percent or more, with not over 10 percent combined audio harmonics, can be obtained with the transmitter operated at the maximum authorized power.

3.57 *Operating power; maintenance of.* The licensee of a broadcast station shall maintain the operating power of the station within the prescribed limits of the 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 Charge¹⁷ shall be notified in writing immediately after the emergency develops. (See Operating Power Tolerance.)

3.58 *Indicating instruments.* 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. (See Indicating Instruments Pursuant to section 3.58.)

3.59 *Frequency tolerance.* The operating frequency of each broadcast station shall be maintained within 50 cycles of the assigned frequency until January 1, 1940, and thereafter the frequency of each new station or each station where a new transmitter is installed shall be maintained within 20 cycles of the assigned frequency, and after January 1, 1942, the frequency of all stations shall be maintained within 20 cycles of the assigned frequency.

¹⁵ See Indicating Instruments Pursuant to section 3.58.

¹⁶ Formal application required. See Standards of Good Engineering Practice for form number.

¹⁷ See Field Offices of the Commission.

3.60 *Frequency monitor.* The licensee of each standard broadcast station shall have in operation at the transmitter a frequency monitor independent of the frequency control of the transmitter. The frequency monitor shall be approved by the Commission. It shall have a stability and accuracy of at least 5 parts per million. (See Approved Frequency Monitors and also Requirements for Approval of Frequency Monitors.)

3.61 *New Equipment; restrictions.* 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 specified in section 3.59.

3.62 *Automatic frequency control equipment; authorization required.* New automatic frequency control equipment that may effect the precision of frequency control or the operation of the transmitter shall be installed only upon authorization¹⁸ from the Commission. (See Approved Equipment.)

3.63 *Auxiliary transmitter.* Upon showing that a need exists for the use of an auxiliary transmitter¹⁹ in addition to the regular transmitter of a broadcast station, a license therefor may be issued provided that:

(a) An auxiliary transmitter may be installed either at the same location as the main transmitter or at another location.

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

(c) The auxiliary transmitter shall be maintained so that it may be put into immediate operation at any time for the following purposes:

(1) The transmission of the regular programs upon the failure of the main transmitter.

(2) The transmission of regular programs during maintenance or modification²⁰ work on the main transmitter, necessitating discontinuance of its operation for a period not to exceed five days.

(3) Upon request by a duly authorized representative of the Commission.

(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, except that in case of operation in accordance with paragraph (c) of this section during any week, the test in that week may be omitted provided the operation under paragraph (e) is satisfactory. A record shall be kept of the time and result of each test operating under paragraph (c). Tests shall be conducted only between midnight and 9 a.m., local standard time.

(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.

(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.

(g) The operating power of an auxiliary transmitter may be less than the authorized power, but in no event shall it be greater than such power.

3.64 *Duplicate main transmitters.* The licensee of a standard broadcast station may be licensed for duplicate main transmitters provided that a technical need²¹ for such duplicate transmitters is shown and that the following conditions are met.

(a) Both transmitters are located at the same place.

(b) The transmitters have the same power rating.

(c) The external effects from both transmitters is substantially the same as to frequency stability, reliability of operation, radio harmonics and other spurious emissions, audio frequency range and audio harmonic generation in the transmitter.

OPERATION

3.71 *Minimum operating schedule.* Except Sundays, the licensee of each standard broadcast station shall maintain a minimum operating schedule of two-thirds of the total hours that it is authorized to operate between 6 a.m. and 6 p.m., local standard time, and two-thirds of the total hours it is authorized to operate between 6 p.m. and midnight, local standard time, 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 Charge²² shall be notified in writing immediately after the emergency develops.

3.72 *Operation during experimental period.* The licensee of each standard broadcast station shall operate or refrain from operating its station during the experimental period as directed by the Commission in order to facilitate frequency measurement or for the determination of interference. (Stations involved in the after-midnight frequency monitoring programs are notified of their operating and silent schedule.)

3.73 *Specified hours.* If the licensee of a station specifies the hours of operation, the schedule so specified shall be adhered to except as provided in sections 3.71 and 3.72.

¹⁸ Formal application required. See Standards of Good Engineering Practice for form number.

¹⁹ All regulations as to safety requirements and spurious emissions applying to broadcast transmitting equipment shall apply also to an auxiliary transmitter. (See Use of Frequency and Modulation Monitors at Auxiliary Transmitter.)

²⁰ This includes the equipment changes which may be made without authority as set forth elsewhere in the Rules and Regulations and the Standards of Good Engineering Practice or as authorized by the Commission by letter or by construction permit. Where such operation is required for periods in excess of 5 days, request therefor shall be made in accordance with section 1.865.

²¹ Such as licensees maintaining 24-hour schedule and needing alternate operation for maintenance, or development work is being carried on requiring such alternate operation.

²² See Field Offices of the Commission.

3.74 *Sharing time.* If the licenses of stations authorized to share time do not 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 section the file mark of the Commission will be affixed thereto, one copy will be retained by the Commission, one copy forwarded to the Inspector in Charge, and one 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.

3.75 *Sharing time; equivalence of day and night hours.* For the purpose of determining the proportionate division of time of the broadcast day for sharing time stations 1 night hour shall be considered the equivalent of 2 day hours.

3.76 *Sharing time; experimental period.* If the license of a station authorized to share time does not specify the hours of operation, the station may be operated for the transmission of regular programs during the experimental period provided an agreement thereto is reached with the other stations with which the broadcast day is shared and further provided such operation is not in conflict with section 3.72. Time-sharing agreements for operation during the experimental period need not be submitted to the Commission.

3.77 *Sharing time; departure from regular schedule.* A departure from the regular operating schedule set 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.²³

3.78 *Sharing time stations; notification to Commission.* If the licensees of stations authorized to share time are unable to agree on a division of time, the Commission shall be so notified by statement to that effect filed with the applications for renewals of licenses. Upon receipt of such statement the Commission will designate the applications for a hearing and, pending such hearing, the operating schedule previously adhered to shall remain in full force and effect.

3.79 *License to specify sunrise and sunset hours.* If the licensee of a broadcast station is required to commence or cease operation of the station at the time of sunrise or sunset, the licensee will specify the hour of the day during each month of the license period when operation of such station will commence or cease. (See Average Sunrise and Sunset Time.)

3.80 *Secondary station; filing of operating schedule.* The licensee of a secondary station authorized to operate limited time and which may resume operation at the time the dominant station (or stations) on the same channel ceases operation shall, with each application for renewal of license, file in triplicate a copy of its regular operating schedule, hearing a signed notation by the licensee of the dominant station of its objection or lack of objection thereto. Upon approval of such operating schedule, the Commission will affix its file mark and return one copy to the licensee authorized to operate limited time, which shall be posted with the station license and considered as a part thereof. Departure from said operating schedule will be permitted only in accordance with the procedure set forth in section 3.77.

3.81 *Secondary station; failure to reach agreement.* If the licensee of a secondary station authorized to operate limited time and a dominant station on a channel are unable to agree upon a definite time for resumption of operation by the station authorized limited time, the Commission shall be so notified by the licensee of the station authorized limited time. 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.

3.82 *Departure from schedule; material violation.* 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.

3.83 *Local standard time.* All references herein to standard time or local standard time refer to local standard time as determined and fixed by the Interstate Commerce Commission.

3.84 *Daylight saving time.* If local time is changed from standard time to daylight saving time at the location of all stations sharing time on the same channel, the hours of operation of all such stations on that channel shall be understood to refer to daylight saving time, and not standard time, as long as daylight saving time is observed at such locations. This provision shall govern when the time is changed by provisions 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 sunrise and sunset, local standard time shall be observed. In no event shall a station licensed for daytime only operate on regular schedule prior to local sunrise, or shall a station licensed for greater daytime power than nighttime power or for a different radiation pattern for daytime operation than for nighttime operation operate with the daytime power or radiation pattern prior to local sunrise.

3.85 *Changes in time; agreement between licensees.* 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 channel, the hours of operation of such stations 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.

3.86 *Local standard time; license provisions.* The time of operation of any broadcast station which does not share time with other stations on the same channel shall be understood to have reference to local standard time unless modification of such license with respect to hours of operation is authorized by the Commission.

3.87 *Program transmissions prior to local sunrise.*—(a) The provisions of sections 3.6, 3.8, 3.9, 3.10, 3.23, 3.79 and 3.84 shall not prevent the transmission of such transmissions prior to local sunrise. (Continued on page 374)

²³ See Field Offices of the Commission.

RULES APPLICABLE TO STATIONS ENGAGED IN CHAIN BROADCASTING

LICENSING REQUIREMENTS

(Suspended Pending Court Action on NBC-CBS Appeals)

²⁸§3.101 *Exclusive affiliation of stations.*—No license shall be granted to a standard broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization²⁴ under which the station is prevented or hindered from, or penalized for, broadcasting the programs of any other network organization.

²⁹§3.102 *Territorial exclusivity.*—No license shall be granted to a standard broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization which prevents or hinders another station serving substantially the same area from broadcasting the network's programs not taken by the former station, or which prevents or hinders another station serving a substantially different area from broadcasting any program of the network organization. This regulation shall not be construed to prohibit any contract, arrangement, or understanding between a station and a network organization pursuant to which the station is granted the first call in its primary service area upon the programs of the network organization.

³⁰§3.103 *Term of affiliation.*—No license shall be granted to a standard broadcast station having any contract, arrangement, or understanding express or implied, with a network organization which provides, by original terms, provisions for renewal, or otherwise for the affiliation of the station with the network organization for a period longer than two years: *Provided*, That a contract, arrangement, or understanding for a period up to two years, may be entered into within 120 days prior to the commencement of such period.

³¹§3.104 *Option time.*—No license shall be granted to a standard broadcast station which options^{32a} for network programs any time subject to call on less than 56 days' notice, or more time than a total of three hours^{32b} within each of four segments of the broadcast day, as herein described. The broadcast day is divided into 4 segments, as follows: 8:00 a. m. to 1:00 p. m.; 1:00 p. m. to 6:00 p. m.; 6:00 p. m. to 11:00 p. m.; 11:00 p. m. to 8:00 a. m.^{32c} Such options may not be exclusive as against other network organizations and may not prevent or hinder the station from optioning or selling any or all of the time covered by the option, or other time, to other network organizations.

³³§3.105 *Right to reject programs.*—No license shall be granted to a standard broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization which (a), with respect to programs offered pursuant to an affiliation contract, prevents or hinders the station from rejecting or refusing network programs which the station reasonably believes to be unsatisfactory or unsuitable; or which (b), with respect to network programs so offered or already contracted for, prevents the station from rejecting or refusing any program which, in its opinion, is contrary to the public interest, or from substituting a program of outstanding local or national importance.

³⁴§3.106 *Network ownership of stations.*—No license shall be granted to a network organization, or to any person directly or indirectly controlled by or

under common control³⁵ with a network organization, for more than one standard broadcast station where one of the stations covers substantially the service area of the other station, or for any standard broadcast station in any locality where the existing standard broadcast stations are so few or of such unequal desirability (in terms of coverage, power, frequency, or other related matters) that competition would be substantially restrained by such licensing.

³⁶§3.107 *Dual network operation.*—No license shall be issued to a standard broadcast station affiliated with a network organization which maintains more than one network: *Provided*, That this regulation shall not be applicable if such networks are not operated simultaneously, or if there is no substantial overlap in the territory served by the group of stations comprising each such network.

³⁷§3.108 *Control by networks of station rates.*—No license shall be granted to a standard broadcast station having any contract, arrangement, or understanding, express or implied, with a network organization under which the station is prevented or hindered from, or penalized for, fixing or altering its rates for the sale of broadcast time for other than the network's programs.

²⁴ The term "network organization" as used herein includes national and regional network organizations. See Chapter VII, J, of Report on Chain Broadcasting.

^{32a} As used in this section, an option is any contract, arrangement, or understanding, express or implied, between a station and a network organization which prevents or hinders the station from scheduling programs before the network agrees to utilize the time during which such programs are scheduled, or which requires the station to clear time already scheduled when the network organization seeks to utilize the time.

^{32b} All time options permitted under this section must be for specified clock hours, expressed in terms of any time system set forth in the contract agreed upon by the station and network organization. Shifts from daylight saving to standard time or vice versa may or may not shift the specified hours correspondingly as agreed by the station and network organization.

^{32c} These segments are to be determined for each station in terms of local time at the location of the station but may remain constant throughout the year regardless of shifts from standard to daylight saving time or vice versa.

³⁵ The word "control" as used herein, is not limited to full control but includes such a measure of control as would substantially affect the availability of the station to other networks.

³⁶ Effective date of this section may be extended from time to time with respect to any station in order to permit the orderly disposition of properties.

³⁷ Effective date of this section shall be suspended indefinitely and any further order of the Commission placing said section in effect shall provide for not less than six months' notice and for further extension of the effective date from time to time in order to permit the orderly disposition of properties.

³⁸ Suspended pending court action.

FCC STANDARD BROADCAST RULES

(Continued from page 373)

sion of programs between four o'clock a. m., local standard time, and local sunrise, of standard broadcast stations with their authorized daytime facilities, *Provided*: That the provisions of this rule shall not extend to:

(1) Stations regularly sharing time during daytime hours either under licenses pursuant to which time-sharing agreements have been entered into or licenses specifying hours of operation, unless time-sharing agreements have been reached covering such operation prior to local sunrise. Sections 3.74, 3.77, and 3.78 of these rules shall be applicable to such agreements.

(2) Any class II station causing interference^{32a} by use of its daytime facilities within the 0.5 mv/m 50% sky wave contour of any class I station either of the United States or of any country party to the North American Regional Broadcasting Agreement.

(3) Operation by use of its daytime facilities of any class II station on any class I-A channel not assigned to the United States under the North American Regional Broadcasting Agreement.

(b) Any station operating during such hours receiving notice from the Commission that undue interference is caused shall refrain from such operation during such hours pending further notice from the Commission.

(c) Nothing contained in outstanding instruments of authorization for such stations shall prohibit such operation except as herein provided.

(d) The period 4:00 a. m. to 6:00 a. m., local standard time, shall not be included in determining compliance with section 3.71 of these rules.

^{32a} As determined by the Standards of Good Engineering Practice Governing Standard Broadcast Stations and the North American Regional Broadcasting Agreement.

Paul F. Godley

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FM Regulations Governing Broadcast Services

SUBPART C—General Rules Applicable to Both Standard and High-Frequency Broadcast Stations

3.401 Station license; posting of. The station license and any other instrument of authorization or individual order concerning construction of the equipment or the manner of operation of the station shall be posted in a conspicuous place in the room in which the transmitter is located in such manner that all terms thereof are visible and the license of the station operator shall be posted in the same manner. (See secs. 2.51 and 2.52.)

3.402 Licensed operator required. The licensee of each station shall have a licensed operator or operators of the grade specified by the Commission on duty during all periods of actual operation of the transmitter at the place where the transmitting equipment is located. (See sec. 2.53.)

3.403 Licensed operator; other duties. The licensed operator on duty and in charge of a standard or high frequency broadcast transmitter may, at the discretion of the licensee, be employed for other duties or for the operation of another radio station or stations in accordance with the class of operator's license which he holds and by the rules and regulations governing such other stations: *Provided, however,* That such duties shall in nowise interfere with the power operation of the standard broadcast transmitter.

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

(a) In the program log:

(1) An entry of the time each station identification announcement (call letters and location) is made.

(2) An entry of the time the program begins and ends. "music," "drama," "speech," etc., together with the name or title thereof, and the sponsor's name, with the time of the beginning and ending of the complete program. If a mechanical record is used, the entry shall show the exact nature thereof, such as "record," "transcription," etc., and the time it is announced as a mechanical record. If a speech is made by a political candidate, the name and political affiliations of such speaker shall be entered.

(3) An entry showing that each sponsored program broadcast has been announced as sponsored, paid for, or furnished by the sponsor.

(b) In the operating log:

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

(2) An entry of the time the program begins and ends.

(3) An entry of each interruption to the carrier wave, its cause, and duration.

(4) An entry of the following each 30 minutes:

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

(ii) Antenna current.

(iii) Frequency monitor reading.

(iv) Temperature of crystal control chamber if thermometer is used.

(5) Log of experimental operation during experimental period.

(If regular operation is maintained during this period, the above logs shall be kept.)

(i) A log must be kept of all operation during the experimental period. If the entries required above are not applicable thereto, then the entries shall be made so as to fully describe the operation.

3.405 Logs; retention of. Logs of standard or high frequency broadcast stations shall be retained by the licensee for a period of 2 years, except when required to be retained for a longer period in accordance with the provisions of section 2.54.

§ 3.406 Station identification—(a) A licensee of a standard or high-frequency broadcast station shall make station identification announcement (call letters and location) at the beginning and ending of each time of operation and during operation (1) on the hour and (2) either on the half hour or at the quarter hour following the hour and at the quarter hour preceding the next hour, *Provided:*

(b) Such identification announcement need not be made on the hour when to make such announcement would interrupt a single consecutive speech, play, religious service, symphony concert, or operatic production of longer duration than 30 minutes. In such cases the identification announcement shall be made at the beginning of the program, at the first interruption of the entertainment continuity and at the conclusion of the program.

(c) Such identification announcement need not be made on the half hour or quarter hours when to make such announcement would interrupt a single consecutive speech play, religious service, symphony concert, or operatic production. In such cases an identification announcement shall be made at the first interruption of the entertainment continuity and at the conclusion of the program, *Provided,* That an announcement within 5 minutes of the time specified in paragraph (a) (2) of this section will satisfy the requirements of identification announcements.

(d) In the case of variety show programs, baseball game broadcasts, or similar programs of longer duration than 30 minutes, the identification announcement shall be made within 5 minutes of the hour and of the times specified in paragraph (a) (2) of this section.

(e) In the case of all other programs the identification announcement shall be made within 2 minutes of the hour and of the times specified in paragraph (a) (2) of this section.

(f) In making the identification announcement the call letters shall be given only on the channel of the station identified thereby.

3.407 Mechanical records. Each broadcast program consisting of a mechanical record or a series of mechanical records shall be announced in the manner and to the extent set out below:

(a) A mechanical record or a series thereof, of longer duration than 30 minutes, shall be identified by appropriate announcement at the beginning of the program, at each 30 minute interval, and at the conclusion of the program: *Provided, however,* That the identifying announcement at each 30 minute interval is not required in case of a mechanical record consisting of a single, continuous, uninterrupted speech, play, religious service, symphony concert, or operatic production of longer duration than 30 minutes.

(b) A mechanical record, or a series thereof, of a longer duration than 5

minutes, and not in excess of 30 minutes, shall be identified by an appropriate announcement at the beginning and end of the program:

(c) A single mechanical record of a duration not in excess of 5 minutes shall be identified by appropriate announcement immediately preceding the use thereof;

(d) In case a mechanical record is used for background music, sound effects, station identification, program identification (theme music of short duration), or identification of the sponsorship of the program proper, no announcement of the mechanical record is required.

(e) The identifying announcement shall accurately describe the type of mechanical record used, i.e., where an electrical transcription is used it shall be announced as a "transcription" or an "electrical transcription," or as "transcribed" or "electrically transcribed," and where a phonograph record is used it shall be announced as a "record."

3.408 Rebroadcast.

(a) The term "rebroadcast" means reception by radio of the program¹ of a radio station, and the simultaneous or subsequent retransmission of such program by a broadcast station.²

(b) The licensee of a standard or high-frequency broadcast station may, without further authority of the Commission, rebroadcast the program of a United States standard or high frequency broadcast station, provided the Commission is notified of the call letters of each station rebroadcast and the licensee certifies that express authority has been received from the licensee of the station originating the program.³

(c) (1) The licensee of a standard or high frequency broadcast station located within a state or the District of Columbia may, without further authority of the Commission, rebroadcast on a non-commercial basis a noncommercial program of a United States international broadcast station.

(2) The licensee of a standard or high frequency broadcast station located in any territory or insular possession of the United States may, without further authority of the Commission, rebroadcast any program of a United States international broadcast station.

(3) In the case of any rebroadcast under the provisions of this paragraph (c) the Commission shall be notified of the call letters of each station whose programs are rebroadcast and the licensee shall certify that express authority has been received from the licensee of the station originating the program.

(d) No licensee of a standard broadcast station shall rebroadcast the program of any other class of United States radio station without written authority having first been obtained from the Commission upon application accompanied by written consent or certification of consent of the licensee of the station originating the program.^{4 5 6}

(e) In case of a program rebroadcast by several standard broadcast stations, such as a chain rebroadcast, the person legally responsible for distributing the program or the network facilities may obtain the necessary authorization for the entire rebroadcast both from the Commission and from the person or licensee of the station originating the program.

Attention is directed to section 325 (h) of the Communications Act of 1934, which reads as follows:

No person shall be permitted to locate, use, or maintain a radio broadcast studio or other place or apparatus from which or whereby sound waves are converted into electrical energy, or mechanical or physical reproduction of sound waves produced, and caused to be transmitted or delivered to a radio station in a foreign country for the purpose of being broadcast from any radio station there, having a power output of sufficient intensity, and/or being so located geographically that its emissions may be received consistently in the United States, without first obtaining a permit from the Commission upon proper application therefor.⁷

3.421 General requirements. No station licensee is required to permit the use of its facilities by any legally qualified candidate for public office, but if any licensee shall permit any such candidate to use its facilities, it shall afford equal opportunities to all other such candidates for that office to use such facilities, provided that such licensee shall have no power of censorship over the material broadcast by any such candidate.

3.422 Definitions.—A "legally qualified candidate" means any person who has publicly announced that he is a candidate for nomination by a convention of a political party or for nomination or election in a primary, special, or general election, municipal, county, state or national, and who meets the qualifications prescribed by the applicable laws to hold the office for which he is a candidate so that he may be voted for by the electorate directly or by means of delegates or electors, and who (a) has qualified for a place on the ballot or (b) is eligible under the applicable law to be voted for by sticker, by writing in his name on the ballot, or other method, and (1) has been duly nominated by a political party which is commonly known and regarded as such, or (2) makes a substantial showing that he is a *bona fide* candidate for nomination or office, as the case may be.

3.423 Rates and practices. The rates, if any, charged all such candidates for the same office shall be uniform and shall not be rebated by any means, directly or indirectly; no licensee shall make any discrimination in charges, practices, regulations, facilities, or services for or in connection with the service rendered pursuant to these rules, or make or give any preference to any candidate for public office or subject any such candidate to any prejudice or disadvantage; nor shall any licensee make any contract or other agreement which

(Continued on page 376)

¹ As used in sec. 3.408, program includes any complete program or part thereof, or any signals if other than A-3 emission.

² In case a program is transmitted from its point of origin to a broadcast station entirely by telephone facilities in which a section of such transmission is by radio, the broadcasting of this program is not considered a rebroadcast.

³ The notice and certification of consent shall be given within three (3) days of any single rebroadcast, but in case of the regular practice of rebroadcasting certain programs of a standard broadcast station several times during a license period, notice and certification of consent shall be given for the ensuing license period with the application for renewal of license, or at the beginning of such rebroadcast practice if begun during a license period.

⁴ The broadcasting of a program relayed by a relay broadcast station (sec. 4.21) is not considered a rebroadcast.

⁵ Informal application may be employed.

⁶ Provision suspended under Order No. 82.

⁷ Formal application required. See Standards of Good Engineering Practice for form number.

Directory of RADIO SET AND OTHER RECEIVING EQUIPMENT MANUFACTURERS

(Official Membership of Radio Manufacturers Association as of January 1, 1942)
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AEROVOX CORP.—740 Belleville Ave., New Bedford, Mass. Products—Capacitors—dry and wet Electrolytics for radio and industrial purposes; Auto Radio Condensers; Paper, Wax, and Oil Impregnated Units for industrial and radio uses; Standard Mica Condensers and Silver Plate Mica Condensers of Close Tolerances; Exact Duplicate Replacement Capacitors for radio and refrigeration; Transmitting Capacitors; Resistors—Insulated Molded and Lacquer Coated Carbon Resistors, Fixed and Adjustable Vitreous Enamel Resistors; Interference Filters; Noise Analyzer; Condenser Bridge for testing Power Factor, Resistance and Capacity. Trade Names: *Aerovox, Hi-Parad, Metalohms, Resistoformer, Pyrohm.*

AIR KING PRODUCTS CO., INC.—1523-29 Sixty-third St., Brooklyn, N. Y. Products—Radio Receiving Sets.

ALLEN-BRADLEY CO.—1326 South Second St., Milwaukee, Wis. Products—Bradleyometers, Bradleyunits, Bradleystats, Radioteaks. Trade Name: *Bradley.*

ALLEN B. DU MONT LABORATORIES, INC.—2 Main Ave., Passaic, N. J. Products—Cathode Ray Tubes, Oscillographs, Television Receivers and Transmitters. Trade Name: *Du Mont.*

ALLIANCE MANUFACTURING CO.—Alliance, O. Products—Phonograph, Recording, Tuning and Record Changer Motors and Turn Tables.

AMERICAN STEEL PACKAGE CO.—Squire Ave., Defiance, O. Products—Variable Gag Condensers. Trade Name: *Defiance.*

***AMY, ACEVES & KING, INC.**—11 W. 42nd St., New York, N. Y. Products—Antenna Systems. Trade Name: *Multiconpler Antenna System.*

ANDREA RADIO CORP.—48-20 48th Ave., Woodside, Long Island, N. Y. Products—Radio and Television Receivers. Trade Name: *Andrea Radio.*

ANSLEY RADIO CORP.—21-10 49th Ave., Long Island City, N. Y. Products—Radio Phonograph Combinations, Electric Phonographs, Radio Direction Finders, Photographic Flash Synchronizers, Electronic Pianos. Trade Names: *Dynaphone, Dynatone, Dynaflosh.*

AUTOMATIC RADIO MFG. CO., INC.—122 Brookline Ave., Boston, Mass. Products—Electric Sets: Compact, Table, Portable, Consoles; Battery Sets: Portable, Portable AC-DC; Combinations: Radio-Phonograph, Radio-Phonograph - Recorder. Trade Names: *Automatic, Autorola, Tom Thumb, Automaster, Airmaster, Symphony, Monarch, Atlas, Universal, Mel-O-Tone.*

ARNOLD ENGINEERING CO.—231 So. La Salle St., Chicago, Ill. Products—Alnico permanent magnets and other magnetic materials. Trade Name: *Alnico.*

***BAMBERGER BROADCASTING SERVICE, INC.**—1440 Broadway, New York, N. Y.

BEAD CHAIN MANUFACTURING CO.—110 Mountain Grove St., Bridgeport, Conn. Products—Radio Tube Contact Pins. Trade Name: *Bead Chain.*

BELMONT RADIO CORP.—5921 Dickens Ave., Chicago, Ill. Products—Electric Sets: Compact, Table, Portable, Consoles; Battery Sets: Portable, Portable AC-DC, Table, Consoles; Combinations: Radio-Phonograph, Radio-Phonograph - Recorder; Television Sets: Radio-Video Console; also Aviation Sets. Trade Name: *Belmont.*

BENDIX RADIO CORP.—920 E. Fort Ave., Baltimore, Md. Products—Aviation Radio Equipment.

BENTLEY, HARRIS MFG. CO.—Hector and Lime Streets, Conshohocken, Pa. Products—Varnished Tubing and Sleeving. Trade Name: *B H.*

BLILEY ELECTRIC CO.—Union Station Bldg., Erie, Pa. Products—Quartz Crystals, Holders, Ovens, and associated equipment. Trade Name: *Bliley.*

WILLIAM BRAND & CO.—276 Fourth Ave., New York, N. Y. Products—Varnished Tubing, Saturated Sleeving, Mica Condenser Films and Fabricated Parts, Mica Plate in Sheets and punched to dimensions, Varnished Cambric and Paper in rolls, tape, etc., Sheet and Fabricated Bakelite, Fibre, etc. Trade Name: *Turbo.*

WALTER C. BRAUN, INC.—601 W. Randolph St., Chicago, Ill. Products—Amplifiers. Trade Names: *Radolek, Ozarka, Pioneer.*

C. F. CANNON CO.—Main Street, Springwater, N. Y. Products—Radio Headsets. Trade Name: *Cannon-Ball.*

CENTRALAB—(Division of Globe-Union), 900 East Keefe Ave., Milwaukee, Wis. Products—Variable Resistors, Volume and Tone Controls, Fixed Resistors, Ceramic Capacitors, and Switches. Trade Name: *Centralab.*

CHICAGO TELEPHONE SUPPLY CO.—1142-1228 W. Beardsley Ave., Elkhart, Ind. Products—Volume Controls, Tone Controls, Switches, Fixed Resistances, Head Phones, etc. Trade Name: *CTS, Frost-Radio, Chiphone.*

CHICAGO TRANSFORMER CORP.—3501 Addison St., Chicago, Ill. Products—Small Transformers and Reactors.

CINCH MANUFACTURING CORP.—2335 W. Van Buren St., Chicago, Ill. Products—Tube Sockets, Soldering Lugs, Terminal Strips, Binding Posts, Connector Plugs. Trade Name: *Cinch.*

CLAROSTAT MFG. CO., INC.—285 North Sixth St., Brooklyn, N. Y. Products—Fixed Resistors, Variable Resistors, Wire and Carbon. Trade Name: *Clarostat.*

COLONIAL RADIO CORP.—254 Rano St., Buffalo, N. Y. Products—Electric Sets: Compact, Table, Portable, Consoles; Battery Sets: Portable, Portable AC-DC, Table, Consoles; Combinations: Radio-Phonograph, Radio-Phonograph - Recorder. Trade Names: *Colonial, King.*

CONTINENTAL CARBON, INC.—13900 Lorain Ave., Cleveland, O. Products—Resistors, both Carbon and Wire Wound; Suppressors, Carbon Granules for Transmitters, Paper Dielectric Condensers, Filternoys to eliminate radio interference. Trade Names: *Continental, Filternoys.*

CONTINENTAL RADIO & TELEVISION CORP.—3800 Cortland St., Chicago, Ill. Products—Electric Sets: Compact, Table, Portable, Consoles; Battery Sets: Portable, Portable AC-DC, Table, Consoles; Combinations: Radio-Phonograph, Radio-Phonograph-Recorder. Trade Name: *Admiral.*

CORNELL-DUBILIER ELECTRIC CORP.—1000 Hamilton Boulevard, South Plainfield, N. J. Products—Capacitors—Trade Names: *Micadon, Ducon, Tubular, C-D, Cub, Tigers, Hi-Mike, Dykanol, Beaver.*

CORNING GLASS WORKS—Corning, N. Y. Products—Bulbs, Tubing, Insulators. Trade Names: *Corning, Pyrex.*

CORNISH WIRE CO., INC.—30 Church St., New York, N. Y. Products—Radio Hook-Up Wires, Antenna Accessories, Antenna Kits, Shielded Auto Radio Wires, P-A Wires, Electric Cords, Trade Names: *Cornico, Cor-Lac, Nn-Cor, Super-Cor, Braidite, Fleribus.*

CRESCENT TOOL & DIE CO.—4140 W. Belmont Ave., Chicago, Ill. Products—"Crescent" Speakers, Tools and Dies, Metal and Fibre Stampings, Transformer Channel Frames, Sub Panels, Chassis, Pulleys and Brackets, Four Slide Machine Products.

CROSLEY CORP.—1329 Arlington St., Cincinnati, O. Products—Electric Sets: Compact, Table, Portable, Consoles; Battery Sets: Portable, Portable AC-DC, Table, Consoles; Combinations: Radio-Phonograph, Radio-Phonograph-Recorder; Frequency Modulation Sets: FM-AM Table, FM-AM Console, Tubes and Service Parts and Antennas. Trade Name: *Crosley.*

CROWE NAME PLATE MFG. CO.—3701 Ravenswood Ave., Chicago, Ill. Products—Tuning units for household and automobile radios; dials, scales on glass, metal, pyralin and bakelite; embossed, etched, or lithographed escutcheons and nameplates; controls and decorated panels for sound equipment and analyzers, metal grilles and cabinets; standard components for radio service men and amateurs. Trade Name: *Crowe.*

DEJUR-AMSCO CORP.—6 Bridge St., Shelton, Conn. Products—Manufacturers of Radio, Electrical and Photographic Products; Trimmer Condensers, Electrical Measuring Instruments, Power Rheostats, Exposure Meters, Photo-Electric Cells. Trade Name: *Dejur.*

DEWALDO RADIO MFG. CORP.—440 Lafayette St., New York, N. Y. Products—Radio Sets—Console, Table, Midget, Combination Radio-Phonograph, Battery, Automobile. Trade Names: *Pierce Airo, DeWald.*

WILBUR B. DRIVE CORP.—150 Riverside Ave., Newark, N. J. Products—Carbonized Nickel Ribbon, Nickel Support Wire, Grid Wire, Filament Wire, Resistance wire. Trade Names: *Radiocarb A, Policarb, Duocarb, Sylvatoy, Cobanic, Tensite, Hilo, Modified Hilo, Emissatoy, Mangrid, Tophet A, Tophet C, Cypron, Balco, No. 50 Alloy, No. 60 Alloy, No. 90 Alloy, No. 180 Alloy, Ballast Nickel.*

HUGH H. EBY, INC.—4700 Stenton Ave., Philadelphia, Pa. Products—Binding Posts (insulated and metal), Battery Plugs, Speaker Plugs, Chassi Plugs, Vibrator Plugs, Molded Sockets, Cable Connectors, Cable Couplers, Rubber Capped Plugs, Molded Tip Jacks, Laminated Tip Jacks, Adaptors, Battery Adaptor Cables, Cable Assemblies, Strain Reliefs, Terminal Strips, Tie Points, Metal Punchings, Bakelite Punchings, Molded Parts, Electric Eye, Electric Eye Kits, AC and DC Relays, Photo Cell Equipment, Radio and Electric Specialties. Trade Name: *Eby.*

ELECTRICAL RESEARCH LABS., INC.—2020 Ridge Ave., Evanston, Ill. Products—Radio Sets—Console, Table, Midget, Combination Radio-Phonograph, Battery and Portable. Trade Names: *Erla, Sentinel.*

ELECTRO MOTIVE MFG. CO., INC.—South Park & John Sts., Williamston, Conn. Products—Carbon Resistors, Molded Mica Condensers, Trimmer Condensers, Padder Condensers, Suppressors. Trade Name: *Elmenco.*

EMERSON RADIO & PHONOGRAPH CORP.—111 Eighth Ave., New York, N. Y. Products—Electric Sets: Compact, Table, Portable, Consoles; Battery Sets: Portable, Portable AC-DC, Table, Consoles; Combinations: Radio-Phonograph, Radio-Phonograph - Recorder; Television Sets: Radio-Video Console; Frequency Modulation Sets: Console. Also Record-Players; Tubes and parts. Trade Name: *Emerson.*

FCC Regulations

(Continued from page 375)

shall have the effect of permitting any legally qualified candidate for any public office to broadcast to the exclusion of other legally qualified candidates for the same public office.

3.424 Records; inspection. Every licensee shall keep and permit public inspection of a complete record of all requests for broadcast time made by or on behalf of candidates for public office, together with an appropriate notation showing the disposition made by the licensee of such requests, and the charges made, if any, if request is granted.

The Following Rule is Quoted for the Information of Licensees and Permittees of all Classes of Broadcast Stations:

43.1 Information as to ownership, operation, interests therein, contracts, etc. Licensees and permittees of all classes of broadcast stations shall file reports as follows:

(a) Within 30 days after becoming licensees or permittees all such licensees or permittees shall file with the Commission original reports containing the information required in accordance with the forms adopted and furnished by the Commission and the instructions in such forms.

(b) Thereafter, and within 30 days of the occurrence of any event which necessitates a change in information already reported, all such licensees or permittees shall file supplemental reports containing the information required in accordance with the forms adopted and furnished by the Commission and the instructions in such forms.

(c) All reports required hereby must be dated and executed under oath (or affirmed according to law) in accordance with the provisions of the form and show the date upon which each reporting event occurred. One report (original or supplemental) may be rendered by a licensee or permittee covering more than one station, provided the reported information relates equally to all stations. Otherwise, separate reports for each station must be filed.

(d) A licensee or permittee corporation which has of record on the date of submission of any report 1,000 stockholders or more, may file the information required herein as to the stockholders who own 1,000 or more shares of the stock of said corporation.

(e) The term "contract" as it appears on the forms provided by this section, shall be construed to include every contract, understanding, or agreement, verbal or written. Verbal contracts shall be reduced to writing and certified copies thereof submitted.

ERIE RESISTOR CORP.—644 West 12th St., Erie, Pa. Products—Resistors, Compensating Capacitors, Silver Mica Capacitors, Suppressors, and Plastic Parts. Trade Name: *Erie*.

ESSEX WIRE CORP.—14310 Woodward Ave., Detroit, Mich. Products—Copper Wire Products: Bare, Tinned, Insulated all types and combinations to manufacturers' specifications; Relays—all types, and Random Wound Coils. Trade Names: *R-B-M*, *Paranite*, *Essex*, *SX*.

FARNSWORTH TELEVISION & RADIO CORP.—3700 East Pontiac St., Fort Wayne, Ind. Products—Electric Sets: Compact, Table, Portable, Consoles; Battery Sets: Portable, Portable AC-DC Table, Consoles; Television Sets: Radio-Video Table, Radio-Video Console; Frequency Modulation Sets: Table, Console, FM-AM Table, FM-AM Console; Aviation, Record-Players, other Commercial, Also Television Transmitters, Sound Receivers, Television Cameras, Studio Equipment and other special apparatus. Trade Names: *Farnsworth*, *Capehart*.

JOHN E. FAST & CO.—3123 N. Crawford Ave., Chicago, Ill. Products—Fixed Electrical Condensers. Trade Name: *Fast*.

BILLINGS S. FUESS—2-4 Lackawanna Place, South Orange, N. J. Products—Radio Loud Speaker Cones.

GALVIN MFG. CORP.—4545 Augusta Boulevard, Chicago, Ill. Products—Electric Sets: Compact, Table, Portable, Consoles; Battery Sets: Portable, Portable AC-DC, Table Consoles; Combinations: Radio-Phonograph, Radio-Phonograph-Recorder; also Aviation, Police and Record-Players. Trade Name: *Motrola*.

GAROD RADIO CORP.—70 Washington St., Brooklyn, N. Y. Products—Radio Receivers: Console, Table and Midget Models. Combination Radio-Phonograph, Radio-Phonograph and Recorder Combinations. Battery and Portable Receivers. Trade Name: *Garod*.

GENERAL ELECTRIC CO.—1285 Boston Ave., Bridgeport, Conn. Products—Electric Sets: Compact, Table, Consoles; Battery Sets: Portable, Portable AC-DC, Table, Consoles; Combinations: Radio-Phonograph; Television Sets: Radio-Video Table, Radio-Video Console, Video only; Frequency Modulation Sets: Table, Console, FM-AM Console; also Record-Players, Radio Receiving Tubes, Television Receiving and Picture Tubes, Portable Home Recorders, Television Transmitters and Transmitting Tubes, FM Transmitters, Broadcast Transmitters, Set and Tube Test Equipment. Trade Name: *GE*.

GENERAL INSTRUMENT CORP.—829 Newark Ave., Elizabeth, N. J. Products—Variable Condensers, Push Button Devices, Record Changers. Trade Name: *G. I.*

GENERAL MAGNETIC CORP.—2126 E. Fort St., Detroit, Mich. Products—Alnico Permanent Magnets.

GENERAL RADIO CO.—30 State St., Cambridge A., Mass. Products—Laboratory and Production Test Equipment and Apparatus. Radio Parts for General Experimental Purposes. Trade Name: *General Radio*.

GITS MOLDING CORP.—4600 West Huron St., Chicago, Ill. Products—Knobs, Push Buttons, Escutcheons, Trade Marks and Medallions. Concentric Cable, Drum Dials, Pointers, Remote Control Cases, Housings, Insulators and Needle Cups. Coaxial Cable.

EDWIN I. GUTHMAN & CO.—400 S. Peoria St., Chicago, Ill. Products—R.F. Coils, Chokes, Oscillators, I.F. Transformers, Padder and Trimmer Condensers, Textile Covered, Litzendraht and Enamelled Magnet Wire, Zinc Shield Cans, Coil-winding Machinery. Trade Names: *Guthman*, *Super Q*.

HAMMARLUND MFG. CO., INC.—424-438 W. 33d St., New York, N. Y. Products—Radio Sets—Commercial and Short Wave. Also Variable Condensers, Trimmers, Short Wave Parts. Trade names: *Hammarlund*, *Super-Pro*, *H-Q 120*.

HAWLEY PRODUCTS CO.—201 No. First Ave., St. Charles, Ill. Products—Speaker Diaphragms and Spiders, Automobile Speaker Housings, Loop Antenna Covers and other Moulded Fibre Specialties.

***HAZELTINE CORP.**—15 Exchange Place, Jersey City, N. J. Products—Patents and Engineering Service to Manufacturers.

HYGRADE PENNSYLVANIA CORP.—Emporium, Pa. Products—Radio Receiving Tubes, Cathode Ray Tubes, Radio Panel Lamps. Trade Name: *Sylvania*. Products—Incandescent Lamp Bulbs, Fluorescent Lamps, and Miralume Fixtures. Trade Name: *Hygrade*.

HYTRON CORP.—76 Lafayette St., Salem, Mass. Products—Radio Tubes, Transmitting Tubes, Special Purpose Tubes, and Resistance Tubes. Trade Name: *Hytron*.

INDIANA STEEL PRODUCTS CO.—6 No. Michigan Ave., Chicago, Ill. Products—Permanent Magnets for all purposes. Trade Name: *Ispco*.

INTERNATIONAL RESISTANCE CO.—401 N. Broad St., Philadelphia, Pa. Products—Resistors—Fixed and Variable, Metallized, Precision, Power Wire Wound, Voltage Dividers, Volume Controls, Tone Controls, Rheostats, Attenuators. Trade Names: *I.R.C.*, *Metallized*.

IRVINGTON VARNISH & INSULATOR CO.—6 Argyle Terrace, Irvington, N. J. Products—Insulating Materials used in the Manufacture of Radio Parts, such as Varnished Cambric, Varnished Paper, Irv-O-Slot Insulation and Saturated and Varnished Tubing. Trade Names: *Irvington Insulation*, *Standard Of The World*.

***JANSKY & BAILEY**—National Press Building, Washington, D. C.

JEFFERSON ELECTRIC CO.—25th Avenue & Madison St., Bellwood, Ill. Products—Radio Power Transformers, Chokes and Audio Input and Output Transformers, Television Deflecting Yokes, Horizontal and Vertical Scanning Transformers, and Centering and Focusing Coils. Trade Name: *Jefferson*.

JENSEN RADIO MFG. CO.—6601 South Laramie Ave., Chicago, Ill. Products—Loud Speakers and Components. Trade Name: *Jensen*.

KEN-RAD TUBE AND LAMP CORP.—Owensboro, Ky. Products—Radio Tubes and Incandescent Electric Lamps. Trade Name: *Ken-Rad*.

KESTER SOLDER CO.—4201 Wrightwood Ave., Chicago, Ill. Products—Solders: Plastic Rosin Filled Solder, Radio Solder, Special Flux Filled Solders and Special Fluxes for Electrical and Radio Work. Trade Name: *Kester*.

KING LABS., INC.—205 Oneida St., Syracuse, N. Y. Products—Bare Embedded Getters, a part for radio tubes, Special alloys, chemicals and metals. Trade Name: *Borex*.

LENZ ELECTRIC MANUFACTURING CO.—1751 N. Western Ave., Chicago, Ill. Products—Wires, Cables, Cords—for radio.

MAGNAVOX COMPANY, INC.—2131 Bueter Road, Fort Wayne, Ind. Products—Radio Loud Speakers, Molanode "FP" Dry Type Electrolytic Filter and By Pass Capacitors. Trade Name: *Magnavox*.

MAJESTIC RADIO & TELEVISION CORP.—2600 West 50th St., Chicago, Ill. Products—Radio Receiving Sets.

(Continued on page 378)

Wherever Performance Is Of Prime Importance

DAVEN ATTENUATORS

The DAVEN catalog lists the most complete line of precision attenuators in the world; "Ladder," "T" type, "Balanced H" and Potentiometer networks—both variable and fixed types—employed extensively in central positions of high quality program distribution systems and as laboratory standards of attenuation.

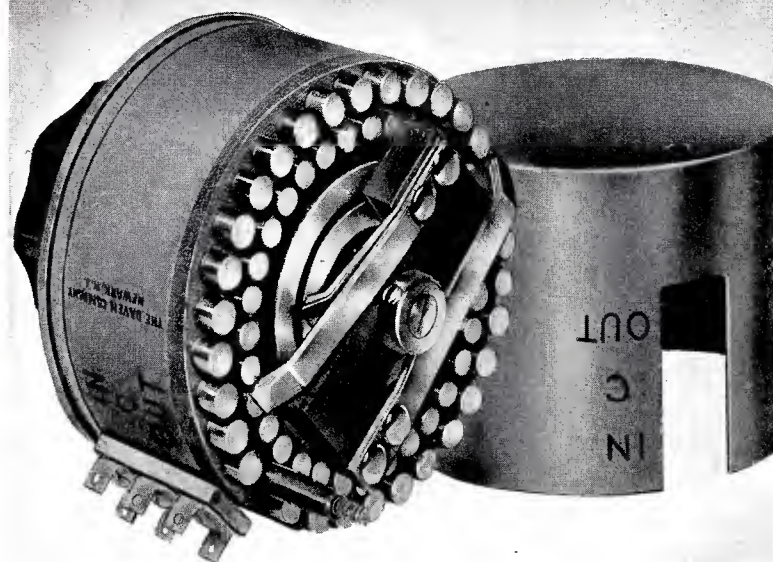
Due to the specialized nature of high fidelity audio equipment, a large number of requirements are encountered where stock units may not be suitable. If you have such a problem, write to our engineering department.

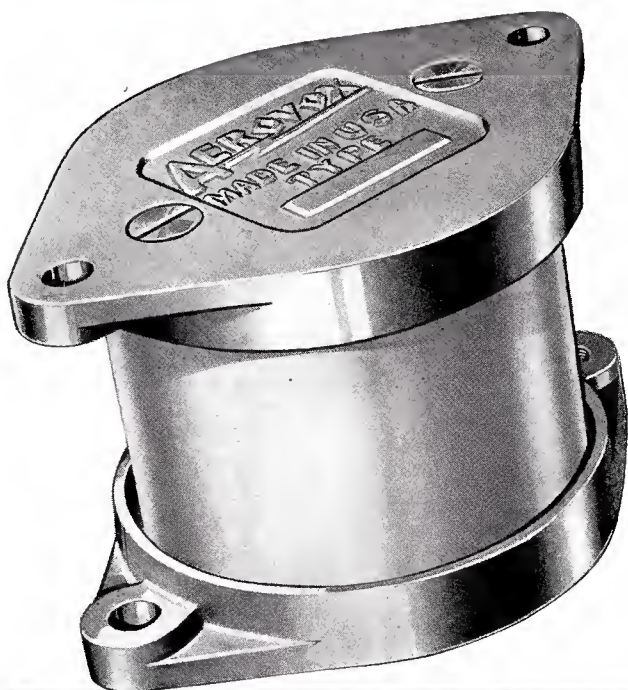
Special heavy duty type switches, both for program switching and industrial applications are available upon request. These switches employ the same type of high quality materials and workmanship as supplied in Daven attenuators.

Super DAVOHM resistors are precision type, wire-wound units of from 1% to 0.1% accuracy.

To insure precise quality and rugged dependability in your speech input or special laboratory equipment, specify DAVEN components.

THE DAVEN COMPANY
158 SUMMIT STREET • NEWARK, NEW JERSEY





Yesterday, "SPECIAL"

today, "STANDARD"



• Widest selection of heavy-duty paper condensers including wax-impregnated wax-filled and oil-impregnated oil-filled. Extensive choice of containers, mountings, terminals, etc.



• Widest choice of mica transmitting capacitors including tiny molded-in-bakelite types, bakelite-case types, metal-case units, and stock-mounting types (shown at top).



• Complete line of oil-filled high-voltage capacitors in rectangular, round-con and inverted-screw-mounting types, meeting all voltage and capacity requirements.

● Until recently these extra-heavy-duty transmitting capacitors in mica, oil-filled, plug-in electrolytics and paper, and other types were definitely "special" or made to order for broadcasters and commercial communication purposes. Previous prices reflected the custom-built angle.

Aerovox, however, has made these types standard items in regular and therefore economical production, as listed in the Transmitting Capacitor Catalog. These types are now available to you at new and reasonable prices for your initial equipment, additions or alterations. Remember AEROVOX for your transmitting capacitors!

Ask for DATA...

● For your convenience, especially when you need a capacitor in a hurry, consult your local Aerovox jobber. He'll gladly take care of your needs. Ask him for a copy of the Aerovox Transmitting Capacitor Catalog (available only to those engaged in commercial radio work). Or write us direct.



Directory of Receiving Set Manufacturers

(Continued from page 377)

P. R. MALLORY & CO., INC.—3029 E. Washington St., Indianapolis, Ind. Products—Dry electrolytic condensers for AC and DC applications, Mallotron electrostatic condensers; synchronous and interrupter type vibrators for auto radio receivers; all wave switches, push button switches, tone control switches, tuning switches; volume controls, fixed and adjustable heavy duty resistors; grid bias cells; jacks, jack switches, connector plugs, cable connectors; copper sulphide rectifiers, copper sulphide dry disc rectifiers, battery chargers, including heavy duty types, railroad battery chargers, plating power supplies; fluorescent lamp switches; power supplies (Vibrapacks); resistance welding electrodes, electrical contacts. Trade Names: *Mallory, Yawley*.

MICAMOLD RADIO CORP.—1087 Flushing Ave., Brooklyn, N. Y. Products—Mica Condensers, Paper Condensers, Electrolytic Condensers, Resistors, Ballast Tubes, and Television Condensers. Trade Name: *Micamold*.

MUTER CO.—1255 South Michigan Ave., Chicago, Ill. Products—Resistors, Switches, Ceramic Condensers, Ballasts, Spirashields, Coils, Antenna Loops, I.F. and R.F. Transformers. Trade Names: *Candohm, Compo, General, Zipohm, Spirashield, Muter*.

NATIONAL CARBON CO., INC.—30 E. 42d St., New York, N. Y. Products—Radio "A," "B" and "C" Batteries. Trade Name: *Eveready*.

NATIONAL CO., INC.—61 Sherman St., Malden, Mass. Products—Amateur, Experimental and Communication type Receivers and Transmitting Equipment, Dials, Eliminators, Choke Coils, Transformers, Condensers, Couplings, Amplifiers, Grid Grips, Ceramic Insulators and Sockets for Amplitude and Frequency Modulation. Trade Names: *National, H. R. O., Velvet Vernier*.

NATIONAL UNION RADIO CORP.—57 State St., Newark, N. J. Products—Radio Tubes. Trade Names: *National Union, Sonatron*.

NOBLITT-SPARKS INDUSTRIES, INC.—E. 13th St., Columbus, Ind. Products—Electric Sets: Compact, Table, Portable; Battery Sets: Portable AC-DC, Automobile; Combinations: Radio-Phonograph. Trade Name: *Arvin*.

OAK MANUFACTURING CO.—Clybourn Ave., Chicago. Products—Switches, Range, Rotor, Tap, Push Button; Vibrators, Synchronous and Non-Synchronous; Mechanical Tuners. Trade Name: *Oak*.

OHIO CARBON CO.—12508 Berea Road, Lakewood, O. Products—Carbon Resistors and Suppressors for Autos. Trade Name: *Ohiohm*.

OPERADIO MFG. CO.—St. Charles, Ill. Products—Loud Speakers, Amplifiers, Public Address Equipment, Intercommunicating Equipment, Slide Film Equipment. Trade Name: *Operadio*.

OXFORD-TARTAK RADIO CORP.—915 West Van Buren St., Chicago, Ill. Products—Loud Speakers.

PARISIAN NOVELTY CO.—3510 South Western Ave., Chicago, Ill. Products—Printers and Fabricators of Celluloid, Bakelite, Lamicoide and Insulok Dials. Manufacturers of Transparent Celluloid and Vinylite dial crystals.

PHILCO CORP.—Tioga and C Sts., Philadelphia, Pa. Products—Electric Sets: Compact Table, Portable, Consoles; Battery Sets: Portable, Portable AC-DC, Table, Consoles; Combinations: Radio-Phonograph, Radio-

Phonograph - Recorder; Television Sets: Radio-Video Table, Radio-Video Console, Video only; also Police, Record-Players. Trade Names: *Philco, Philco-Transitone*.

PHILMORE MFG. CO., INC.—113-115 University Place, New York, N. Y. Products—Radio Sets—Midget and Battery. Microphones, Amplifiers, Aerial Eliminators, Headphones, Fixed Crystals and Crystal Sets. Trade Names: *Philmore, Ajax, Selective, Deluze, Kompakt Radio, Blackbird, Supertone, Little Wonder*.

PHONOVISION CORP.—850 Blackhawk St., Chicago, Ill. Products—Radio Sets—Console, Midget, Combination Radio-Phonograph. Trade Names: *Seeburg Symphonolas, Corona*.

PILOT RADIO CORP.—3706 36th St., Long Island City, N. Y. Products—Electric Sets: Table, Portable; Battery Sets: Portable, Portable AC-DC, Table; Combinations: Radio-Phonograph, Radio-Phonograph-Recorder; Television Sets: Radio-Video Table, Radio-Video Console; Frequency Modulation Sets: Table, FM-AM Table, FM-AM Console; also Record-Players. Trade Name: *Pilot*.

QUALITY HARDWARE & MACHINE CORP.—5831-51 Ravenswood Ave., Chicago, Ill. Products—Stampings and Light Manufacturing.

QUAM-NICHOLS CO.—33d Place & Cottage Grove Ave., Chicago, Ill. Products—Quam PERMANIC, Dynamic, Permanent Magnet Dynamic Speakers, Quam Aerial Kits and Private Brand Kits, MARVEL Toy Telephones. Trade Names: *Quam Speakers, Marvel Phones, Quam Nichols Co.*

RADIO CONDENSER CO.—Davis & Copewood Sts., Camden, N. J. Products—Variable Air Condensers.

RADIO SPEAKERS, INC.—221 E. Cullerton St., Chicago, Ill. Products—Radio Loud Speakers and Recorders. Trade Name: *Radio Speakers*.

RAYTHEON PRODUCTION CORP.—55 Chapel St., Newton, Mass. Products—Radio Tubes. Trade Name: *Raytheon*.

RCA MANUFACTURING CO., INC.—201 No. Front St., Camden, N. J. Products—Radio Sets—Console, Table, Midget, Combination Radio-Phonograph, Victrolas, Battery, Portable, Automobile, and Police. Television Sets—Console, Table, Separate Video, and Kits. Broadcasting and Transmitting Equipment; Television Transmitting and Receiving Equipment; Telephone Equipment; Vacuum Tubes, including Radio Receiving Tubes, Transmitting Tubes, and parts therefor. Trade Names: *RCA Victor, RCA Radiotron*.

READRITE METER WORKS—135 E. College Ave., Bluffton, O. Products—Radio Test Instruments and Vane Type Meters. Trade Names: *Readrite Ranger*.

REA MAGNET WIRE CO., INC.—East Pontiac St., Extended, Fort Wayne, Ind. Products—Magnet Wire, all Insulations. Trade Name: *Rea*.

REMLER COMPANY, LTD.—2101 Bryant St., San Francisco, Cal. Products—Radio Sets—Midget, Table, Console and Battery, Inter-Communication and Sound Equipment. Trade Name: *Remler*.

ROLA COMPANY, INC.—2530-70 Superior Ave., Cleveland, O. Products—Loud Speakers (Dynamic and Permanent Magnet) for Radio Receiving Sets and Public Address Equipment. Trade Name: *Rola*.

Directory of RADIO SET AND OTHER RECEIVING EQUIPMENT MANUFACTURERS

F. W. SICKLES CO.—Box 920, Springfield, Mass. Products—R.F. and I.F. Coils; Units; Padders—Mica and Air; Trimmers—Mica and Air; Silver Mica Condensers. Trade Names: *Sickles Diamond Weave, Silvercap*.

SPARKS-WITHINGTON CO.—2400 E. Ganson St., Jackson, Mich. Products—Radio Sets—Console, Table, Midget, Combination Radio-Phonograph, Battery and Portable. Trade Name: *Sparton*.

SPEER RESISTOR CORP.—Saint Marys, Pa. Products—Speer Insulated and Non-insulated resistors; Speer Suppressors. Trade Name: *Speer*.

SPERRY GYROSCOPE CO., INC.—Manhattan Bridge Plaza, Brooklyn, N.Y. Products—Aircraft Sets, Aircraft Automatic Radio Direction Finder; Aircraft Gyrocompass, Directional Gyro, and Gyro-Horizon; Marine Gyro-Compass, Incandescent and High Intensity Searchlights, Course Recorder, Rudder Angle Indicator, Electro-Mechanical Steering System, Ship Gyro Pilot; Anti-aircraft Sound Locator, Searchlight, Universal Fire Control Director. Trade Name: *Sperry*.

SPRAGUE SPECIALTIES CO.—189 Beaver St., North Adams, Mass. Products—Electrolytic, Paper and Mica Condensers of all types; also Wire Wound Resistors. Trade Names: *Sprague, Koolohm*.

STACKPOLE CARBON CO.—Tannery St., St. Marys, Pa. Products—Variable Resistors, Fixed Carbon Resistors (Insulated and uninsulated), Tone Switches, Push Switches, Snap Switches, Slide Switches, Contacts, Iron Cores, Graphite Anodes for Tubes, Carbons for Flashlight, No. 6 and B Batteries, and all known carbon products. Trade Name: *Stackpole*.

STANDARD TRANSFORMER CORP.—1500 North Halsted St., Chicago, Ill. Products—Transformers to manufacturer's specifications, Amateur Transmitting; Public Address Transformers; Low Voltage Power Devices; Rectifiers; Electrical Specialties, etc. Trade Name: *Stancoor*.

STEWART-WARNER CORP.—1826 Diversey Parkway, Chicago, Ill. Product—Electric Sets: Compact, Table, Portable, Consoles; Battery Sets: Portable, Portable AC-DC, Table, Console; Combinations: Radio-Phonograph, Radio-Phonograph-Recorder; Television Sets: Radio-Video Console; Frequency Modulation Sets: FM-AM Table, FM-AM Console, FM-AM Radio-Phonograph; also Record-Players. Trade Names: *Stewart-Warner, Concert Grand*.

STROMBERG-CARLSON TELEPHONE MFG. CO.—100 Carlson Road, Rochester, N. Y. Products—Electric Sets: Table, Consoles; Combinations: Radio-Phonograph, Radio-Phonograph-Recorder; Television Sets: Radio-Video Consoles; Frequency Modulation Sets: Table, FM-AM Consoles; also Record-Players, Program Service Systems, Paging Systems, and Antenna Kits. Trade Names: *Stromberg-Carlson, Treasure Chest, Te-Lek-Tor, Duratec, Mine-A-Phone*.

SUPERIOR TUBE CO.—Post Office Drawer 191, Norristown, Pa. Products—Nickel Seamless and Lockseam Cathode Sleeves; Cathode Ray and Power Tubes in Nickel, "B" Monel, "K" Monel, Inconel, and Stainless Steel.

SUPREME INSTRUMENTS CORP.—414 Howard St., Greenwood, Miss. Products—Radio Testing Instruments.

SYNTHANE CORP.—Oaks, Pa. Products—Synthane Laminated Bakelite Sheets, Rods and Tubes; Plain and Printed Panels; Sub-Panels; Terminal Blocks; Synthographic Dials; Pierced and Threaded Coil Forms; Speaker Spiders and Voice Coil Bobbins; Punchings and Machined Parts. Trade Names: *Synthane, Synthographic*.

TUNG-SOL LAMP WORKS, INC.—95 Eighth Ave., Newark, N. J. Products—Radio Tubes and Radio Panel Bulbs. Trade Name: *Tung-Sol*.

UTAH RADIO PRODUCTS CO.—820 Orleans St., Chicago, Ill. Products—Loud Speakers, Transformers, Chokes, Vibrators, Resistors, Jacks, Volume Controls, Tone Controls, Jack Switches, Push Button Switches, Plugs, and Midget Motors. Trade Name: *Utah*.

WELLS-GARDNER & CO.—2701 No. Kildare Ave., Chicago, Ill. Products—Electric Sets: Compact, Table, Portable, Consoles; Battery Sets: Portable, Portable AC-DC, Table, Console; Combinations: Radio-Phonograph, Radio-Phonograph-Recorder. Trade Name: *Wells-Gardner*.

WESTON ELECTRICAL INSTRUMENT CORP.—614 Frelinghuysen Ave., Newark, N. J. Products—Electrical Indicating Instruments, Sensitive Relays and Associated Devices, Service and Tube Testing Equipment, Electrical Speed and Temperature Indicating Equipment, Photoelectric Devices and Photographic Exposure Meters, Weston Temperature Gauges and Laboratory Thermometers. Trade Names: *Weston, Photronic, Jewell*.

WM. H. WELSH CO.—2241 Indiana Ave., Chicago, Ill.—Products—Speaker Diaphragms.

ZENITH RADIO CORP.—6001 W. Dickens Ave., Chicago, Ill. Products—Radio Sets: Console, Table, Midget; Combination Radio-Phonograph, Battery, Portable and Automobile. Television Sets: Console, Table and Separate Video. Trade Name: *Zenith*.

**BUY
DEFENSE
SAVINGS
BONDS**

Bliley PRECISION-MADE *Crystal Units*



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Bliley Quartz Crystal Units are noted for their uniformly reliable operating characteristics. That's because they are built that way! Behind each finished unit lies the fruits of constant research, the application of painstaking engineering, and the skill of highly trained specialists. In no other way can a precision product be manufactured.

Catalog G-12 describes Bliley precision-made crystals and mountings for all frequencies from 20 kc. to 30 mc. See your local Bliley Distributor or write for your copy.

—|—

Bliley Electric Co.
Erie, Pa.

Official Kilocycle-Meter Conversion Table

Kilocycles (kc) to Meters (m), or Meters to Kilocycles

(Columns are Interchangeable)

kc or m	m or kc	kc or m	m or kc	kc or m	m or kc	kc or m	m or kc	kc or m	m or kc	kc or m	m or kc	kc or m	m or kc	kc or m	m or kc	kc or m	m or kc	kc or m	m or kc	kc or m	m or kc
10	30,000	1,000	300.0	2,000	150.0	3,000	100.0	4,000	75.00	5,000	60.00	6,000	50.00	7,000	42.86	8,000	37.50	9,000	33.33	10,000	30.00
20	15,000	1,010	297.0	2,010	149.3	3,010	99.7	4,010	74.81	5,010	59.88	6,010	49.92	7,010	42.80	8,010	37.45	9,010	33.30	10,010	30.00
30	10,000	1,020	294.1	2,020	148.5	3,020	99.3	4,020	74.63	5,020	59.76	6,020	49.83	7,020	42.74	8,020	37.41	9,020	33.26	10,020	30.00
40	7,500	1,030	291.3	2,030	147.8	3,030	99.0	4,030	74.44	5,030	59.64	6,030	49.75	7,030	42.67	8,030	37.36	9,030	33.22	10,030	30.00
50	6,000	1,040	288.5	2,040	147.1	3,040	98.7	4,040	74.26	5,040	59.52	6,040	49.67	7,040	42.61	8,040	37.31	9,040	33.19	10,040	30.00
60	5,000	1,050	285.7	2,050	146.3	3,050	98.4	4,050	74.07	5,050	59.41	6,050	49.59	7,050	42.55	8,050	37.27	9,050	33.15	10,050	30.00
70	4,286	1,060	283.0	2,060	145.6	3,060	98.0	4,060	73.89	5,060	59.29	6,060	49.50	7,060	42.49	8,060	37.22	9,060	33.11	10,060	30.00
80	3,750	1,070	280.4	2,070	144.9	3,070	97.7	4,070	73.71	5,070	59.17	6,070	49.42	7,070	42.43	8,070	37.17	9,070	33.08	10,070	30.00
90	3,333	1,080	277.8	2,080	144.2	3,080	97.4	4,080	73.53	5,080	59.06	6,080	49.34	7,080	42.37	8,080	37.13	9,080	33.04	10,080	30.00
100	3,000	1,090	275.2	2,090	143.5	3,090	97.1	4,090	73.35	5,090	58.94	6,090	49.26	7,090	42.31	8,090	37.08	9,090	33.00	10,090	30.00
110	2,727	1,100	272.7	2,100	142.9	3,100	96.8	4,100	73.17	5,100	58.82	6,100	49.18	7,100	42.25	8,100	37.04	9,100	32.97	10,100	30.00
120	2,500	1,110	270.3	2,110	142.2	3,110	96.5	4,110	72.99	5,110	58.71	6,110	49.10	7,110	42.19	8,110	36.99	9,110	32.93	10,110	30.00
130	2,308	1,120	267.9	2,120	141.5	3,120	96.2	4,120	72.82	5,120	58.59	6,120	49.02	7,120	42.13	8,120	36.95	9,120	32.89	10,120	30.00
140	2,143	1,130	265.5	2,130	140.8	3,130	95.8	4,130	72.64	5,130	58.48	6,130	48.94	7,130	42.08	8,130	36.90	9,130	32.86	10,130	30.00
150	2,000	1,140	263.2	2,140	140.2	3,140	95.5	4,140	72.46	5,140	58.37	6,140	48.86	7,140	42.02	8,140	36.86	9,140	32.82	10,140	30.00
160	1,875	1,150	260.9	2,150	139.5	3,150	95.2	4,150	72.29	5,150	58.25	6,150	48.78	7,150	41.96	8,150	36.81	9,150	32.79	10,150	30.00
170	1,765	1,160	258.6	2,160	138.9	3,160	94.9	4,160	72.12	5,160	58.14	6,160	48.70	7,160	41.90	8,160	36.76	9,160	32.75	10,160	30.00
180	1,667	1,170	256.4	2,170	138.2	3,170	94.6	4,170	71.94	5,170	58.03	6,170	48.62	7,170	41.84	8,170	36.72	9,170	32.72	10,170	30.00
190	1,579	1,180	254.2	2,180	137.6	3,180	94.3	4,180	71.77	5,180	57.92	6,180	48.54	7,180	41.78	8,180	36.67	9,180	32.68	10,180	30.00
200	1,500	1,190	252.1	2,190	137.0	3,190	94.0	4,190	71.60	5,190	57.80	6,190	48.47	7,190	41.72	8,190	36.63	9,190	32.64	10,190	30.00
210	1,429	1,200	250.0	2,200	136.4	3,200	93.8	4,200	71.43	5,200	57.69	6,200	48.39	7,200	41.67	8,200	36.59	9,200	32.61	10,200	30.00
220	1,364	1,210	247.9	2,210	135.7	3,210	93.5	4,210	71.26	5,210	57.58	6,210	48.31	7,210	41.61	8,210	36.54	9,210	32.57	10,210	30.00
230	1,304	1,220	245.9	2,220	135.1	3,220	93.2	4,220	71.09	5,220	57.47	6,220	48.23	7,220	41.55	8,220	36.50	9,220	32.54	10,220	30.00
240	1,250	1,230	243.9	2,230	134.5	3,230	92.9	4,230	70.92	5,230	57.36	6,230	48.15	7,230	41.49	8,230	36.45	9,230	32.50	10,230	30.00
250	1,200	1,240	241.9	2,240	133.9	3,240	92.6	4,240	70.75	5,240	57.26	6,240	48.08	7,240	41.44	8,240	36.41	9,240	32.47	10,240	30.00
260	1,154	1,250	240.0	2,250	133.3	3,250	92.3	4,250	70.59	5,250	57.14	6,250	48.00	7,250	41.38	8,250	36.36	9,250	32.43	10,250	30.00
270	1,111	1,260	238.1	2,260	132.7	3,260	92.0	4,260	70.42	5,260	57.03	6,260	47.92	7,260	41.32	8,260	36.32	9,260	32.40	10,260	30.00
280	1,071	1,270	236.2	2,270	132.2	3,270	91.7	4,270	70.26	5,270	56.93	6,270	47.85	7,270	41.27	8,270	36.28	9,270	32.36	10,270	30.00
290	1,034	1,280	234.4	2,280	131.6	3,280	91.5	4,280	70.09	5,280	56.82	6,280	47.77	7,280	41.21	8,280	36.23	9,280	32.33	10,280	30.00
300	1,000	1,290	232.6	2,290	131.0	3,290	91.2	4,290	69.93	5,290	56.71	6,290	47.69	7,290	41.15	8,290	36.19	9,290	32.29	10,290	30.00
310	968	1,300	230.8	2,300	130.4	3,300	90.9	4,300	69.77	5,300	56.60	6,300	47.62	7,300	41.10	8,300	36.14	9,300	32.26	10,300	30.00
320	938	1,310	229.0	2,310	129.9	3,310	90.6	4,310	69.61	5,310	56.50	6,310	47.54	7,310	41.04	8,310	36.10	9,310	32.22	10,310	30.00
330	909	1,320	227.3	2,320	129.3	3,320	90.4	4,320	69.44	5,320	56.39	6,320	47.47	7,320	40.98	8,320	36.06	9,320	32.19	10,320	30.00
340	882	1,330	225.6	2,330	128.8	3,330	90.1	4,330	69.28	5,330	56.29	6,330	47.39	7,330	40.93	8,330	36.01	9,330	32.15	10,330	30.00
350	857	1,340	223.9	2,340	128.2	3,340	89.8	4,340	69.12	5,340	56.18	6,340	47.32	7,340	40.87	8,340	35.97	9,340	32.12	10,340	30.00
360	833	1,350	222.2	2,350	127.7	3,350	89.6	4,350	68.97	5,350	56.07	6,350	47.24	7,350	40.82	8,350	35.93	9,350	32.09	10,350	30.00
370	811	1,360	220.6	2,360	127.1	3,360	89.3	4,360	68.81	5,360	55.97	6,360	47.17	7,360	40.76	8,360	35.89	9,360	32.05	10,360	30.00
380	789	1,370	219.0	2,370	126.6	3,370	89.0	4,370	68.65	5,370	55.87	6,370	47.10	7,370	40.71	8,370	35.84	9,370	32.02	10,370	30.00
390	769	1,380	217.4	2,380	126.1	3,380	88.8	4,380	68.49	5,380	55.76	6,380	47.02	7,380	40.65	8,380	35.80	9,380	31.98	10,380	30.00
400	750	1,390	215.8	2,390	125.5	3,390	88.5	4,390	68.34	5,390	55.66	6,390	46.95	7,390	40.60	8,390	35.76	9,390	31.95	10,390	30.00
410	732	1,400	214.3	2,400	125.0	3,400	88.2	4,400	68.18	5,400	55.56	6,400	46.88	7,400	40.54	8,400	35.71	9,400	31.91	10,400	30.00
420	714	1,410	212.8	2,410	124.5	3,410	88.0	4,410	68.03	5,410	55.45	6,410	46.80	7,410	40.49	8,410	35.67	9,410	31.88	10,410	30.00
430	698	1,420	211.3	2,420	124.0	3,420	87.7	4,420	67.87	5,420	55.35	6,420	46.73	7,420	40.43	8,420	35.63	9,420	31.85	10,420	30.00
440	682	1,430	209.8	2,430	123.5	3,430	87.6	4,430	67.72	5,430	55.26	6,430	46.66	7,430	40.38	8,430	35.59	9,430	31.81	10,430	30.00
450	667	1,440	208.3	2,440	123.0	3,440	87.2	4,440	67.57	5,440	55.15	6,440	46.58	7,440	40.32	8,440	35.55	9,440	31.78	10,440	30.00
460	652	1,450	206.9	2,450	122.4	3,450	87.0	4,450	67.42	5,450	55.05	6,450	46.51	7,450	40.27	8,450	35.50	9,450	31.75	10,450	30.00
470	638	1,460	205.5	2,460	122.0	3,460	86.7	4,460	67.26	5,460	54.95	6,460	46.44	7,460	40.21	8,460	35.46	9,460	31.71	10,460	30.00
480	625	1,470	204.1	2,470	121.5	3,470	86.5	4,470	67.11	5,470	54.84	6,470	46.37	7,470	40.16	8,470	35.42	9,470	31.68	10,470	30.00
490	612	1,480	202.7	2,480	121.0	3,480	86.2	4,480	66.96	5,480	54.74	6,480	46.30	7,480	40.11	8,480	35.38	9,480	31.65	10,480	30.00
500	600	1,490	201.3	2,490	120.5	3,490	86.0	4,490	66.82	5,490	54.64	6,490	46.22	7,490	40.05	8,490	35.34	9,490	31.61	10,490	30.00
510	588	1,500	200.0	2,500	120.0	3,500	85.7	4,500	66.67	5,500	54.55	6,500	46.16	7,500	40.00	8,500	35.29	9,500	31.58	10,500	30.00
520	577	1,510	198.7	2,510	119.5	3,510	85.5	4,510	66.52	5,510	54.45	6,510	46.08	7,510	39.95	8,510	35.25	9,510	31.55	10,510	30.00
530	566	1,520	197.4	2,520	119.0	3,520	85.2	4,520	66.37	5,520	54.35	6,520	46.01	7,520	39.89	8,520	35.21	9,520	31.51	10,520	30.00
540	556	1,530	196.1	2,530	118.6	3,530	85.0	4,530	66.23	5,530	54.25	6,530	45.94	7,530	39.84	8,530	35.17	9,530	31.48	10,530	30.00
550	545	1,540	194.8	2,540	118.1	3,540	84.7	4,540	66.08	5,540	54.15	6,540									



Frequency Measuring Service



Why You Should Subscribe to This RCA Service

Stringent FCC regulations make imperative vigilant supervision of emitted signals.

No modern transmitter, while stable, reliable, and skillfully operated is totally immune from occasional frequency drifts. Such drifts occur when least expected. It is extremely important that they be detected and corrected before they assume serious proportions.

Local checking equipment is of value, but can only be relied upon if such equipment is occasionally calibrated against standards of unquestioned accuracy.

RCA's laboratories, which make several thousand measurements per month, have gained an unrivaled background of many years of experience in systematic, precise, measurements of the frequencies of RCA and foreign commercial radio stations, operating on frequencies ranging from .013 to 140 Megacycles.

Numerous Broadcasting, Police, Aviation, and Commercial stations throughout the United States, and in Canada, Mexico, and the West Indies, rely with confidence upon this RCA Service.

Regular scanning of all frequency bands permits close supervision of the accuracy of any transmitter subscribing to the Measuring Service.

Excessive frequency deviations or development of spurious radiations in a subscriber's transmitter are reported immediately to the subscriber by telephone or telegraph.

The accuracy of RCA Standard Oscillators is better than two parts in ten million which means that measurements in the broadcast band are covered within a fraction of a cycle per second.

Measurements made by RCA Laboratories are acceptable to the FCC.

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For Emergency Service Phone or Telegraph the Nearer Laboratory
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New York, N. Y.
66 Broad Street
Phone: HAnover 2-1811

Commercial Department
San Francisco, Calif.
28 Geary Street
Phone: Garfield 4200

Riverhead, N. Y.
Phone: Riverhead 2290
or Telegraph via Western Union
Riverhead, New York

Point Reyes, Calif.
Phone: Inverness 9-W
or telegraph via Western Union
Point Reyes Station
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The Communications Act of 1934

(Provisions Relating to Broadcasting and Allied Services, With Sections Dealing Exclusively With Public Utility Common Carriers Omitted)

Passed by 73rd Congress; Approved June 19, 1934; With Amendments

TITLE I—GENERAL PROVISIONS

PURPOSES OF ACT; CREATION OF FEDERAL COMMUNICATIONS COMMISSION

SECTION 1. For the purpose of regulating interstate and foreign commerce in communication by wire and radio so as to make available, so far as possible, to all people of the United States a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges, for the purpose of the national defense, for the purpose of promoting safety of life and property through the use of wire and radio communication, and for the purpose of securing a more effective execution of this policy by centralizing authority heretofore granted by law to several agencies and by granting additional authority with respect to interstate and foreign commerce in wire and radio communication, there is hereby created a commission to be known as the "Federal Communications Commission," which shall be constituted as hereinafter provided, and which shall execute and enforce the provisions of this Act.¹

APPLICATION OF ACT

SEC. 2. (a) The provisions of this Act shall apply to all interstate and foreign communication by wire or radio and all interstate and foreign transmission of energy by radio, which originate and/or is received within the United States, and to all persons engaged within the United States in such communication or such transmission of energy by radio, and to the licensing and regulating of all radio stations as hereinafter provided; but it shall not apply to persons engaged in wire or radio communication or transmission in the Philippine Islands or the Canal Zone, or to wire or radio communication or transmission wholly within the Philippine Islands or the Canal Zone.

(b) Subject to the provisions of section 301, nothing in this Act shall be construed to apply or to give the Commission jurisdiction with respect to (1) charges, classifications, practices, services, facilities, or regulations for or in connection with intrastate communication service of any carrier, or (2) any carrier engaged in interstate or foreign communication solely through physical connection with the facilities of another carrier not directly or indirectly controlling or controlled by, or under direct or indirect common control with, such carrier; except that sections 201 to 205 of this Act, both inclusive, shall, except as otherwise provided therein, apply to carriers described in clause (2).

DEFINITIONS

SEC. 3. For the purposes of this Act, unless the context otherwise requires—
(a) "Wire communication" or "communication by wire" means the transmission of writing, signs, signals, pictures, and sounds of all kinds by aid of wire, cable, or other like connection between the points of origin and reception of such transmission, including all instrumentalities, facilities, apparatus, and services (among other things, the receipt, forwarding, and delivery of communications) incidental to such transmission.

(b) "Radio communication" or "communication by radio" means the transmission by radio of writing, signs, signals, pictures, and sounds of all kinds, including all instrumentalities, facilities, apparatus, and services (among other things, the receipt, forwarding, and delivery of communications) incidental to such transmission.

(c) "Licensee" means the holder of a radio station license granted or continued in force under authority of this Act.

(d) "Transmission of energy by radio" or "radio transmission of energy" includes both such transmission and all instrumentalities, facilities, and services incidental to such transmission.

(e) "Interstate communication" or "interstate transmission" means communication or transmission (1) from any State, Territory, or possession of the United States (other than the Philippine Islands and the Canal Zone), or the District of Columbia, to any other State, Territory, or possession of the United States (other than the Philippine Islands and the Canal Zone), or the District of Columbia, (2) from or to the United States to or from the Philippine Islands or the Canal Zone, insofar as such communication or transmission takes place within the United States, or (3) between points within the United States but through a foreign country; but shall not include wire communication between points within the same State, Territory, or possession of the United States, or the District of Columbia, through any place outside thereof, if such communication is regulated by a State commission.

(f) "Foreign communication" or "foreign transmission" means communication or transmission from or to any place in the United States to or from a foreign country, or between a station in the United States and a mobile station located outside the United States.

(g) "United States" means the several States and Territories, the District of Columbia, and the possessions of the United States, but does not include the Philippine Islands or the Canal Zone.

(h) "Common carrier" or "carrier" means any person engaged as a common carrier for hire, in interstate or foreign communication by wire or radio or in

interstate or foreign radio transmission of energy, except where reference is made to common carriers not subject to this Act; but a person engaged in radio broadcasting shall not, insofar as such person is so engaged, be deemed a common carrier.

(i) "Person" includes an individual, partnership, association, joint-stock company, trust, or corporation.

(j) "Corporation" includes any corporation, joint-stock company, or association.

(k) "Radio station" or "station" means a station equipped to engage in radio communication or radio transmission of energy.

(l) "Mobile station" means a radio-communication station capable of being moved and which ordinarily does move.

(m) "Land station" means a station, other than a mobile station, used for radio communication with mobile stations.

(n) "Mobile service" means the radio-communication service carried on between mobile stations and land stations, and by mobile stations communicating among themselves.

(o) "Broadcasting" means the dissemination of radio communications intended to be received by the public, directly or by the intermediary of relay stations.

(p) "Chain broadcasting" means simultaneous broadcasting of an identical program by two or more connected stations.

(q) "Amateur station" means a radio station operated by a duly authorized person interested in radio technique solely with a personal aim and without pecuniary interest.

(r) "Telephone exchange service" means service within a telephone exchange, or within a connected system of telephone exchanges within the same exchange area operated to furnish to subscribers intercommunicating service of the character ordinarily furnished by a single exchange, and which is covered by the exchange service charge.

(s) "Telephone toll service" means telephone service between stations in different exchange areas for which there is made a separate charge not included in contracts with subscribers for exchange service.

(t) "State commission" means the commission, board, or official (by whatever name designated) which under the laws of any State has regulatory jurisdiction with respect to intrastate operations of carriers.

(u) "Connecting carrier" means a carrier described in clause (2) of section 2 (b).

(v) "State" includes the District of Columbia and the Territories and possessions.

PROVISIONS RELATING TO THE COMMISSION

SEC. 4. (a) The Federal Communications Commission (in this Act referred to as the "Commission") shall be composed of seven commissioners appointed by the President, by and with the advice and consent of the Senate, one of whom the President shall designate as chairman.

(b) Each member of the Commission shall be a citizen of the United States. No member of the Commission or person in its employ shall be financially interested in the manufacture or sale of radio apparatus or of apparatus for wire or radio communication; in communication by wire or radio or in radio transmission of energy; in any company furnishing services or such apparatus to any company engaged in communication by wire or radio or to any company manufacturing or selling apparatus used for communication by wire or radio; or in any company owning stocks, bonds, or other securities of any such company; nor be in the employ of or hold any official relation to any person subject to any of the provisions of this Act, nor own stocks, bonds, or other securities of any corporation subject to any of the provisions of this Act. Such commissioners shall not engage in any other business, vocation, or employment. Not more than four commissioners shall be members of the same political party.

(c) The commissioners first appointed under this Act shall continue in office for the terms of one, two, three, four, five, six, and seven 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 seven years; except that any person chosen to fill a vacancy shall be appointed only for the unexpired term of the commissioner whom he succeeds. No vacancy in the Commission shall impair the right of the remaining commissioners to exercise all the powers of the Commission.

(d) Each commissioner shall receive an annual salary of \$10,000, payable in monthly installments.

(e) The principal office of the Commission shall be in the District of Columbia, where its general sessions shall be held; but whenever the convenience of the public or of the parties may be promoted or delay or expense prevented thereby, the Commission may hold special sessions in any part of the United States.

(f) (1) Without regard to the civil-service laws or the Classification Act of 1923, as amended, (1) the Commission may appoint and prescribe the duties and fix the salaries of a secretary, a director for each division, a chief engineer and not more than three assistants, a chief accountant and not more than three assistants, a general counsel and not more than three assistants, and temporary counsel designated by the Commission for the performance of special services, and (2) each commissioner may appoint and prescribe the duties of a secretary at an annual salary not to exceed \$4,000. The general counsel and the chief engineer and the chief accountant² shall each receive an annual salary of not to exceed \$9,000; the secretary shall receive an annual salary of not to exceed \$7,500; the director of each division shall receive an annual salary of not to exceed \$7,500; and no assistant shall receive an annual salary in excess of \$7,500. The Commission shall have authority, subject to the

¹ The provision relating to safety of life and property were added by "An Act to amend the Communications Act of 1934, approved June 19, 1934, for the purpose of promoting safety of life and property at sea through the use of wire and radio communications, to make more effective the International Convention for the Safety of Life at Sea, 1929, and for other purposes." Public-No. 87—75th Congress, 1st Session, approved May 20, 1937.

The Communications Act of 1934

(Provisions Relating to Broadcasting and Allied Services, With Sections Dealing Exclusively With Public Utility Common Carriers Omitted)

Passed by 73rd Congress; Approved June 19, 1934; With Amendments

provisions of the civil-service laws and the Classification Act of 1923, as amended, to appoint such other officers, engineers, accountants,² inspectors, attorneys, examiners, and other employees as are necessary in the execution of its functions.

(f) (2) The Commission shall fix a reasonable rate of extra compensation for overtime services of inspectors in charge and radio inspectors of the Field Division of the Engineering Department of the Federal Communications Commission, who may be required to remain on duty between the hours of 5 o'clock postmeridian and 8 o'clock antemeridian or on Sundays or holidays to perform services in connection with the inspection of ship radio equipment and apparatus for the purpose of part II of title III of this Act, on the basis of one-half day's additional pay for each two hours or fraction thereof of at least one hour that the overtime extends beyond 5 o'clock postmeridian (but not to exceed two and one-half days' pay for the full period from 5 o'clock postmeridian to 8 o'clock antemeridian) and two additional days' pay for Sunday or holiday duty. The said extra compensation for overtime services shall be paid by the master, owner, or agent of such vessel to the local United States collector of customs or his representative, who shall deposit such collection into the Treasury of the United States to an appropriately designated receipt account: *Provided*, That the amounts of such collections received by the said collector of customs or his representatives shall be covered into the Treasury as miscellaneous receipts; and the payments of such extra compensation to the several employees entitled thereto shall be made from the annual appropriations for salaries and expenses of the Commission: *Provided further*, That to the extent that the annual appropriations which are hereby authorized to be made from the general fund of the Treasury are insufficient there are here authorized to be appropriated from the general fund of the Treasury such additional amounts as may be necessary to the extent that the amounts of such receipts are in excess of the amounts appropriated: *Provided further*, That such extra compensation shall be paid if such field employees have been ordered to report for duty and have so reported whether the actual inspection of the radio equipment or apparatus takes place or not: *And provided further*, That in those ports where customary working hours are other than those hereinabove mentioned, the inspectors in charge are vested with authority to regulate the hours of such employees so as to agree with prevailing working hours in said ports where inspections are to be made, but nothing contained in this proviso shall be construed in any manner to alter the length of a working day for the inspectors in charge and radio inspectors or the overtime pay herein fixed.^{3a}

(g) The Commission may make such expenditures (including expenditures for rent and personal services at the seat of government and elsewhere, for office supplies, 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, including all necessary expenses for transportation incurred by the commissioners or by their employees, under their orders, in making any investigation or upon any official business in any other places than in the city of Washington, shall be allowed and paid on the presentation of itemized vouchers therefor approved by the chairman of the Commission or by such other member or officer thereof as may be designated by the Commission for that purpose.

(h) Four members of the Commission shall constitute a quorum thereof. The Commission shall have an official seal which shall be judicially noticed.

(i) The Commission may perform any and all acts, make such rules and regulations, and issue such orders, not inconsistent with this Act, as may be necessary in the execution of its functions.

(j) The Commission may conduct its proceedings in such manner as will best conduce to the proper dispatch of business and to the ends of justice. No commissioner shall participate in any hearing or proceeding in which he has a pecuniary interest. Any party may appear before the Commission and be heard in person or by attorney. Every vote and official act of the Commission shall be entered of record, and its proceedings shall be public upon the request of any party interested. The Commission is authorized to withhold publication of records or proceedings containing secret information affecting the national defense.

(k) The Commission shall make an annual report to Congress, copies of which shall be distributed as are other reports transmitted to Congress. Such report shall contain such information and data collected by the Commission as may be considered of value in the determination of questions connected with the regulation of interstate and foreign wire and radio communication and radio transmission of energy, together with such recommendations as to additional legislation relating thereto as the Commission may deem necessary. *Provided*, That the Commission shall make a special report not later than February 1, 1935, recommending such amendments to this Act as it deems desirable in the public interest: *Provided further*, That each year, at the beginning of the session of the Congress, the Commission shall report to the Congress whether or not any new wire or radio communication legislation is required better to insure safety of life and property. If any such new legislation is considered necessary the Commission shall make specific recommendations thereof to the Congress.³

(l) All reports of investigations made by the Commission shall be entered of record, and a copy thereof shall be furnished to the party who may have complained, and to any common carrier or licensee that may have been complained of.

(m) The Commission shall provide for the publication of its reports and decisions in such form and manner as may be best adapted for public information and use, and such authorized publications shall be competent evidence of the reports and decisions of the Commission therein contained in all courts

of the United States and of the several States without any further proof or authentication thereof.

(n) Rates of compensation of persons appointed under this section shall be subject to the reduction applicable to officers and employees of the Federal Government generally.

(o) *For the purpose of obtaining maximum effectiveness from the use of radio and wire communications in connection with safety of life and property, the Commission shall investigate and study all phases of the problem and the best methods of obtaining the cooperation and coordination of these systems.*

DIVISIONS OF THE COMMISSION

SEC. 5. (a) The Commission is hereby authorized by its order to divide the members thereof into not more than three divisions, each to consist of not less than three members. Any commissioner may be assigned to and may serve upon such division or divisions as the Commission may direct, and each division shall choose its own chairman. In case of a vacancy in any division, or of absence or inability to serve thereon of any commissioner thereto assigned, the chairman of the Commission or any commissioner designated by him for that purpose may temporarily serve on said division until the Commission shall otherwise order.

(b) The Commission may by order direct that any of its work, business, or functions arising under this Act, or under any other Act of Congress, or in respect of any matter which has been or may be referred to the Commission by Congress or by either branch thereof, be assigned or referred to any of said divisions for action thereon, and may by order at any time amend, modify, supplement, or rescind any such direction. All such orders shall take effect forthwith and remain in effect until otherwise ordered by the Commission.

(c) In conformity with and subject to the order or orders of the Commission in the premises, each division so constituted shall have power and authority by a majority thereof to hear and determine, order, certify, report, or otherwise act as to any of said work, business, or functions so assigned or referred to it for action by the Commission, and in respect thereof the division shall have all the jurisdiction and powers now or then conferred by law upon the Commission, and be subject to the same duties and obligations. Any order, decision, or report made or other action taken by any of said divisions in respect of any matters so assigned or referred to it shall have the same force and effect, and may be made, evidenced, and enforced in the same manner as if made, or taken by the Commission, subject to rehearing by the Commission as provided in section 405 of this Act for rehearing cases decided by the Commission. The secretary and seal of the Commission shall be the secretary and seal of each division thereof.

(d) Nothing in this section contained, or done pursuant thereto, shall be deemed to divest the Commission of any of its powers.

(e) The Commission is hereby authorized by its order to assign or refer any portion of its work, business, or functions arising under this or any other Act of Congress or referred to it by Congress, or either branch thereof, to an individual commissioner, or to a board composed of an employee or employees of the Commission, to be designated by such order, for action thereon, and by its order at any time to amend, modify, supplement, or rescind any such assignment or reference: *Provided, however*, That this authority shall not extend to investigations instituted upon the Commission's own motion or, without the consent of the parties thereto, to contested proceedings involving the taking of testimony at public hearings, or to investigations specifically required by this Act. All such orders shall take effect forthwith and remain in effect until otherwise ordered by the Commission. In case of the absence or inability for any other reason to act of any such individual commissioner or employee designated to serve upon any such board, the chairman of the Commission may designate another commissioner or employee, as the case may be, to serve temporarily until the Commission shall otherwise order. In conformity with and subject to the order or orders of the Commission in the premises, any such individual commissioner, or board acting by a majority thereof, shall have power and authority to hear and determine, order, certify, report, or otherwise act as to any of said work, business, or functions so assigned or referred to him or it for action by the Commission and in respect thereof shall have all the jurisdiction and powers now or then conferred by law upon the Commission and be subject to the same duties and obligations. Any order, decision, or report made or other action taken by any such individual commissioner or board in respect of any matters so assigned or referred shall have the same force and effect, and may be made, evidenced, and enforced in the same manner as if made or taken by the Commission. Any party affected by any order, decision, or report of any such individual commissioner or board may file a petition for rehearing by the Commission or a division thereof and every such petition shall be passed upon by the Commission or a division thereof. Any action by a division upon such a petition shall itself be subject to rehearing by the Commission, as provided in section 405 of this Act and in subsection (c). The Commission may make and amend rules for the conduct of proceedings before such individual commissioner or board and for the rehearing of such action before a division of the Commission or the Commission. The secretary and seal of the Commission shall be the secretary and seal of such individual commissioner or board. * * *

TITLE III—PROVISIONS RELATING TO RADIO PART I—GENERAL PROVISIONS

LICENSE FOR RADIO COMMUNICATION OR TRANSMISSION OF ENERGY

SECTION 301. It is the purpose of this Act, among other things, 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 persons for limited periods of time, under licenses granted by Federal authority, and no such license shall be considered to create any

² The provisions relating to accountants were added by "An Act to amend paragraph (f) of Sec. 4 of the Communications Act of 1934," Public, No. 423 74th Congress, approved, Jan. 22, 1936.

^{3a} Subsection (f) (2) of Section 4 approved Mar. 23, 1941.

³ The second proviso was added by Public—No. 97—75th Congress, 1st Session, approved May 20, 1937.

⁴ Subsection (o) of section 4 was added by "An Act to amend the Communications Act of 1934", Public—No. 97—75th Congress, approved May 20, 1937.

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right, beyond the terms, conditions, and periods of the license. No person 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, 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 or aircraft of the United States; or (f) upon any other mobile stations within the jurisdiction of the United States, except under and in accordance with this Act and with a license in that behalf granted under the provisions of this Act.

ZONES⁵

GENERAL POWERS OF COMMISSION

SEC. 303. Except as otherwise provided in this Act, the Commission from time to time, as public convenience, interest, or necessity requires, shall—

- (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 to the various classes of stations, and assign frequencies 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 sharpness 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 Act: *Provided, however,* That changes in the frequencies, authorized power, or in the time of operation of any station, shall not be made without the consent of the station licensee unless, after a public hearing, the Commission shall determine that such changes will promote public convenience or interest or will serve public necessity, or the provisions of this Act will be more fully complied with;
- (g) Study new uses for radio, provide for experimental uses of frequencies, and generally encourage the larger and more effective use of radio in the public interest;
- (h) Have authority to establish areas or zones to be served by any station;
- (i) Have authority to make special regulations applicable to radio stations engaged in chain broadcasting;
- (j) 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;
- (k) 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;
- (l) Have authority 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 citizens of the United States as the Commission finds qualified;
- (m) (1) Have authority to suspend the license of any operator upon proof sufficient to satisfy the Commission that the licensee—
(A) has violated any provision of any Act, treaty, or convention binding on the United States, which the Commission is authorized to administer, or any regulation made by the Commission under any such Act, treaty, or convention; or
(B) has failed to carry out a lawful order of the master or person lawfully in charge of the ship or aircraft on which he is employed; or
(C) has willfully damaged or permitted radio apparatus or installations to be damaged; or
(D) has transmitted superfluous radio communications or signals or communications containing profane or obscene words, language, or meaning, or has knowingly transmitted—
(1) false or deceptive signals or communications, or
(2) a call signal or letter which has not been assigned by proper authority to the station he is operating; or
(E) has willfully or maliciously interfered with any other radio communications or signals; or
(F) has obtained or attempted to obtain, or has assisted another to obtain or attempt to obtain, an operator's license by fraudulent means.
(2) No order of suspension of any operator's license shall take effect until fifteen days' notice in writing thereof, stating the cause for the proposed suspension, has been given to the operator licensee who may make written application to the Commission at any time within said fifteen days for a hearing upon such order. The notice to the operator licensee shall not be effective until actually received by him, and from that time he shall have fifteen days in which to mail the said application. In the event that physical conditions pre-

vent mailing of the application at the expiration of the fifteen-day period, the application shall then be mailed as soon as possible thereafter, accompanied by a satisfactory explanation of the delay. Upon receipt by the Commission of such application for hearing, said order of suspension shall be held in abeyance until the conclusion of the hearing which shall be conducted under such rules as the Commission may prescribe. Upon the conclusion of said hearing the Commission may affirm, modify, or revoke said order of suspension.⁶

(n) Have authority to inspect all radio installations associated with stations required to be licensed by any Act or which are subject to the provisions of any Act, treaty, or convention binding on the United States, to ascertain whether in construction, installation, and operation they conform to the requirements of the rules and regulations of the Commission, the provisions of any Act, the terms of any treaty or convention binding on the United States, and the conditions of the license or other instrument of authorization under which they are constructed, installed, or operated.⁷

Sec. 302. (a) For the purposes of this title 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, and the District of Columbia; 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 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, and California.

(b) The Virgin Islands, Puerto Rico, Alaska, Guam, American Samoa, and the Territory of Hawaii are expressly excluded from the zones herein established.

- (o) Have authority to designate call letters of all stations;
- (p) Have authority to cause to be published such call letters and such other announcements and data as in the judgment of the Commission 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;
- (q) Have authority to require the painting and/or illumination of radio towers if and when in its judgment such towers constitute, or there is a reasonable possibility that they may constitute, a menace to air navigation.
- (r) Make such rules and regulations and prescribe such restrictions and conditions, not inconsistent with law, as may be necessary to carry out the provisions of this Act, or any international radio or wire communications treaty or convention, or regulations annexed thereto, including any treaty or convention insofar as it relates to the use of radio, to which the United States is or may hereafter become a party.⁸

WAIVER BY LICENSEE

SEC. 304. No station license shall be granted by the Commission until the applicant therefor shall have signed a waiver of any claim to the use of any particular frequency 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.

GOVERNMENT-OWNED STATIONS

SEC. 305. (a) Radio stations belonging to and operated by the United States shall not be subject to the provisions of sections 301 and 303 of this Act. All such Government stations shall use such frequencies 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 designated to prevent interference with other radio stations and the rights of others as the Commission may prescribe.

(b) Radio stations on board vessels of the United States Shipping Board Bureau or the United States Shipping Board Merchant Fleet Corporation or the Inland and Coastwise Waterways Service shall be subject to the provisions of this title.

(c) 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 Commission.

FOREIGN SHIPS

SEC. 306. Section 301 of this Act shall not apply to any person 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 accordance with such regulations designed to prevent interference as may be promulgated under the authority of this Act.

ALLOCATION OF FACILITIES; TERMS OF LICENSES

SEC. 307. (a) The Commission, 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.

(b) In considering applications for licenses, and modifications and renewals thereof, when and insofar as there is demand for the same the Commission shall make such distribution of licenses, frequencies, hours of operation, and of power among the several States and communities as to provide a fair, efficient, and equitable distribution of radio service to each of the same.⁹

(c) The Commission shall study the proposal that Congress by statute allocate fixed percentages of radio broadcasting facilities to particular types or kinds of non-profit radio programs or to persons identified with particular types or kinds of non-profit activities, and shall report to Congress, not later

⁵ Sec. 302 was repealed by "AN ACT relating to the allocation of radio facilities." Public—No. 652—74th Congress, approved, June 5, 1936. The text of Sec. 302 was as follows:

⁸ Subsections (m) and (n) of section 303 were amended and subsection (r) of section 303 was added by Public—No. 97—75th Congress, 1st Session, approved May 20, 1937.

⁹ Subsection (b) of section 307 was amended by Public—No. 652—74th Congress, approved June 5, 1936.

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than February 1, 1935, its recommendations together with the reasons for the same.

(d) No license granted for the operation of a broadcasting station shall be for a longer term than three years and no license so granted for any other class of station shall be for a longer term than five 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 three years in the case of broadcasting licenses and not to exceed five years in the case of other licenses, but action of the Commission with reference to the granting of such application for the renewal of a license shall be limited to and governed by the same considerations and practice which affect the granting of original applications.

(e) No renewal of an existing station license shall be granted more than thirty days prior to the expiration of the original license.

APPLICATIONS FOR LICENSES; CONDITIONS IN LICENSE FOR FOREIGN COMMUNICATION

SEC. 308. (a) The Commission may grant licenses, renewal of licenses, and modification of licenses only upon written application therefor received by it: *Provided, however*, That in cases of emergency found by the Commission, licenses, renewals of licenses, and modifications of licenses, for stations on vessels or aircraft of the United States, may be issued under such conditions as the Commission may impose, without such formal application. Such licenses, however, shall in no case be for a longer term than three months: *Provided further*, That the Commission may issue by cable, telegraph, or radio a permit for the operation of a station on a vessel of the United States at sea, effective in lieu of a license until said vessel shall return to a port of the continental United States.

(h) All such applications shall set forth such facts as the Commission 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 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 Commission, 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.

(c) The Commission 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.

HEARINGS ON APPLICATIONS FOR LICENSES; FORM OF LICENSES; CONDITIONS ATTACHED TO LICENSES

SEC. 309. (a) If upon examination of any application for a station license or for the renewal or modification of a station license the Commission 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 Commission 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.

(b) Such station licenses as the Commission 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:

(1) The station license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized therein.

(2) Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of this Act.

(3) Every license issued under this Act shall be subject in terms to the right of use or control conferred by section 606 hereof.

LIMITATION ON HOLDING AND TRANSFER OF LICENSES

SEC. 310. (a) The station license required hereby shall not be granted to or held by—

(1) Any alien or the representative of any alien;

(2) Any foreign government or the representative thereof;

(3) Any corporation organized under the laws of any foreign government;

(4) Any corporation of which any officer or director is an alien or of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof, or by any corporation organized under the laws of a foreign country;

(5) Any corporation directly or indirectly controlled by any other corporation of which any officer or more than one-fourth of the directors are aliens, or of which more than one-fourth of the capital stock is owned of record or voted, after June 1, 1935, by aliens, their representatives, or by a foreign government or representative thereof, or by any corporation organized under

the laws of a foreign country, if the Commission finds that the public interest will be served by the refusal or the revocation of such license.

Nothing in this subsection shall prevent the licensing of radio apparatus on board any vessel, aircraft, or other mobile station of the United States when the installation and use of such apparatus is required by Act of Congress or any treaty to which the United States is a party.

(h) The station license required hereby, the frequencies 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, or indirectly by transfer of control of any corporation holding such license, to any person, unless the Commission shall, after securing full information, decide that said transfer is in the public interest, and shall give its consent in writing.

REFUSAL OF LICENSES AND PERMITS IN CERTAIN CASES

SEC. 311. The Commission is hereby directed to refuse a station license and/or the permit hereinafter required for the construction of a station to any person (or to any person directly or indirectly controlled by such person) whose license has been revoked by a court under section 313, and is hereby authorized to refuse such station license and/or permit to any other person (or to any person directly or indirectly controlled by such person) which has been finally adjudged guilty by a Federal court of unlawfully monopolizing or attempting unlawfully to monopolize, radio communication, 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 stop the United States or any person aggrieved from proceeding against such person 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 corporation.

REVOCAION OF LICENSES

SEC. 312. (a) Any station license may be revoked for false statements either in the application or in the statement of fact which may be required by section 308 hereof, or because of conditions revealed by such statements of fact as may be required from time to time which would warrant the Commission in refusing to grant a license on an original application, or for failure to operate substantially as set forth in the license, or for violation of or failure to observe any of the restrictions and conditions of this Act or of any regulation of the Commission authorized by this Act or by a treaty ratified by the United States: *Provided, however*, That no such order of revocation shall take effect until fifteen days' notice in writing thereof, stating the cause for the proposed revocation, has been given to the licensee. Such licensee may make written application to the Commission at any time within said fifteen 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 the hearing conducted under such rules as the Commission may prescribe. Upon the conclusion of said hearing the Commission may affirm, modify, or revoke said order of revocation.

(h) Any station license hereafter granted under the provisions of this Act or the construction permit required hereby and hereafter issued, may be modified by the Commission either for a limited time or for the duration of the term thereof, if in the judgment of the Commission such action will promote the public interest, convenience, and necessity, or the provisions of this Act or of any treaty ratified by the United States will be more fully complied with: *Provided, however*, That no such order of modification shall become final until the holder of such outstanding license or permit shall have been notified in writing of the proposed action and the grounds or reasons therefor and shall have been given reasonable opportunity to show cause why such an order of modification should not issue.

APPLICATION OF ANTITRUST LAWS

SEC. 313. 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 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 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.

PRESERVATION OF COMPETITION IN COMMERCE

SEC. 314. After the effective date of this Act no person engaged directly, or indirectly through any person directly or indirectly controlling or controlled by, or under direct or indirect common control with, such person, or through an agent, or otherwise, in the business of transmitting and/or receiving 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,

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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 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 engaged directly, or indirectly through any person directly or indirectly controlling or controlled by, or under direct or indirect common control with, such person, or through an agent, 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.

FACILITIES FOR CANDIDATES FOR PUBLIC OFFICE

SEC. 315. 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 Commission 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.

LOTTERIES AND OTHER SIMILAR SCHEMES

SEC. 316. No person shall broadcast by means of any radio station for which a license is required by any law of the United States, and no person operating any such station shall knowingly permit the broadcasting of, any advertisement of or information concerning any lottery, gift enterprise, or similar scheme, offering prizes dependent in whole or in part upon lot or chance, or any list of the prizes drawn or awarded by means of any such lottery, gift enterprise, or scheme, whether said list contains any part or all of such prizes. Any person violating any provision of this section shall, upon conviction thereof be fined not more than \$1,000 or imprisoned not more than one year, or both for each and every day during which such offense occurs.

ANNOUNCEMENT THAT MATTER IS PAID FOR

SEC. 317. 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 shall, at the time the same is so broadcast, be announced as paid for or furnished, as the case may be, by such person.

OPERATION OF TRANSMITTING APPARATUS

SEC. 318. 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, and 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 Commission: *Provided*, however, That the Commission if it shall find that the public interest, convenience, or necessity will be served thereby may waive or modify the foregoing provisions of this section for the operation of any station except (1) stations for which licensed operators are required by international agreement, (2) stations for which licensed operators are required for safety purposes, (3) stations engaged in broadcasting, and (4) stations operated as common carriers on frequencies below thirty thousand kilocycles: *Provided further*, That the Commission shall have power to make special regulations governing the granting of licenses for the use of automatic radio devices and for the operation of such devices.*

CONSTRUCTION PERMITS

SEC. 319. (a) 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 this Act takes effect, unless a permit for its construction has been granted by the Commission upon written application therefor. The Com-

* The provision in section 318 were added by "An Act to amend section 318 of the Communications Act of 1934." Public—No. 26—75th Congress, 1st Session, approved March 29, 1937.

mission 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 Commission 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 desired to 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 Commission may require. Such application shall be signed by the applicant under oath or affirmation.

(b) 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 Commission 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 without the approval of the Commission. 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 of which a permit has been granted, and upon it being made to appear to the Commission 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 Commission since the granting of the permit would, in the judgment of the Commission, make the operation of such station against the public interest, the Commission 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.

DESIGNATION OF STATIONS LIABLE TO INTERFERE WITH DISTRESS SIGNALS

SEC. 320. The Commission 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 frequencies designated for signals of distress and radio communications relating thereto during the entire period the transmitter of such station is in operation.

DISTRESS SIGNALS AND COMMUNICATIONS

SEC. 321*. (a) The transmitting set in a radio station on shipboard 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, when such station is sending radio communications or signals of distress and radio communications relating thereto.*

(b) 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 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.

INTERCOMMUNICATION IN MOBILE SERVICE

SEC. 322*. Every land station open to general public service between the coast and vessels or aircraft at sea shall, within the scope of its normal operations, be bound to exchange radio communications or signals with any ship or aircraft station at sea; and each station on shipboard or aircraft at sea shall, within the scope of its normal operations, be bound to exchange radio communications or signals with any other station on shipboard or aircraft at sea or with any land station open to general public service between the coast and vessels or aircraft at sea: *Provided*, That such exchange of radio communication shall be without distinction as to radio systems or instruments adopted by each station.*

INTERFERENCE BETWEEN GOVERNMENT AND COMMERCIAL STATIONS

SEC. 323. (a) 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 fifteen minutes of each hour, local standard time.

(b) The Government stations for which the above-mentioned division of time is established shall transmit radio communications or signals only during the first fifteen minutes of each hour, local standard time, except in case

* Sections 321, 322 and 329 were amended by Public—No. 97—75th Congress, 1st Session, approved May 20, 1937.

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of signals or radio communications relating to vessels in distress and vessel requests for information as to course, location, or compass direction.

USE OF MINIMUM POWER

SEC. 324. 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.

FALSE DISTRESS SIGNALS; REBROADCASTING; STUDIOS OF FOREIGN STATIONS

SEC. 325. (a) No person 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.

(b) No person shall be permitted to locate, use, or maintain a radio broadcast studio or other place or apparatus from which or whereby sound waves are converted into electrical energy, or mechanical or physical reproduction of sound waves produced, and caused to be transmitted or delivered to a radio station in a foreign country for the purpose of being broadcast from any radio station there having a power output of sufficient intensity and/or being so located geographically that its emissions may be received consistently in the United States, without first obtaining a permit from the Commission upon proper application therefor.

(c) Such application shall contain such information as the Commission may by regulation prescribe, and the granting or refusal thereof shall be subject to the requirements of section 309 hereof with respect to applications for station licenses or renewal or modification thereof, and the license or permission so granted shall be revocable for false statements in the application so required or when the Commission, after hearings, shall find its continuation no longer in the public interest.

CENSORSHIP; INDECENT LANGUAGE

SEC. 326. Nothing in this Act shall be understood or construed to give the Commission 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 Commission which shall interfere with the right of free speech by means of radio communication. No person within the jurisdiction of the United States shall utter any obscene, indecent, or profane language by means of radio communication.

USE OF NAVAL STATIONS FOR COMMERCIAL MESSAGES

SEC. 327. 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 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, Guam, American Samoa, 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 Commission shall have notified the Secretary of the Navy thereof.

SPECIAL PROVISION AS TO PHILIPPINE ISLANDS AND CANAL ZONE

SEC. 328. This title 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.

ADMINISTRATION OF RADIO LAWS IN TERRITORIES AND POSSESSIONS

SEC. 329.* The Commission 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 to render therein such service in connection with the administration of this Act as the Commission may prescribe and also to designate any officer or employee of any other department of the Government to render such services at any place within the United States in connection with the administration of title III of this Act as may be necessary: *Provided*, That such designation shall be approved by the head of the department in which such person is employed.

TITLE IV—PROCEDURAL AND ADMINISTRATIVE PROVISIONS

JURISDICTION TO ENFORCE ACT AND ORDERS OF COMMISSION

SECTION 401. (a) The district courts of the United States shall have jurisdiction, upon application of the Attorney General of the United States at the request of the Commission, alleging a failure to comply with or a violation of any of the provisions of this Act by any person, to issue a writ or writs of mandamus commanding such person to comply with the provisions of this Act.

(b) If any person fails or neglects to obey any order of the Commission other than for the payment of money, while the same is in effect, the Commission or any party injured thereby, or the United States, by its Attorney General, may apply to the appropriate district court of the United States for the enforcement of such order. If after hearing, that court determines that the order was regularly made and duly served, and that the person is in disobedience of the same, the court shall enforce obedience to such order by a writ of injunction or other proper process, mandatory or otherwise, to restrain such person or the officers, agents, or representatives of such person, from further disobedience of such order, or to enjoin upon it or them obedience to the same.

(c) Upon the request of the Commission it shall be the duty of any district attorney of the United States to whom the Commission may apply to institute in the proper court and to prosecute under the direction of the Attorney General of the United States all necessary proceedings for the enforcement of the provisions of this Act and for the punishment of all violations thereof, and the costs and expenses of such prosecutions shall be paid out of the appropriations for the expenses of the courts of the United States.

(d) The provisions of the Expediting Act, approved February 11, 1903, as amended, and of section 233 (1) of the Judicial Code, as amended, shall be held to apply to any suit in equity arising under Title II of this Act, wherein the United States is complainant.

PROCEEDINGS TO ENFORCE OR SET ASIDE THE COMMISSION'S ORDERS—APPEAL IN CERTAIN CASES

SEC. 402. (a) The provisions of the Act of October 22, 1913 (38 Stat. 219), relating to the enforcing or setting aside of the orders of the Interstate Commerce Commission, are hereby made applicable to suits to enforce, enjoin, set aside, annul, or suspend any order of the Commission under this Act (except any order of the Commission granting or refusing an application for a construction permit for a radio station, or for a radio station license, or for renewal of an existing radio station license, or for modification of an existing radio station license, or suspending a radio operator's license¹⁰), and such suits are hereby authorized to be brought as provided in that Act.

(b) 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 construction permit for a radio station, or for a radio station license, or for renewal of an existing radio station license, or for modification of an existing radio station license, whose application is refused by the Commission.

(2) By any other person aggrieved or whose interests are adversely affected by any decision of the Commission granting or refusing any such application.

(3) By any radio operator whose license has been suspended by the Commission.¹⁰

(c) Such appeal shall be taken by filing with said court within twenty 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. The Commission shall thereupon immediately, and in any event not later than five days from the date of such service upon it, mail or otherwise deliver a copy of said notice of appeal to each person 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 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 thirty 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 or order¹¹ involved, and also a like copy of its decision thereon, and shall within thirty 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 to whom it has mailed or otherwise delivered a copy of said notice of appeal.

(d) Within thirty days after the filing of said appeal any interested person 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

¹⁰ The provisions in sections 402 (a) and (b) (3) relating to suspension of a radio operator's license were added by Public—No. 97—75th Congress, 1st Session, approved May 20, 1937.

¹¹ The words "or order" were added by Public—No. 97—75th Congress, 1st Session, approved May 20, 1937.

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upon the Commission. Any person 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.

(e) 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 of 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 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 240 of the Judicial Code, as amended, by appellant, by the Commission, or by any interested party intervening in the appeal.

(f) 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.

INQUIRY BY COMMISSION ON ITS OWN MOTION

SEC. 403. The Commission shall have full authority and power at any time to institute an inquiry, on its own motion, in any case and as to any matter or thing concerning which complaint is authorized to be made, to or before the Commission by any provision of this Act, or concerning which any question may arise under any of the provisions of this Act, or relating to the enforcement of any of the provisions of this Act. The Commission shall have the same powers and authority to proceed with any inquiry instituted on its own motion as though it had been appealed to by complaint or petition under any of the provisions of this Act, including the power to make and enforce any order or orders in the case, or relating to the matter or thing concerning which the inquiry is had, excepting orders for the payment of money.

REPORTS OF INVESTIGATIONS

SEC. 404. Whenever an investigation shall be made by the Commission it shall be its duty to make a report in writing in respect thereto, which shall state the conclusions of the Commission, together with its decision, order, or requirement in the premises; and in case damages are awarded such report shall include the findings of fact on which the award is made.

REHEARING BEFORE COMMISSION

SEC. 405. After a decision, order, or requirement has been made by the Commission in any proceeding, any party thereto may at any time make application for rehearing of the same, or any matter determined therein, and it shall be lawful for the Commission in its discretion to grant such a rehearing if sufficient reason therefor be made to appear: *Provided, however*, That in the case of a decision, order, or requirement made under Title III, the time within which application for rehearing may be made shall be limited to twenty days after the effective date thereof, and such application may be made by any party or any person aggrieved or whose interests are adversely affected thereby. Applications for rehearing shall be governed by such general rules as the Commission may establish. No such application shall excuse any person from complying with or obeying any decision, order, or requirement of the Commission, or operate in any manner to stay or postpone the enforcement thereof, without the special order of the Commission. In case a rehearing is granted, the proceedings thereupon shall conform as nearly as may be to the proceedings in an original hearing, except as the Commission may otherwise direct; and if, in its judgment, after such rehearing and the consideration of all facts, including those arising since the former hearing, it shall appear that the original decision, order, or requirement is in any respect unjust or unwarranted, the Commission may reverse, change, or modify the same accordingly. Any decision, order, or requirement made after such rehearing, reversing, changing, or modifying the original determination, shall be subject to the same provisions as an original order.

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GENERAL PROVISIONS RELATING TO PROCEEDINGS—WITNESSES AND DEPOSITIONS

SEC. 409. (a) Any member or examiner of the Commission, or the director of any division, when duly designated by the Commission for such purpose, may hold hearings, sign and issue subpoenas, administer oaths, examine witnesses, and receive evidence at any place in the United States designated by the Commission; except that in the administration of Title III an examiner may not be authorized to exercise such powers with respect to a matter involving (1) a change of policy by the Commission, (2) the revocation of a station license, (3) new devices or developments in radio, or (4) a new kind of use of frequencies. In all cases heard by an examiner the Commission shall hear oral arguments on request of either party.

(b) For the purposes of this Act the Commission shall have the power to require by subpoena the attendance and testimony of witnesses and the production of all books, papers, schedules of charges, contracts, agreements, and documents relating to any matter under investigation. Witnesses summoned before the Commission shall be paid the same fees and mileage that are paid witnesses in the court of the United States.

(c) Such attendance of witnesses, and the production of such documentary evidence, may be required from any place in the United States, at any designated place of hearing. And in case of disobedience to a subpoena the Commission, or any party to a proceeding before the Commission, may invoke the aid of any court of the United States in requiring the attendance and testimony of witnesses and the production of books, papers, and documents under the provisions of this section.

(d) Any of the district courts of the United States within the jurisdiction of which such inquiry is carried on may, in case of contumacy or refusal to obey a subpoena issued to any common carrier or licensee or other person, issue an order requiring such common carrier, licensee, or other person to appear before the Commission (and produce books and papers if so ordered) and give evidence touching the matter in question; and any failure to obey such order of the court may be punished by such court as a contempt thereof.

(e) The testimony of any witness may be taken, at the instance of a party, in any proceeding or investigation pending before the Commission, by deposition, at any time after a cause or proceeding is at issue on petition and answer. The Commission may also order testimony to be taken by deposition in any proceeding or investigation pending before it, at any stage of such proceeding or investigation. Such depositions may be taken before any judge of any court of the United States, or any United States commissioner, or any clerk of a district court, or any chancellor, justice, or judge of a supreme or superior court, mayor, or chief magistrate of a city, judge of a county court, or court of common pleas of any of the United States, or any notary public, not being of counsel or attorney to either of the parties, nor interested in the event of the proceeding or investigation. Reasonable notice must first be given in writing by the party or his attorney proposing to take such deposition to the opposite party or his attorney of record, as either may be nearest, which notice shall state the name of the witness and the time and place of the taking of his deposition. Any person may be compelled to appear and depose, and to produce documentary evidence, in the same manner as witnesses may be compelled to appear and testify and produce documentary evidence before the Commission, as hereinbefore provided.

(f) Every person deposing as herein provided shall be cautioned and sworn (or affirm, if he so request) to testify the whole truth, and shall be carefully examined. His testimony shall be reduced to writing by the magistrate taking the deposition, or under his direction, and shall, after it has been reduced to writing, be subscribed by the deponent.

(g) If a witness whose testimony may be desired to be taken by deposition be in a foreign country, the deposition may be taken before an officer or person designated by the Commission, or agreed upon by the parties by stipulation in writing to be filed with the Commission. All depositions must be promptly filed with the Commission.

(h) Witnesses whose depositions are taken as authorized in this Act, and the magistrate or other officer taking the same, shall severally be entitled to the same fees as are paid for like services in the courts of the United States.

(i) No person shall be excused from attending and testifying or from producing books, papers, schedules of charges, contracts, agreements, and documents before the Commission, or in obedience to the subpoena of the Commission, whether such subpoena be signed or issued by one or more commissioners, or in any cause or proceeding, criminal or otherwise, based upon or growing out of any alleged violation of this Act, or of any amendments thereto, on the ground or for the reason that the testimony or evidence, documentary or otherwise, required of him may tend to incriminate him or subject him to a penalty or forfeiture; but no individual shall be prosecuted or subjected to any penalty or forfeiture for or on account of any transaction, matter, or thing concerning which he is compelled, after having claimed his privilege against self-incrimination, to testify or produce evidence, documentary or otherwise, except that any individual so testifying shall not be exempt from prosecution and punishment for perjury committed in so testifying.

(j) Any person who shall neglect or refuse to attend and testify, or to answer any lawful inquiry, or to produce books, papers, schedules of charges, contracts, agreements, and documents, if in his power to do so, in obedience to the subpoena or lawful requirement of the Commission, shall be guilty of a misdemeanor and upon conviction thereof by a court of competent jurisdiction shall be punished by a fine of not less than \$100 nor more than \$5,000, or by imprisonment for not more than one year, or by both such fine and imprisonment.

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TITLE V—PENAL PROVISIONS—FORFEITURES

GENERAL PENALTY

SECTION 501. Any person who willfully and knowingly does or causes or suffers to be done any act, matter, or thing, in this Act prohibited or declared to be unlawful, or who willfully and knowingly omits or fails to do any act, matter, or thing in this Act required to be done, or willfully and knowingly causes or suffers such omission or failure, shall, upon conviction thereof, be punished for such offense, for which no penalty (other than a forfeiture) is provided herein, by a fine of not more than \$10,000 or by imprisonment for a term of not more than two years, or both.

VIOLATIONS OF RULES, REGULATIONS, AND SO FORTH

SEC. 502. Any person who willfully and knowingly violates any rule, regulation, restriction or condition made or imposed by the Commission under authority of this Act, or any rule, regulation, restriction, or condition made or imposed by any international radio or wire communications treaty or convention, or regulations annexed thereto, to which the United States is or may hereafter become a party, shall, in addition to any other penalties

provided by law, be punished, upon conviction thereof, by a fine of not more than \$500 for each and every day during which such offense occurs.

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VENUE OF OFFENSES

SEC. 505. 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. Whenever the offense is begun in one jurisdiction and completed in another it may be dealt with, inquired of, tried, determined, and punished in either jurisdiction in the same manner as if the offense had been actually and wholly committed therein.

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TITLE VI—MISCELLANEOUS PROVISIONS

UNAUTHORIZED PUBLICATION OF COMMUNICATIONS

SEC. 605. No person receiving or assisting in receiving, or transmitting, or assisting in transmitting, any interstate or foreign communication by wire or radio shall divulge or publish the existence, 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 person employed or authorized to forward such communication to its destination, or to proper accounting or distributing officers of the various communicating centers over which the 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 communication and divulge or publish the existence, contents, substance, purport, effect, or meaning of such intercepted communication to any person; and no person not being entitled thereto shall receive or assist in receiving any interstate or foreign communication by wire or radio 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 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 existence, 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 broadcast, or transmitted by amateurs or others for the use of the general public, or relating to ships in distress.

WAR EMERGENCY—POWERS OF PRESIDENT

SEC. 606. (a) During the continuance of a war in which the United States is engaged, the President is authorized, if he finds it necessary for the national defense and security, to direct that such communications as in his judgment may be essential to the national defense and security shall have

preference or priority with any carrier subject to this Act. He may give these directions at and for such times as he may determine, and may modify, change, suspend, or annul them and for any such purpose he is hereby authorized to issue orders directly, or through such person or persons as he designates for the purpose, or through the Commission. Any carrier complying with any such order or direction for preference or priority herein authorized shall be exempt from any and all provisions in existing law imposing civil or criminal penalties, obligations, or liabilities upon carriers by reason of giving preference or priority in compliance with such order or direction.

(b) It shall be unlawful for any person during any war in which the United States is engaged to knowingly or willfully, by physical force or intimidation by threats of physical force, obstruct or retard or aid in obstructing or retarding interstate or foreign communication by radio or wire. The President is hereby authorized, whenever in his judgment the public interest requires, to employ the armed forces of the United States to prevent any such obstruction or retardation of communication: *Provided*, That nothing in this section shall be construed to repeal, modify, or affect either section 6 or section 20 of an Act entitled "An Act to supplement existing laws against unlawful restraints and monopolies, and for other purposes," approved October 15, 1914.

(c) 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 Commission, 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.

(d) The President shall ascertain the just compensation for such use or control and certify the amount ascertained to Congress for appropriation 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 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.

EFFECTIVE DATE OF ACT

SEC. 607. This Act shall take effect upon the organization of the Commission, except that this section and sections 1 and 4 shall take effect July 1, 1934. The Commission shall be deemed to be organized upon such date as four members of the Commission have taken office.

SEPARABILITY CLAUSE

SEC. 608. If any provision of this Act or the application thereof to any person or circumstance is held invalid, the remainder of the Act and the application of such provision to other persons or circumstances shall not be affected thereby.

Unions And Labor Groups Dealing in Radio Fields

Name of Organization	Affiliation	Address Telephone No.	Executive	Name of Organization	Affiliation	Address Telephone No.	Executive
American Federation of Labor	AFL	901 Mass. Ave. N.W. Washington, D. C. National 3870	William Green, Pres.	Radio Writers' Guild of the Authors League of America		6 E. 39th St. New York City Murray Hill 5-6930	Henry F. Carlton, Pres.
Congress for Industrial Organization	CIO	1106 Connecticut Ave. Washington, D. C. District 3582	Philip Murray, Pres.	American Newspaper Guild	CIO	14 Pearl St. New York City Whitehall 3-1272	Milton Murray, Pres.
American Communications Association	CIO	10 Bridge St. New York City Bowling Green 9-3007	Joseph Selly, Pres.	Associated Actors & Artistes of America	AFL	45 W. 47th St. New York City Bryant 9-3550	Frank Gillmore, Pres.
International Brotherhood of Electrical Workers	AFL	1200 15th St. N.W. Washington, D. C. District 3766	E. J. Brown, Pres.	<i>Organizations affiliated with Associated Actors & Artistes of America</i>			
American Federation of Musicians	AFL	1450 Broadway New York City Pennsylvania 6-2546	James C. Petrillo, Pres.	Actors Equity Assn.	AFL	45 W. 47th St. New York City Bryant 9-3550	Bert Lytell, Pres. Paul Dullzell, Ex. Secy.-Treas.
International Alliance of Theatrical Stage Employees and Moving Picture Machine Operators	AFL	630 Fifth Ave. New York City Circle 5-4370	Richard F. Walsh, Pres.	American Federation of Radio Artists	AFL	2 W. 45th St. New York City Vanderbilt 6-1810	Lawrence Tibbett, Pres. Mrs. Emily Holt, Ex. Secy.
Association of Technical Employees of NBC		201 N. Wells St. Chicago Randolph 8884	E. C. Horstman, Pres.	American Guild of Musical Artists Inc.	AFL	2 W. 45th St. New York City Murray Hill 2-5644	Lawrence Tibbett, Pres. Mrs. Blanche Witherspoon, Ex. Secy.
Associated Broadcast Technicians	IBEW (AFL)	1200 15th St. N.W. Washington, D. C. District 3766	Russell Rennaker, Bus. Mgr.	American Guild of Variety Artists	AFL	1650 Broadway New York City Circle 6-7130	Morton Downey, Pres. Gerald Griffin, Ex. Secy.
American Advertising Guild	CIO	31 E. 27th St. New York City Murray Hill 5-5532	Howard Willard, Pres. Anne Hanley, Secy.	Screen Actors Guild	AFL	7046 Hollywood Blvd. Hollywood, Cal. Crestview 1-2166	Edwin Arnold, Pres. Kenneth Thomson, Ex. Secy.
						545 Fifth Ave. New York City Murray Hill 2-0184	Mrs. Florence Marston, Eastern Representative