

December 28, 1933.  
(Replaces Letter Circular 274)

SOURCES OF RADIO INFORMATION

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1. Periodicals

The following is a partial list of periodicals largely devoted to radio. They are monthly, except where otherwise stated. A number of electrical and general magazines also publish considerable radio information.

A classified list of the articles of radio engineering interest appearing in periodicals is published each month in the first magazine listed below, the Proceedings of the Institute of Radio Engineers. A short abstract of each article is given. The list is classified by subject in accordance with "A classification of radio subjects, an extension of the Dewey Decimal System," Bureau of Standards Circular No. 385.

Proceedings of the Institute of Radio Engineers, 33 West 39th Street, New York, N.Y. (Technical).

Bell System Technical Journal. Published by Bell Telephone Laboratories, Inc., 463 West Street, New York, N.Y. (Technical) (Quarterly).

QST. Published by American Radio Relay League, W. Hartford, Conn. (Technical).

Radio Engineering. Bryant Publishing Co., 19 E. 47th St., New York, N.Y. (Technical).

Electronics. McGraw-Hill Publishing Co., Inc., 330 W. 42nd Street, New York, N.Y. (Technical).

Radio News. 222 W. 39th St., New York, N.Y. (Semi-technical).

Radio. 422 Pacific Bldg., San Francisco, Calif. (Semi-technical).

Short Wave Craft. Popular Book Corp., 96-98 Park Place, New York, N.Y. (Semi-technical).

Radiocraft. Techni-Craft Publishing Corporation, 96-98 Park Place, New York, N.Y. (Semi-technical).

General Radio Experimenter. Published by General Radio Company, 30 State Street, Cambridge, Mass. (Trade, technical).

Radio Retailing. Published by McGraw-Hill Publishing Co., Inc., 330 W. 42nd St., New York, N.Y. (Trade).

Service. Published by John E. Rider Publications, 1440 Broadway, New York, N.Y. (Trade).

Radio Industries. Published by Radio Industries, 185 North Wabash Avenue, Chicago, Ill. (Trade).

Wireless Engineer and Experimental Wireless. Published by Iliffe & Sons, Ltd., Dorset House, Stamford Street, London, S.E.1, England. (Technical).

Marconi Review. Marconi's Wireless Telegraph Co., Ltd., Electra House, Victoria Embankment, London, England. (Technical).

Wireless World. Dorset House, Stamford Street, London, S.E.1, England. (Semi-technical) (Weekly).

Modern Wireless. Published by Amalgamated Press, Ltd., Fleetway House, Farringdon Street, London E.C.4, England. (Semi-technical).

Elektrische Nachrichten-Technik. Published by Weidmannschen Buchhandlung, Berlin S.W.68, Germany. (Technical; in German).

Zeitschrift für Hochfrequenztechnik (also called Jahrbuch der Drahtlosen Telegraphie und Telephonie). Published by M. Krayn, Genthiner Strasse 39, Berlin W10, Germany. (Technical; in German).

L'Onde Electrique. Published by E. Chiron, 40 rue de Seine, Paris, France. (Technical; in French).

2. Books

Herewith are listed a few of the many books published on the various phases of radio. The sources of Government publications on radio are described in Section 3 below.

Radio Principles

- Signaling through space without wires. Sir Oliver Lodge. 1894. Electrician Publishing Co., London, England.
- Electric waves. H. Hertz. 1900. English translation by D. E. Jones. MacMillan & Co., 60 - 5th Avenue, New York, N.Y.
- Principles of wireless telegraphy. G. W. Pierce. 1910. McGraw-Hill Book Co., Inc., 330 West 42nd St., New York, N.Y.
- Wireless telegraphy. J. Zenneck. 1915. English translation by A. E. Seelig. McGraw-Hill Book Co., Inc., 330 West 42nd St., New York, N.Y.
- The principles of electric wave telegraphy. 4th edition. J.A. Fleming. 1919. Longmans, Green & Co., 55 Fifth Ave., New York, N.Y.
- Electric oscillations and electric waves. G.W.Pierce. 1920. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York, N.Y.
- Modern theory and practice in radio communication. G.D.Robinson. 1920. United States Naval Institute, Annapolis, Md.
- Wireless telegraphy and telephony. W.H.Eccles. 1921. Wireless Press, Ltd., London, England. Also 326 Broadway, New York, N.Y.
- Principles underlying radio communication. 2nd edition. 1922. Signal Corps Radio Communication Pamphlet No. 40. Obtainable from the Superintendent of Documents, Government Printing Office, Washington, D.C. \$1.00.
- Radio telephony for amateurs. S. Ballantine. 1922. David McKay Co., Philadelphia, Pa.
- The radio manual. O.E.Dunlap, Jr. 1924. Houghton-Mifflin Co., Cambridge, Mass.
- Practical radio. Moyer and Wostrel. 1926. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York, N.Y.
- Fundamentals of radio. J.L.Thomas. 1927. D. Van Nostrand Co., 250 Fourth Ave., New York, N.Y. \$1.50.
- Robison's manual of radio telegraphy and telephony. 1927. United States Naval Institute, Annapolis, Md. \$4.00.

- Propagation of wireless waves. P. Pedersen. 1927. Vinnelskiftet, Copenhagen, Denmark.
- Radio engineering principles. Lauer & Brown. 2d edition. 1927. McGraw-Hill Book Co., Inc., 330 West 42nd St., New York, N.Y. \$3.50.
- Principles of modern radio receiving. L. G. Hector. 1927. Burton Publishing Co., Bigelow Bldg., Buffalo, N.Y.
- The outline of radio. J.V.L.Hogan. 1928. Little, Brown & Co., Boston, Mass.
- Experimental radio. 3d edition. R.R.Ramsey. 1928. Bloomington, Ind. \$2.75.
- Foundations of radio. R. L. Duncan. 1931. John Wiley & Sons, Inc. New York, N.Y. \$2.50.
- Wireless principles and practice. L. S. Palmer. 1928. Longmans, Green & Co., New York, N.Y.
- The fundamentals of radio. R. R. Ramsey. 1929. Bloomington, Ind. \$3.50.
- The radio manual. G. E. Sterling. 1929. D. Van Nostrand Co., 250 Fourth Avenue, New York, N.Y. \$6.00.
- Radio theory and operating. Mary T. Loomis. 1929. Loomis Publishing Co., Washington, D.C. \$4.25.
- I.C.S. handbook for radio operators. 1929. International Correspondence Schools, Scranton, Pa.
- Elements of radio communication. J. H. Morecroft. 1929. John Wiley & Sons, Inc., 440 Fourth Ave., New York, N.Y. \$3.00
- Principles of radio. Keith Henney. 1929. John Wiley & Sons, Inc., 440 Fourth Ave., New York, N.Y. \$3.50.
- Radiotelegraphy and telephony. Duncan and Drew. 1929. John Wiley & Sons, Inc., 440 Fourth Ave., New York, N.Y. \$7.50.
- Experimental radio engineering. J.H.Morecroft. 1931. John Wiley & Sons, Inc., 440 Fourth Ave., New York, N.Y. \$3.50.
- The radio handbook. J. A. Moyer and J.F.Wostrel. 1931. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York, N.Y. \$5.00.
- Radio elementary principles. E. E. Burns. 1932. D. Van Nostrand Co., New York, N.Y. \$2.00.

Communication engineering. W. L. Everett. 1932. McGraw-Hill Book Co., Inc., 330 West 42nd St., New York, N.Y. \$5.00.

Radio engineering. F. E. Terman. 1932. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York, N.Y. \$5.00.

Radio engineering handbook. K. Henney. 1932. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York, N.Y. \$5.00.

Elementary principles of wireless telegraphy. R. D. Bangay. Revised by O. F. Brown. 1933. Iliffe & Sons, Ltd., Dorset House, Stamford Street, London, S.E.1, England. Price 10s.6d.

Principles of radio communication. J. H. Morecroft. 1933. John Wiley & Sons, Inc., 440 Fourth Avenue, New York, N.Y. \$7.50.

Radio physics course. A. A. Gherardi. 1933. Radio Technical Publishing Co., 80 Fifth Avenue, New York, N.Y. \$3.50.

#### High Frequencies.

Les ondes electriques courtes (short electric waves). R. Mesny. 1927. Les Presses Universitaires de France, 40 Boulevard Saint-Michel, Paris, France.

Short waves. C. R. Leutz and R. B. Gable. 1930. C. R. Leutz, Inc., Altoona, Pa. \$3.00.

Below 10 meters. 1932. National Co., Malden, Mass. 50¢.

The manual of short wave radio. 2 volumes. 1932. National Co., Malden, Mass. 50¢ each pamphlet.

Hochfrequenztechnik in der Luftfahrt (High-frequency technique in aircraft). H. Fassbender. 1932. J. Springer, Unter den Linden, Berlin NW 7, Germany. 68 R.M.

The radio amateurs handbook. 1933. American Radio Relay League, W. Hartford, Conn. \$1.00.

How to build and operate short wave receivers. 1933. Published by Short Wave Craft, 96-98 Park Place, New York, N.Y. 50¢.

Short wave wireless communication. A. W. Ladner and C. R. Stoner. 1933. John Wiley & Sons, Inc., 440 Fourth Ave., New York, N.Y. \$3.50.

The radio amateur's handbook. A. F. Collins and G. C. B. Rowe. 7th ed. 1933. Thomas Y. Crowell Co., 393 - 4th Ave., New York, N.Y.

Radio Measurements

The wireless telegraphist's pocketbook of notes, formulae and calculations. J. A. Fleming. 1915. Wireless Press, Ltd., London, England. Also 326 Broadway, New York, N.Y.

Handbook of technical instruction for wireless telegraphists. 4th edition. 1918. Iliffe & Sons, Ltd., Dorset House, Stamford St., London, S.E.1, England.

Prepared radio measurements with self-computing charts. Ralph Batcher. 1921. Wireless Press, Inc., 326 Broadway, New York, N.Y.

Radio-frequency measurements. E. B. Moullin. 2nd ed. 1931. J. B. Lippincott, 227 South 6th St., Philadelphia, Pa. \$12.50.

Radio-frequency electrical measurements. H. A. Brown. 1931. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York, N.Y. \$4.00.

High-frequency measurements. A. Hund. 1933. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York, N.Y. \$5.00.

Vacuum Tubes

The thermionic vacuum tube and its application. H. J. Van der Bijl. 1920. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York, N.Y. \$5.00.

Thermionic tubes in radio telegraphy and telephony. John Scott-Taggart. 1921. Wireless Press, Ltd., London, England. Also 326 Broadway, New York, N.Y.

Elementary textbook on wireless vacuum tubes. John Scott-Taggart. 1922. Wireless Press, Ltd., London, England. Also 326 Broadway, New York, N.Y.

Theory of thermionic vacuum tube circuits. L. J. Peters. 1927. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York, N.Y.

Electron tubes and their applications. J. H. Morecroft. 1933. John Wiley & Sons, Inc., 440 Fourth Ave., New York, N.Y. \$4.50.

Theory of thermionic vacuum tubes. E. L. Chaffee. 1933. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York, N.Y. \$6.00.

Photoelectric Phenomena

- Photoelectric cells; their properties, use and applications. Sir I. Pitman and Sons, Ltd., New York, N.Y. 1930. \$3.75.
- Photocells and their applications. Zworykin & Wilson. 1932. 2nd ed. John Wiley & Sons, Inc., 440 Fourth Ave., New York, N.Y. \$2.50.
- Photoelectric phenomena. A. L. Hughes and L. A. Du Bridge. 1933. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York, N.Y. \$5.00.

Television

- Television. H. H. Sheldon and E. N. Grisewood. 1929. D. Van Nostrand Co., New York, N.Y. \$2.75.
- Television -- Its methods and uses. E. H. Felix. 1932. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York, N.Y. \$2.50.
- First principles of television. A. Dinsdale. 1932. John Wiley & Sons, Inc., 440 Fourth Ave., New York, N.Y. \$3.50.
- The outlook for television. O. E. Dunlap. 1932. Harper & Bros., 15 E. 26th St., New York, N.Y. \$4.00.

Servicing Radio Equipment

- Practical radio construction and repairing -- Radio receiving tubes -- Practical radio -- All three of these books by Moyer and Wostrel. Published by McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York, N.Y. Price for three, \$7.50.
- Practical testing systems. J. F. Rider. 1930. Radio Treatise Co., Inc., 1440 Broadway, New York, N.Y. \$1.00.
- Radio servicing course. A. A. Gherardi and B. M. Freed. 1930. Radio Technical Pub. Co., 80 Fifth Ave., New York, N.Y. \$1.50.
- Practical radio repairing hints. J. F. Rider. Radio Treatise Co., Inc., 1440 Broadway, New York, N.Y.
- Servicing receivers by means of resistance measurements. J. F. Rider. 1932. Radio Treatise Co., Inc., 1440 Broadway, New York, N.Y.

- Servicing auto-radio receivers. J. F. Rider. Radio Treatise Co., Inc., 1440 Broadway, New York, N.Y.
- Radio service questions and answers. J. F. Rider. 2 volumes. Radio Treatise Co., Inc., 1440 Broadway, New York, N.Y.
- Servicing superheterodynes. J. F. Rider. 1932. Radio Treatise Co., Inc., 1440 Broadway, New York, N.Y.
- Perpetual trouble shooter's manual. J. F. Rider. 3 volumes. 1933. Radio Treatise Co., Inc., 1440 Broadway, New York, N.Y. vol. 1, \$7.50; vol. 2, \$6.50; vol. 3, \$7.50.
- Specialized auto radio manual. Vol. 1. J. F. Rider. 1933. Radio Treatise Co., Inc., 1440 Broadway, New York, N.Y. \$3.50.
- Miscellaneous.
- Wireless direction finding and directional reception. 2d ed. R. Keen. 1927. Iliffe & Sons, Ltd., Dorset House, Stamford St., London, England.
- Radio data charts. R. T. Beatty. 1930. Iliffe & Sons, Ltd., Dorset House, Stamford St., London, S.E.1, England.
- Quartz resonators and oscillators. P. Vigoureux. 1931. Obtainable from British Library of Information. French Buildings, East 45th St., New York, N.Y.
- High-frequency alternating currents. K. McIlwain and J. G. Brainard. 1931. John Wiley & Sons, Inc., 440 Fourth Ave., New York, N.Y. \$6.00.
- How to pass U. S. Government radio license examinations. John Wiley & Sons, Inc., 440 Fourth Avenue, New York, N.Y. \$2.00.
- Radio traffic manual and operating regulations. Duncan & Drew. John Wiley & Sons, Inc., 440 Fourth Avenue, New York, N.Y. \$2.00.
- Useful radio tables. J. F. Rider. Radio Treatise Co., Inc., 1440 Broadway, New York, N.Y.
- Radio operating questions and answers. 5th edition. 1933. Nilson & Horning. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York, N.Y. \$2.50.



Inductance authority (inductance charts). E. M. Shiepe. 1933.  
H. Bernard, 195 Liberty St., New York, N.Y. \$2.00.

Electronics. R. G. Hudson. 1933. John Wiley & Sons, Inc.,  
440 Fourth Ave., New York, N.Y. \$2.00.

1933 Report of the Standards Committee of the Institute of Radio  
Engineers. Institute of Radio Engineers, 33 West 39th St.,  
New York, N.Y.

The cathode-ray oscillograph in radio research. R. A. Watson-  
Watt, J. F. Herd, L. H. Bainbridge-Bell. 1933. Published  
by H.M. Stationery Office, London, England.

### 3. U. S. Government Radio Publications

A large number of papers on radio subjects have been issued  
by the Bureau of Standards. Some of these have been published  
by the Government Printing Office and some in various periodicals.  
Most of them are of interest primarily to the radio engineer or  
scientist rather than to the public. A list of the current pub-  
lications can be secured by addressing a request to Bureau of  
Standards, Washington, D.C., for Letter Circular No. 40, "Radio  
publications of the Bureau of Standards."

News of the Bureau's radio work, and announcements of new  
publications, are given in "Technical News Bulletin," a monthly  
publication which may be obtained by mail in the U. S. for 50  
cents per year from the Superintendent of Documents, Government  
Printing Office. The notices of new publications state the  
prices at which each may be purchased from the Superintendent  
of Documents. The publications of the Bureau of Standards  
cover many subjects, including, besides radio, electricity,  
light, sound, heat, chemistry, metallurgy, engineering materials,  
standards of weight and measure, and many other scientific and  
technical subjects.

The Bureau of Standards also issues Letter Circulars on  
some subjects, in mimeographed form (like this one). Only a  
limited number of copies of these are available and they are  
not sold. The available Letter Circulars are listed in Letter  
Circular No. 40 mentioned above. The Bureau can not supply a  
set of them to anyone. A copy of any one Letter Circular may  
be secured by any person having specific use for it on applica-  
tion to Bureau of Standards, Washington, D.C.

The Federal Radio Commission issued in mimeographed form  
the "List of frequencies, July 1, 1933", which lists the radio  
transmitting stations in the United States and their assigned  
frequencies. Copies of this list are obtainable by addressing

the Federal Radio Commission, 1800 E Street, N.W., Washington, D.C.

The following lists are available from the International Bureau of Telecommunication, Bern, Switzerland: (1) Nomenclature of coast and ship stations; (2) Nomenclature of aeronautic and aircraft stations; (3) Nomenclature of stations carrying special services; (4) Nomenclature of fixed stations (index to frequency list); (5) Nomenclature of broadcasting stations; (6) Frequency list. The prices of these may be obtained by addressing the International Bureau.

#### 4. Radio Laws and Regulations

The radio regulations and laws of the U. S. are given in a publication entitled "Revised rules and regulations of the Federal Radio Commission," copies of which are obtainable from the Superintendent of Documents, Government Printing Office, Washington, D.C., for 45 cents. This is a loose-leaf pamphlet; changes in regulations are added from time to time.

The law provides that in order to operate a radio transmitting station, both a station license and an operator license must be secured. The law provides severe penalties for the operation of a transmitting station without proper licenses.

A station used only for receiving does not require a station license. Operators of stations used only for receiving do not require operators' licenses, but must maintain secrecy in regard to messages heard, other than broadcast messages.

Information and the necessary application blanks for station and operators' licenses are obtainable from the Federal Radio Commission, Washington, D.C., or the office of the radio district in which the applicant resides. There are 20 radio districts, the offices of which are located as follows:

Radio District No. 1: Headquarters, Customhouse, Boston, Mass.

(Includes: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont).

Radio District No. 2: Headquarters, U. S. Subtreasury Bldg., New York, N.Y.

(Includes: The Counties of Albany, Bronx, Columbia, Delaware, Dutchess, Greene, Kings, Nassau, Orange, New York, Putnam, Queens, Rensselaer, Richmond, Rockland, Schenectady, Suffolk, Sullivan, Ulster, and Westchester of the State of New York, and the Counties of Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union and Warren of the State of New Jersey).

Radio District No. 3: Headquarters, Gimbel Bldg., 35 So. 9th St., Philadelphia, Pa.

(Includes: Adams, Berks, Bucks, Carbon, Chester, Cumberland, Dauphin, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Perry, Philadelphia, Schuylkill, and York of the State of Pennsylvania, and the Counties of Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Ocean, and Salem of the State of New Jersey; and the County of Newcastle, State of Delaware).

Radio District No. 4: Headquarters, Ft. McHenry, Baltimore, Md.

(Includes: The State of Maryland, the District of Columbia, and the Counties of Arlington, Clark, Fairfax, Fauquier, Frederick, Loudoun, Page, Prince William, Rappahannock, Shenandoah, and Warren of the State of Virginia, and the Counties of Kent and Sussex, of the State of Delaware).

Radio District No. 5: Headquarters, Customhouse, Norfolk, Va.

(Includes: The State of Virginia, except the Counties of Arlington, Clark, Fairfax, Fauquier, Frederick, Loudoun, Page, Prince William, Rappahannock, Shenandoah, and Warren; and the State of North Carolina except the Counties of Ashe, Avery, Buncombe, Burke, Caldwell, Cherokee, Clay, Cleveland, Graham, Haywood, Henderson, Jackson, McDowell, Macon, Madison, Mitchell, Polk, Rutherford, Swain, Transylvania, Watauga and Yancey).

Radio District No. 6: Headquarters, 528 Post Office Bldg., Atlanta, Ga.

(Includes: The States of Alabama, Georgia, South Carolina, Tennessee, and the Counties of Ashe, Avery, Buncombe, Burke, Caldwell, Cherokee, Clay, Cleveland, Graham, Haywood, Henderson, Jackson, McDowell, Macon, Madison, Mitchell, Polk, Rutherford, Swain, Transylvania, Watauga and Yancey of the State of North Carolina).

Radio District No. 7: Headquarters, 228 Post Office Bldg., Miami, Florida.

(Includes: The State of Florida, Puerto Rico, and Virgin Isles).

Radio District No. 8: Headquarters, Customhouse, New Orleans, La.

(Includes: The States of Arkansas, Louisiana, Mississippi, and the City of Texarkana only of Texas).

Radio District No. 9: Headquarters, 209 Prudential Building, Galveston, Texas.

(Includes: The Counties of Aransas, Brazoria, Brooks, Calhoun, Cameron, Chambers, Fort Bend, Galveston, Goliad, Harris, Hidalgo, Jackson, Jefferson, Jim Wells, Kenedy, Kleberg, Mantagorda, Nueces, Refugio, San Patricio, Victoria, Wharton, and Willacy of the State of Texas).

Radio District No. 10: Headquarters, 464 Federal Bldg., Dallas, Texas  
 (Includes: The State of Texas, except the Counties of Aransas, Brazoria, Brooks, Calhoun, Cameron, Chambers, Fort Bend, Galveston, Goliad, Harris, Hidalgo, Jackson, Jefferson, Jim Wells, Kenedy, Kleberg, Matagorda, Nueces, Refugio, San Patricio, Victoria, Wharton, and Yancy, and the City of Texarkana, and the States of New Mexico and Oklahoma).

Radio District No. 11: Headquarters, 1105 Rives-Strong Bldg., Los Angeles, Calif.

(Includes: The State of Nevada, Arizona, and the Counties of Imperial, Kern, Kings, Los Angeles, Monterey, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, Tulare, and Ventura of the State of California).

Radio District No. 12: Headquarters, Customhouse, San Francisco, Cal.

(Includes: The State of California, except the Counties of Imperial, Kern, Kings, Los Angeles, Monterey, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, Tulare, and Ventura; and the State of Nevada, except the County of Clark, Hawaiian Islands, Guam, and American Samoa).

Radio District No. 13: Headquarters, 227 New Post Office Bldg., Portland, Oregon.

(Includes: The State of Oregon and the State of Idaho, except the Counties of Benewah, Bonner, Boundary, Clearwater, Idaho, Kootenai, Latah, Lewis, Nez Perce, and Shoshone).

Radio District No. 14: Headquarters, 808 Federal Office Bldg., Seattle, Wash.

(Includes: Alaska; the State of Washington, the Counties of Benewah, Bonner, Boundary, Clearwater, Idaho, Kootenai, Latah, Lewis, Nez Perce and Shoshone of the State of Idaho, and the Counties of Beaverhead, Broadwater, Cascade, Deerlodge, Flathead, Gallatin, Glacier, Granite, Jefferson, Lake, Lewis and Clark, Lincoln, Madison, Meagher, Mineral, Missoula, Ponders, Powell, Ravalli, Sanders, Silver Bow, Teton, and Toole of the State of Montana).

Radio District No. 15: Headquarters, 538 Customhouse, Denver, Colo.

(Includes: The States of Colorado, Utah, Wyoming, and Montana except the Counties of Beaverhead, Broadwater, Cascade, Deerlodge, Flathead, Gallatin, Glacier, Granite, Jefferson, Lake, Lewis and Clark, Lincoln, Madison, Meagher, Mineral, Missoula, Ponders, Powell, Ravalli, Sanders, Silver Bow, Teton, and Toole).

Radio District No. 16: Headquarters, 413 Federal Bldg., St. Paul, Minn.

(Includes: The States of North Dakota, South Dakota, Minnesota, and the Counties of Alger, Baraga, Chippewa, Delta, Dickinson, Gogebic, Houghton, Iron Keweenaw, Luce, Mackinac, Marquette, Menominee, Ontonagon, and Schoolcraft of the State of Michigan,

and the State of Wisconsin, except the Counties of Columbia, Crawford, Dane, Dodge, Grant, Green, Iowa, Jefferson, Kenosha, Lafayette, Milwaukee, Ozaukee, Racine, Richland, Rock, Sauk, Walworth, Washington, and Waukesha).

Radio District No. 17: Headquarters, 231 Federal Bldg., Kansas City, Mo.

(Includes: The States of Nebraska, Kansas, Missouri, and Iowa, except the Counties of Allamakee, Buchanan, Cedar, Clayton, Clinton, Delaware, Des Moines, Dubuque, Fayette, Henry, Jackson, Johnson, Jones, Lee, Linn, Louisa, Muscatine, Scott, Washington, and Winneshiek).

Radio District No. 18: Headquarters, 2022 Engineering Bldg., Chicago, Ill.

(Includes: The States of Indiana, Illinois, and the Counties of Allamakee, Buchanan, Cedar, Clayton, Clinton, Delaware, Des Moines, Dubuque, Fayette, Henry, Jackson, Johnson, Jones, Lee, Linn, Louisa, Muscatine, Scott, Washington, and Winneshiek of the State of Iowa; and the Counties of Columbia, Crawford, Dane, Dodge, Grant, Green, Iowa, Jefferson, Kenosha, Lafayette, Milwaukee, Ozaukee, Racine, Richland, Rock, Sauk, Walworth, Washington and Waukesha of the State of Wisconsin).

Radio District No. 19: Headquarters, 2909 David Stott Bldg., Detroit, Michigan.

(Includes: The State of Michigan, except the Counties of Alger, Baraga, Chippewa, Delta, Dickinson, Gogebic, Houghton, Iron, Keweenaw, Luce, Mackinac, Marquette, Minominee, Ontonagon and Schoolcraft; the States of Ohio, Kentucky, and West Virginia).

Radio District No. 20: Headquarters, 514 Federal Bldg., Buffalo, N.Y.

(Includes: The State of New York, except the Counties of Albany, Bronx, Columbia, Delaware, Dutchess, Greene, Kings, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Schenectady, Suffolk, Sullivan, Ulster, and Westchester; the State of Pennsylvania, except Adams, Berks, Bucks, Carbon, Chester, Cumberland, Dauphin, Delaware, Lancaster, Lehigh, Monroe, Montgomery, Northampton, Perry, Philadelphia, Schuylkill, and York).

Examinations for radio operators' licenses are held in the 20 offices just listed and in addition:

Washington, D. C.	San Antonio, Tex.	Pittsburgh, Pa.
Schenectady, N.Y.	Oklahoma City, Okla.	Cleveland, Ohio.
Winston-Salem, N.C.	Des Moines, Iowa.	Cincinnati, Ohio.
Nashville, Tenn.	St. Louis, Mo.	Columbus, Ohio.

## 5. Safety Rules

All ordinary precautions required for the safe operation of any electrical equipment should be observed in every radio station; for example, all high-voltage wiring should be carefully insulated and kept as far as possible from other wiring and so placed as to minimize the possibility that persons may come in contact with it, and suitable danger tags should be displayed.

Insurance companies and city governments make certain requirements regarding electrical installations in buildings. The usual requirements are summarized in a small book, the National Electrical Code, which may be secured for ten cents from the National Board of Fire Underwriters, 85 John Street, New York, N.Y. Article 37 of this Code gives the requirements for radio equipment.

Requirements for safe radio construction are given in Bureau of Standards Handbook No. 9, "Safety Rules for Radio Installations," which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., at ten cents per copy. This handbook gives, on pages 7 to 14, rules for erection of antennas. Some explanation of these rules and of the reasons for them is given in Part 5 of B.S. Handbook No. 4, "Discussion of the National Electrical Safety Code," the price of which is \$1.00.

Safety standards for radio-transmitting equipment are given in the Report of the Committee on Standardization, obtainable from the Institute of Radio Engineers, 33 West 39th Street, New York, N.Y.

Department of Commerce,  
Washington, D.C.