

RADIO DIVISION

RADIO SERVICE BULLETIN

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CONTENTS

| | Page | | Page |
|---|------|---|------|
| New stations..... | 2 | Miscellaneous—Continued. | |
| Alterations and corrections..... | 7 | Daylight-saving time established in Portugal and at Gibraltar..... | 29 |
| Miscellaneous: | | Ratifications of the International Radiotelegraph Radiotelegraph Convention..... | 30 |
| General orders of the Federal Radio Commission..... | 25 | Radiobeacon established at Cove Island, Canada..... | 30 |
| Improvement of traffic facilities on high frequencies by Portishead, British coast station..... | 28 | Amendment to regulations governing issuance of radio operators' licenses..... | 30 |
| Traffic list calls from British coast stations..... | 29 | New international list of radio stations of the world now available for distribution by the Berne Bureau..... | 30 |
| Seaforth, British coast station equipped with new working frequency..... | 29 | References to current radio literature..... | 30 |
| Radiobeacon established at Dungeness (British) light station..... | 29 | Some observations of short period radio fading..... | 33 |
| Time signals transmitted by Norddeich, Germany..... | 29 | | |

ABBREVIATIONS AND SYMBOLS

The necessary corrections to the list of Commercial and Government Radio Stations of the United States and to the International List of Radiotelegraph Stations, appearing in this bulletin under the heading "Alterations, and corrections," are published after the stations affected in the following order:

- Name = Name of station.
- Loc. = Geographical location. W = west longitude. N = north latitude. S = south latitude. E = east longitude.
- Call. = Call signal (letters) assigned.
- Type = Type of wave classified as follows: A1 = continuous wave (tube), A, arc = continuous wave, A2 = interrupted continuous wave, A3 = phone, B = spark.
- Fy. = Frequency in kilocycles; normal frequency in italics; wave length in meters in parenthesis.
- Service = Nature of service maintained: PG = general public (ship to shore), PR = limited public (limited to public correspondence between fixed stations), P = private, O = Government business exclusively.
- Class = FX = fixed station (point-to-point service), RG = radio-compass station, FA = aeronautical station, AB = aviation station, RF = directional radiobeacon, B = ship station, FC = coast station.
- Hours = Hours of operation: N = continuous service, X = no regular hour, Y = sunrise to sunset.
- Accounts = Message accounts settled by.
- F. T. Co. = Federal Telegraph Co.
- I. R. T. Co. = Intercity Radio Telegraph Co.
- I. W. T. Co. = Independent Wireless Telegraph Co.
- M. R. T. Co. = Mackay Radio & Telegraph Co.
- R. C. A. = Radio Corporation of America.
- R. M. C. A. = Radiomarine Corporation of America.
- T. R. T. Co. = Tropical Radio Telegraph Co.
- C. w. = Continuous wave.
- I. c. w. = Interrupted continuous wave.
- A. c. = Alternating current.
- V. t. = Vacuum tube.
- M. a. = Meters-amperes.
- U. S. L. = Applies only to the list of Commercial and Government Radio Stations of the United States.
- ◁ = Equipped with a radio compass (direction finder).

NEW STATIONS

Commercial land stations, alphabetically, by names of stations

[Additions to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1928, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

| Station | Call signal | Frequency in kilocycles, meters in parentheses | Service and class | Hours | Owner ¹ |
|---|-------------|--|-------------------|-------|--------------------------------|
| Abulug (Cagayan), P. I. Radio ¹ | KAU | 300 (1,000), 600 (500) | PG | | Philippine Insular Government. |
| Baler (Tayabas), P. I. Radio ² | KBR | 366 (820), 500 (600), 750 (400) | PG | | Do. |
| Brownsville, Tex. | KGJW | 4124 (72.744), 6395 (46.911) | FA and FX-P | X | Pan American Airways. |
| El Paso, Tex. ³ | KGJU | 3492 (85.910), 6230 (48.15) | FA and FX-P | X | Maddux Air Lines (Inc.). |
| Do. ⁴ | KGKA | 6350 (47.24) | FA and FX-P | | Standard Air Lines. |
| Kingman, Ariz. ⁵ | KGTL | 2482 (120.87), 3460 (96.7), 5690 (52.72), 6410 (46.80) | FA and FX-P | X | Western Air Express. |
| Los Angeles (Rogers Field), Calif. ⁶ | KGJV | 3492 (85.910), 6230 (48.15) | do. | X | Maddux Air Lines (Inc.). |
| Louisiana and Texas No. 1 (portable) ⁶ | KGKE | 1600 (187.5), 1652 (181.60), 1664 (180.29), 1680 (178.6), 1704 (176.06) | FX-P | | McCullum Exploration Co. |
| Miami, Fla. ⁷ | WKDL | 333 (900), 414 (725), 500 (600), 2302 (130.321), 3076 (97.529), 4124 (72.744), 6395 (46.911) | FA and FX-P | X | Pan American Airways. |
| Mills Field (San Bruno), Calif. ⁸ | KGJT | 3492 (85.910), 6230 (48.15) | FA and FX-P | X | Maddux Air Lines, (Inc.). |
| Phoenix, Ariz. ⁹ | KGJR | do | do. | X | Do. |
| Do. ⁹ | KGKC | 6350 (47.24) | Do. | | Standard Air Lines. |
| San Diego, Calif. ¹ | KGJS | do | Do. | X | Do. |
| Santa Maria, Calif. ⁹ | KGKD | 333 (900), 1616 (185.64), 2344 (127.986), 4785 (62.695) | Do. | | Santa Maria Air Lines (Inc.). |
| Third Radio Zone No. 42 (portable) ¹⁰ | KGJQ | 1600 (187.5), 1652 (181.6), 1664 (180.29), 1680 (178.6), 1704 (176.06) | FX-P | X | Geophysical Research Corp. |
| Third Radio Zone No. 43 (portable) ¹⁰ | KGJP | do | FX-P | X | Do. |
| Third Radio Zone No. 44 (portable) ¹⁰ | KGJO | do | FX-P | X | Do. |
| Third Radio Zone No. 45 (portable) ¹⁰ | KGJN | do | FX-P | X | Do. |
| Third Radio Zone No. 46 (portable) ¹⁰ | KGJM | do | FX-P | X | Do. |
| Third Radio Zone No. 47 (portable) ¹⁰ | KGJL | do | FX-P | X | Do. |

¹ Loc., 121° 00' 27" E., 18° 00' 25" N., type, A1; hours, 8 to 12 a. m., 2 to 5.30 daily, 9 to 11 a. m., 2 to 3.3 p. m., Sundays and holidays; ship schedule, 0-10 of each hour; rates, 6 cents per word.

² Loc., 121° 33' 21" E., 15° 44' 39" N., type, A1 and A2; hours, 8 to 12 a. m., 2 to 5.30 p. m. daily, 9 to 11 a. m., 2 to 3.30 p. m., Sundays and holidays; ship schedule 30-40 of each hour; rates, 6 cents per word.

³ Type, A1 and A3.

⁴ Type, A1, hours, 5 a. m. to 8 p. m. daily.

⁵ Type, A1.

⁶ Type, A1 and A3; hours, 8 a. m. to 6 p. m., daily, except Sunday.

⁷ Type, A1 and A3.

⁸ Loc. (approximately), 112° 00' 00" W., 34° 30' 00" N., type A1; hours, 5 a. m. to 8 p. m. daily.

⁹ Loc. (approximately), 120° 26' 26" W., 34° 56' 30" N., type A1; hours, 8 to 9 a. m. and 6.30 to 7.30 p. m. daily.

¹⁰ Type, A2.

Commercial ship stations, alphabetically, by name of vessels

[Additions to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1928, and to the International List of Radiotelegraph Stations, published by the Berné bureau]

| Name of vessel | Call signal | Rates, all services (cents) | Service | Hours | Owner | Message accounts settled by— |
|-------------------------|-------------|-----------------------------|---------|-------|-----------------------------|------------------------------|
| Akutan ¹ | WKDH | | P | X | Alaska Salvage & Towing Co. | Owner. |
| Astoria | WJDV | | | | Quincy S. S. Co. | |
| Barbara Cates | KJOO | 8 | PG | X | Sudden & Christenson | M. R. T. Co. |
| Barlow ² | WLAE | | PG | X | Ford Motor Co. | R. C. A. |
| Barwind Glen | WKDC | 8 | PG | X | Wilmore S. S. Co. | |
| Buddy ³ | WKDN | | | | Far West Fisheries | Owner. |
| Carissima | WKDG | 8 | PG | X | J. A. Talbot | R. R. C. A. |
| Dorothy | WKDD | | | | O. O. Hvatum | Owner. |
| Dorothy Cahill | WJDU | 8 | PG | X | Sudden & Christenson | M. R. T. Co. |
| Heber | KDDU | 8 | PG | X | Los Angeles S. S. Co. | Do. |
| Hies-Maró | WJDY | | | | H. E. Manville | |
| Koyola | WKDO | | P | X | George F. Briffett | Owner. |
| Margo | WKDI | 8 | PG | X | B. A. Masee | |
| Nanuk | WKDB | 8 | PG | X | Swenson Fur Trading Co. | R. M. C. A. |
| Peru | WKDJ | 8 | PG | X | Jahagan Construction Co. | |
| State of Virginia | WKDF | 8 | PG | X | Baltimore Steam Packet Co. | |
| Theo ⁴ | WKDK | | PG | X | James P. Parish | R. C. A. |
| Violet Ray ⁵ | WKDM | | P | X | Far West Fisheries | Owner. |
| Zaila | WKDP | | | X | William E. Harned | |

¹ Type, A2; fy., 375 (800), 425 (705), 500 (600).

² Type, A2; fy., 143 (2,100), 157 (1,910), 375 (800), 394 (760), 410 (730), 425 (705); rates, North and South American and transoceanic services, 8 cents per word, Great Lakes service, 4 cents per word.

³ Type, A1; fy., 2,320 (129.3).

⁴ Type, A2; fy., 375 (800), 394 (760), 400 (750), 410 (730), 425 (705), 454 (660), 468 (640), 500 (600); rates, Great Lakes service, 4 cents per word.

⁵ Type, A1; fy., 2,320 (129.3).

Commercial land and ship stations, alphabetically, by call signals

| Call signal | Name of station | Call signal | Name of station |
|-------------|---|-------------|--------------------------|
| KAU | Abulug (Cagayan), P. I. Radio.....fc | KGTL | Kingman, Ariz.....fx |
| KBR | Baler (Tayabas), P. I. Radio.....fc | KJOO | Barbara Cates.....b |
| KDDU | Heber.....b | WJDU | Dorothy Cahill.....b |
| KGJL | Third Radio Zone No. 47 (portable)....fx | WJDV | Astoria.....b |
| KGJM | Third Radio Zone No. 46 (portable)....fx | WJDY | Hies-Maró.....b |
| KGJN | Third Radio Zone No. 45 (portable)....fx | WKDB | Nanuk.....b |
| KGJO | Third Radio Zone No. 44 (portable)....fx | WKDC | Berwind Glen.....b |
| KGJP | Third Radio Zone No. 43 (portable)....fx | WKDD | Dorothy.....b |
| KGJQ | Third Radio Zone No. 42 (portable)....fx | WKDF | State of Virginia.....b |
| KGJR | Phoenix, Ariz.....fa and fx | WKDG | Carissima.....b |
| KGJS | San Diego, Calif.....fa and fx | WKDH | Akutan.....b |
| KGJT | Mills Field (San Bruno), Calif. fa and fx | WKDI | Margo.....b |
| KGJU | El Paso, Tex.....fa and fx | WKDJ | Peru.....b |
| KGJV | Rogers Field (Los Angeles), Calif.....fa and fx | WKDK | Theo.....b |
| KGJW | Brownsville, Tex.....fa and fx | WKDL | Miami, Fla.....fa and fx |
| KGKA | El Paso, Tex.....fa and fx | WKDM | Violet Ray.....b |
| KGKC | Phoenix, Ariz.....fa and fx | WKDN | Buddy.....b |
| KGKD | Santa Maria, Calif.....fa and fx | WKDO | Koyola.....b |
| KGKE | Texas and Louisiana (portable)....fx | WKDP | Zaila.....b |
| | | WLAE | Barlow.....b |

Broadcasting stations, alphabetically, by names of States and cities

[Additions to the List of Radio Stations of the United States, edition of June 30, 1928]

| State and city | Call signal | Frequency in kilocycles, meters in parentheses | Power (watts) |
|---------------------|-------------|--|---------------|
| Texas: El Paso..... | KTSM | 1310 (229)..... | 100 |

Broadcasting stations, alphabetically, by call signals

| Call signal | Location of station (address) | Owner | Frequency in kilocycles, meters in parentheses | Power (watts) |
|-------------|-------------------------------|------------------------------------|--|---------------|
| KTSM | El Paso, Tex. | W. S. Bledsoe and W. T. Blackwell. | 1310 (229) | 100 |

Commercial aircraft stations, alphabetically, by names of craft

[Additions to the List of Radio Stations of the United States, edition of June 30, 1928, and to the International List of Radiotelegraph Stations published by the Berne bureau]

| Station | Call signal | Frequency in kilocycles, meters in parentheses | Service | Hours | Owner |
|--|-------------|--|---------|-------|---|
| City of Glendale ¹ | KHEF | 333 (900), 393 (765), 500 (600) | P | X | Slate Aircraft Corp. |
| City of Tacoma ² | KIK | 5,525 (54.3), 5,555 (54), 8,290 (36.19), 11,050 (27.15), 11,110 (27), 16,575 (18.1), 16,660 (18) | P | X | Irving Niles. |
| 810-H ¹ | KHFD | | P | X | Pan-American Airways. Curtiss Aeroplane Export Corp. |
| El Alma De Las Americas ³ | KHEN | 5,510 (54.45) | P | X | |
| N. A. T. Airplane No. 39, ¹ | KHEG | 2,326 (128.976), 2,722 (110.213) | P | X | National Air Transport. |
| NC 231E ¹ | KHAU | 333 (900), 414 (725.6), 500 (600), 2,302 (130.32), 3,076 (97.5), 4,124 (72.744) | P | X | Pan-American Airways. |
| NC 395E ¹ | KHAW | do | P | X | Do. |
| NC 396E ¹ | KHAX | do | P | X | Do. |
| NC 454E ¹ | KHAE | do | P | X | Do. |
| NC 1612 ¹ | KHAC | do | P | X | Do. |
| NC 3314 ¹ | KHFB | do | P | X | Do. |
| NC 5192 ¹ | KHFC | do | P | X | Do. |
| NC 8000 ¹ | KHAK | do | P | X | Do. |
| NC 8020 ¹ | KHAV | do | P | X | Do. |
| NC 8043 ¹ | KHEB | do | P | X | Do. |
| NC 8044 ¹ | KHAP | 333 (900), 414 (725), 500 (600), 2,302 (130.32), 3,076 (97.5), 4,124 (72.744) | P | X | Curtiss Flying Service. Pan-American Airways. |
| NC 9107 ¹ | KHAS | do | P | X | Do. |
| NC 9137 ¹ | KHFA | do | P | X | Do. |
| NC 9151 ¹ | KHAT | 333 (900), 414 (725), 500 (600), 2,302 (130.32), 3,076 (97.5), 4,108 (73.028) | P | X | Do. |
| NC 9157 | KHEC | | P | X | Suburban Air Lines of New York. |
| NC 9637 ¹ | KHAQ | 333 (900), 414 (725), 500 (600), 2,302 (130.32), 3,076 (97.5), 4,124 (72.744) | P | X | Do. |
| NC 9664 ¹ | KHAD | 333 (900), 414 (725), 500 (600), 2,302 (130.32), 3,076 (97.5), 4,108 (73.028) | P | X | Do. |
| NC 9685 ¹ | KHAH | do | P | X | Pan-American Airways. |
| NC 9700 ¹ | KHAM | 333 (900), 414 (725), 500 (600), 2,302 (130.32), 3,076 (97.5), 4,124 (72.744) | P | X | Do. |
| NC 9701 ¹ | KHAO | do | P | X | Do. |
| NC 9703 ¹ | KHAR | do | P | X | Do. |
| NC 9713 ¹ | KHAN | do | P | X | Do. |
| NC 9775 ¹ | KHAA | 333 (900), 414 (725), 500 (600), 2,302 (130.32), 3,076 (97.5), 4,124 (72.744) | P | X | Do. |
| NC 9776 ¹ | KHAB | do | P | X | Do. |
| NX 7713 ⁴ | KHEE | 3,492 (85.91) | P | X | James Warner. |
| Pan-American Airways, ⁵ | WPAN | | | | Pan-American Airways. |
| Southern Star ⁶ | KHEA | 333 (900), 500 (600) | P | X | American International Airways. |
| Untin Bowler ³ | KHEJ | 8,690 (34.52) | P | X | Tribune Co. (Chicago Tribune). |
| Washington | KHED | | P | X | New York, Rio & Buenos Aires Line. |

¹ Type A1, A2, and A3.² Type A3.³ Type A1.⁴ Type A1 and A3.⁵ General call for all stations of the Pan-American Airways.⁶ A2.

Commercial aircraft stations, alphabetically, by call signals

| Call signal | Name of station | Call signal | Name of station |
|-------------|-----------------|-------------|---|
| KHAA | NC 9775. | KHAX | NC 396E. |
| KHAB | NC 9776. | KHEA | Southern Star. |
| KHAC | NC 1612. | KHEB | NC 8043. |
| KHAD | NC 9664. | KHEC | NC 9157. |
| KHAE | NC 454E. | KHED | Washington. |
| KHAH | NC 9685. | KHEE | NX 7713. |
| KHAK | NC 8000. | KHEF | City of Glendale. |
| KHAM | NC 9700. | KHEG | N. A. T. Airplane No. 39. |
| KHAN | NC 9713. | KHEJ | Untin Bowler. |
| KHAO | NC 9701. | KHEN | El Alma de Las Americas. |
| KHAP | NC 8044. | KHFA | NC 9137. |
| KHAQ | NC 9637. | KHFB | NC 3314. |
| KHAR | NC 9703. | KHFC | NC 5192. |
| KHAS | NC 9107. | KHFD | 810-H. |
| KHAT | NC 9151. | KIK | City of Tacoma. |
| KHAU | NC 231E. | WPAN | Pan American Airways—General call for all stations. |
| KHAV | NC 8020. | | |
| KHAW | NC 395E. | | |

Government land stations, alphabetically, by names of stations

[Additions to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1928, and to the International List of Radiotelegraph Stations published by the Berne bureau]

| Station | Call signal | Frequency in kilocycles, meters in parentheses | Service | Hours | Owner |
|-------------------------------------|-------------|--|---------|-------|-------------|
| Fort Grant, Canal Zone. | WZY | 173 (1,730), 666 (450), 750 (400). | FXO | Y | U. S. Army. |
| Fort McKinley, P. I. (Rizal). | WTX | 4,305 (69.7), 8,610 (34.84)--- | FXO | Y | Do. |
| Quarry Heights, Canal Zone. | WVL | 749 (400), 4,365 (68.7), 8,730 (34.36), 13,095 (22.91), 17,460 (17.182). | FXO | N | Do. |
| Zamboanga, P. I. (Pettit Barracks). | WLX | 4,305 (69.7), 8,610 (34.84)--- | FXO | Y | Do. |

Government ship stations, alphabetically, by names of stations

[Additions to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1928, and to the International List of Radiotelegraph Stations published by the Berne bureau]

| Station | Call signal | Frequency in kilocycles, meters in parentheses | Service | Hours | Owner |
|------------|-------------|--|---------|-------|-------------|
| Gouverneur | WYDH | | O | X | U. S. Army. |

Government land and ship stations, alphabetically, by call signals

| Call signal | Name of station | Call signal | Name of station |
|-------------|---|-------------|-------------------------------|
| WLX | Zamboanga, P. I. (Pettit Barracks).....fx | WYDH | Gouverneur.....b |
| WTX | Fort McKinley, P. I. (Rizal).....fx | WZY | Fort Grant, Canal Zone.....fx |
| WVL | Quarry Heights, Canal Zone.....fx | | |

Experimental, relay broadcasting, and visual broadcasting stations, alphabetically, by names of stations

[Additions to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1928]

| Station | Call signal | Frequency in kilocycles, meters in parentheses | Power (watts) | Owner |
|---|-------------|---|---------------|---|
| California: | | | | |
| San Francisco..... | W6XZ | 23,000 (13.043) to 28,000 (10.714). | 50,000 | Universal Wireless Communication Co. |
| Westminster (near). ¹ | W6XAL | 6,080 (49.34), 15,250 (19.672), 21,500 (13.953). | 15,000 | Pacific-Western Broadcasting Federation. |
| Colorado: Gunnison... | W9XD | 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341). | 100 | Western State College of Colorado. |
| Florida: Miami Beach. | W4XQ | do..... | 1,000 | Laurence E. Dutton, 1550 Drexel Ave. |
| Hawaii: | | | | |
| Lahaina..... | K6XX | 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341), 30,000 (10) to 300,000 (1). | 500 | R. C. A. |
| Honolulu..... | K6XS | do..... | 1,000 | Do. |
| Illinois: | | | | |
| Chicago..... | W9XM | 23,000 (13.043) to 28,000 (10.714). | 50,000 | Universal Wireless Communication Co. |
| Downers Grove (studio in Chicago). ¹ | W9XF | 6,020 (49.83), 11,800 (25.42), 21,500 (13.953). | 5,000 | Great Lakes Radio Broadcasting Co., 72 W. Adams St. |
| Rantoul..... | W9XK | 3,256 (92.1376), 6,425 (46.6926), 8,650 (34.68), 17,300 (17.341). | 1,000 | Albert B. Pitts, Chanute Field. |
| Massachusetts: | | | | |
| Wianno..... | W1XA | 8,650 (34.68), 12,850 (23.35). | 500 | Edward C. Crossett. |
| New York: | | | | |
| Buffalo..... | W8XH | 23,000 (13.043) to 28,000 (10.714). | 50,000 | Universal Wireless Communication Co. |
| New York | W2XCT | do..... | 50,000 | Do. |
| Port Washington... | W2XCS | 1,608 (186.57), 5,510 (54.45), 2,302 (130.32), 3,076 (97.5), 4,108 (73.028), 6,155 (48.74). | 200 | American Aeronautical Corp., 730 Fifth Ave., New York, N. Y. |
| Utah: Salt Lake City.. | W6XA | 23,000 (13.043) to 28,000 (10.714). | 50,000 | Universal Wireless Communication Co. |
| North Dakota: Grand Forks. | W9XJ | 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341). | 500 | University of North Dakota, Department of Electrical Engineering. |
| Ohio: Cleveland..... | W8XD | do..... | 500 | Cleveland Vacuum Tube Works, Nela Park. |
| Pennsylvania: | | | | |
| East Pittsburgh..... | W8XI | 30,000 (10) to 300,000 (1)..... | 20,000 | Westinghouse Electric & Mfg. Co. |
| Philadelphia (Bensam and Marlow St. near Bustleton). ¹ | W8XAU | 6,060 (49.5), 9,590 (31.28)..... | 500 | Universal Broadcasting Co., 1,940 Market St. |
| Portable | | | | |
| Colorado..... | W9XE | 1,604 (187.03), 2,398 (125.1)..... | 5 | Colorado School of Mines. |
| Aircraft | | | | |
| Unnamed..... | W10XM | 1,608 (186.57), 2,302 (130.32), 3,076 (97.5), 4,108 (73.028), 5,510 (54.45), 6,155 (48.74). | 1,000 | Boeing Air Transport (Inc.). |
| NC1592..... | W10XN | 5,510 (54.45), 6,155 (48.74)..... | 100 | R. N. Cheminant, 2500 Marvin Ave., Los Angeles, Calif. |

¹Relay broadcasting.

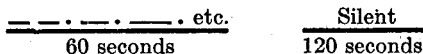
Experimental, relay broadcasting, and visual broadcasting stations, grouped by districts

| Call signal | District and station | Call signal | District and station |
|-------------|---|-------------|---|
| W1XA | First district: Wianno, Mass. | W8XD | Eighth district: |
| W2XCS | Second district: | W8XH | Cleveland, Ohio. |
| W2XCT | Port Washington, N. Y. | W8XI | Buffalo, N. Y. |
| W3XAU | New York, N. Y. | W9XD | East Pittsburgh, Pa. |
| W4XQ | Third district: Philadelphia, Pa. (Ben- samen Turnpike and Marlow St., near Bustleton). | W9XE | Ninth district: |
| K6XS | Fourth district: Miami Beach, Fla. | W9XF | Gunnison, Colo. |
| K6XX | Sixth district: | W9XJ | Colorado (portable). |
| K6XX | Honolulu, Hawaii. | W9XK | Downers Grove, Ill. (studio in Chicago). |
| W6XA | Lahaina, Hawaii. | W9XM | Grand Forks, N. Dak. |
| W6XAL | Salt Lake City, Utah. | W10XM | Rantoul, Ill. |
| W6XZ | Westminster, Calif. (near). | W10XN | Chicago, Ill. |
| | Sau Francisco, Calif. | | Aircraft: |
| | | | Unnamed. |
| | | | NC1592. |

RADIOBEACON STATIONS

[Additions to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1928, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Sabine Pass Light Station, Tex.—Loc., 93°51' 01" W., 29°42' 59" N.; transmits groups of 2 dashes and 1 dot for 60 seconds, silent 120 seconds, thus:



Operates continuously during thick or foggy weather and daily in clear weather from 1.30 to 2 and 7.30 to 8 a. m. and p. m., ninetieth meridian time, on a frequency of 305 (984).

ALTERATIONS AND CORRECTIONS

COMMERCIAL LAND STATIONS

[Alterations and corrections to be made to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1928, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

NOTE.—The approximate meters for the following frequencies should be substituted for those published heretofore for stations of all classes: 143 (2,100), 151 (1,985), 153 (1,960), 155 (1,935), 157 (1,910), 165 (1,820), 167 (1,795), 171 (1,755), 174 (1,725), 179.2 (1,675), 190.1 (1,580), 394 (760), 410 (730), 425 or 426 (705), 454 (660), 460 (650), 468 (640).

- ABERDEEN, WASH.—Fy., 182.82 (1,641), 460 (650), 500 (600).
- ALPENA, MICH., RADIO (WGI).—Fy., 174 (1,725), 410 (730), 425 (705).
- ANNETTE ISLAND, ALASKA, RADIO.—Fy., 283 (1,060), 425 (705), 500 (600).
- BAKERSFIELD, CALIF.—Fy., 5,570 (53.86); hours, N.
- BOLINAS, CALIF. (KEJ).—Owner, R. C. A. Communications (Inc.).
- BOLINAS, CALIF. (KEL).—Owner, R. C. A. Communications (Inc.).
- BOLINAS, CALIF. (KES).—Owner, R. C. A. Communications (Inc.).
- BOLINAS, CALIF. (KKZ).—Owner, R. C. A. Communications (Inc.).
- BOLINAS, CALIF. (KLL).—Owner, R. C. A. Communications (Inc.).
- BOLINAS, CALIF. (KMM).—Owner, R. C. A. Communications (Inc.).
- BOLINAS, CALIF., RADIO (KPH).—Fy., add 5,525 (54.3), 6,440 (46.58), 8,430 (35.59), 11,050 (27.15), 12,520 (23.96), 12,550 (23.90), 16,575 (18.10), 16,580 (18.094), 21,940 (13.674), 21,980 (13.649), 22,100 (13.575).
- BOLINAS, CALIF. (KQJ).—Owner, R. C. A. Communications (Inc.).
- BOLINAS, CALIF. (KSS).—Owner, R. C. A. Communications (Inc.).
- BOLINAS, CALIF. (KUN).—Owner, R. C. A. Communications (Inc.).
- BOSTON, MASS., RADIO (WBF).—Type, A1-2-3; fy., 143 (2,100), 147 (2,041), 436 (688), 500 (600), 4,172 (71.908), 5,525 (54.3), 6,785 (44.2), 8,550 (35.09), 10,470 (28.7), 11,050 (27.15), 12,370 (24.25), 12,970 (23.15), 16,575 (18.099), 17,580 (17.1), 22,100 (13.575), 22,400 (13.393).

- BUFFALO, N. Y., RADIO (WAM).**—Fy., 165 (1,820), 171 (1,755), 410 (730), 425 (705), 4,116 (72.88), 8,630 (34.76).
- BUFFALO, N. Y., RADIO (WBL).**—Fy., 143 (2,100), 161 (1,865), 410 (730), 425 (705), 454 (660), 4,775 (62.82), 5,525 (54.3), 8,570 (35.01).
- CEIBA, P. R., RADIO.**—Fy., 186.3 (1,610), 438 (685), 500 (600), 1,592 (188.44), 5,525 (54.298), 5,769 (52), 6,515 (46.05).
- CHATHAM, MASS., RADIO (WIM).**—Loc. change to Marion, Mass. (see hereafter).
- CHICAGO, ILL., RADIO (WFL).**—Fy., 165 (1,820), 410 (730), 425 (705); owner, Intercity Radio Telegraph Co.
- CHICAGO, ILL., RADIO (WGO).**—Fy., 143 (2,100), 167 (1,796), 190.1 (1,578), 410 (730), 425 (705), 454 (660), 4,775 (62.827), 5,525 (54.3), 8,570 (35.01); hours, X.
- CLEARWATER, CALIF. (LOS ANGELES), RADIO (KOK).**—Type, add A1; fy., add 4,196 (71.496), 5,525 (54.3), 8,670 (34.60), 11,050 (27.15), 11,380 (26.36), 16,575 (18.099), 16,580 (18.094), 16,900 (17.751), 21,620 (13.876), 22,100 (13.575).
- CLEARWATER, CALIF. (LOS ANGELES) (KNR).**—Fy., 55.36 (54.20), 79.32 (3,782), 92.76 (32.34), 4,396 (68.243), 4,400.5 (68.18), 4,405 (68.10), 4,410 (68.02), 4,415 (67.95), 5,975 (50.20), 5,982.5 (50.15), 5,990 (50.083), 7,662.5 (39.15), 7,737.5 (38.75), 7,752.5 (38.70), 8,980 (33.41), 10,170 (29.50), 10,820 (27.73), 10,890 (27.55), 13,015 (23.05), 17,140 (17.503).
- CLEVELAND, OHIO, RADIO (WTK).**—Fy., add 4,116 (72.886), 8,630 (34.76).
- DALY, ALASKA.**—Loc., 158° 27' 12" W.; 59° 12' 2" N.; fy., 283 (1,060).
- DEAL, N. J. (NEAR).**—Loc. changed to Lawrenceville, N. J.; type, A1 and A3.
- DEARBORN, MICH. (WBO).**—Fy., 5,525 (54.3), 8,630 (34.76).
- DEARBORN, MICH. (WFO).**—Type, A2; hours, N.
- DETROIT, MICH., RADIO (WDI).**—Fy., 165 (1,820), 171 (1,755), 410 (730), 425 (705), 4,116 (72.9), 5,525 (54.3), 8,630 (34.76).
- DULUTH, MINN. (WME).**—Type, A2 and B; fy., 143 (2,100), 165 (1,820), 171 (1,755), 410 (730), 425 (705), 4,116 (72.886), 8,630 (34.76); hours, 7 a. m. to 7 p. m.
- DULUTH, MINN., RADIO (WRL).**—Fy., 143 (2,100), 167 (1,796), 179.2 (1,674), 190.1 (1,578), 410 (730), 425 (705), 454 (660), 4,775 (62.827), 5,525 (54.3), 8,570 (35.01).
- EAST MORICHES, N. Y. RADIO.**—Type, A arc and B; fy., 111 (2,703), 137 (2,190), 143 (2,100), 500 (600).
- ENSENADA, P. R., RADIO.**—Type, A arc and B; fy., 143 (2,100), 163 (1,840), 500 (600).
- FORT MORGAN, ALA.**—Type, A1 and A2; fy., 176 (1,705), 442 (680), 500 (600), 4,172 (71.90), 5,525 (54.3), 6,650 (45.11), 11,050 (27.15), 13,180 (22.76), 16,580 (18.094); hours, 7 a. m. to 10 p. m. daily.
- HIALEAH, FLA., RADIO.**—Loc. 80° 16' 54" W.; 25° 56' 6" N.; fy., 53.45 (5,612), 77 (3,900), 80.5 (3,725), 143 (2,100), 145 (2,070), 482 (620), 500 (600), 6,770 (44.31), 10,450 (28.71), 12,940 (23.18).
- HILLSBORO, OREG., RADIO (KEK).**—Type, A1; fy., 418 (720), 500 (600), 4,755 (63.091), 5,525 (54.3), 6,560 (45.73), 11,050 (27.15), 11,320 (26.50), 16,575 (18.099), 16,580 (18.094), 21,660 (13.85), 22,100 (13.575).
- HILLSBORO, OREG. (KGH).**—Fy., 34.50 (8,700), 47.50 (6,316), 71.26 (4,210), 4,396 (68.243), 4,400.5 (68.18), 4,405 (68.10), 4,410 (68.02), 4,415 (67.95), 5,975 (50.20), 5,982.5 (50.15), 5,990 (50.083), 7,662.5 (39.15), 7,737.5 (38.75), 7,752.5 (38.70), 8,980 (33.41), 10,170 (29.50), 10,820 (27.73), 10,890 (27.55), 13,015 (23.05), 17,140 (17.503).
- HONOLULU, HAWAII (NEAR) (KNN).**—Loc. changed to Kailua (Honolulu), Hawaii; fy., 6,815 (44.02), 6,875 (43.64), 7,655 (39.09), 7,662.5 (38.65), 7,670 (39.11), 7,730 (38.81), 7,737.5 (38.78), 7,745 (38.74), 7,752.5 (38.7), 7,760 (38.66), 8,075 (37.15), 8,710 (34.44), 8,850 (33.9), 8,970 (33.44), 8,980 (33.41), 8,990 (33.37), 9,070 (33.08), 9,290 (32.29), 10,170 (29.5), 10,490 (28.6), 10,810 (27.75), 10,820 (27.73), 10,830 (27.7), 10,890 (27.55), 13,000 (23.08), 13,015 (23.05), 13,030 (23.02), 13,750 (21.82), 13,960 (21.49), 14,680 (20.44), 14,695 (20.415), 14,710 (20.39), 14,725 (20.375), 14,740 (20.35), 14,755 (20.335), 14,770 (20.31), 17,140 (17.503), 17,420 (17.222), 17,660 (16.988), 17,680 (16.968), 17,700 (16.949), 18,260 (16.429), 18,780 (15.974), 19,540 (15.253), 19,560 (15.337), 19,580 (15.322), 19,600 (15.306), 19,620 (15.291), 19,740 (15.198), 20,300 (14.778), 20,980 (14.299), 21,380 (14.032).
- HONOLULU, HAWAII, RADIO (KYG).**—Fy., 500 (600), 5,525 (54.3), 8,630 (34.76), 11,050 (27.15), 11,200 (26.79), 16,580 (18.094), 16,900 (17.751), 22,100 (13.575), 22,160 (13.538).

- IKATAN, ALASKA, RADIO.—Fy., 186.3 (1,610), 283 (1,060), 425 (705), 500 (600).
 KING COVE, ALASKA, RADIO.—Fy., 186.3 (1,610), 283 (1,060), 425 (705), 500 (600).
 KINGMAN, ARIZ. (KSX).—Fy., strike out 400 (750), add 457 (656.5).
 KVICHAK, ALASKA (KYM).—Type, add A1.
 L'ANSE, MICH.—Fy., 174 (1,725).
 LANSING, ILL.—Fy., 333 (900), 414 (725).
 LAZY BAY, ALASKA.—Type, A2; fy., 283 (1,060), 425 (705), 500 (600); service, PR and P.
 LIHUE, HAWAII (ISLAND OF KAUAI).—Fy., add 460 (650), 500 (600).
 LOS ANGELES, CALIF., RADIO (KSM).—Fy., 500 (600), 5,525 (54.3), 8,630 (34.76), 11,050 (27.15), 11,200 (26.79), 16,580 (18.094), 16,900 (17.751), 22,100 (13.575), 22,160 (13.538).
 LUDINGTON, MICH., RADIO.—Fy., add 454 (660).
 MACKINAC ISLAND, MICH., RADIO.—Fy., 163 (1,840), 410 (730), 425 (705).
 MARION, MASS., RADIO (WIM).—Fy., 406 (740), 500 (600), 5,525 (54.3), 6,455 (46.47), 6,470 (46.37), 8,350 (35.93), 11,050 (27.15), 12,640 (23.73), 12,580 (23.85), 16,700 (17.964), 21,860 (13.724), 21,900 (13.699), 22,100 (13.575).
 MOBILE, ALA., RADIO (WNN).—Type, A1 and A2; fy., 143 (2,100), 147 (2,040), 442 (680), 500 (600), 4,172 (71.908), 5,525 (54.3), 8,550 (35.09), 11,050 (27.15), 12,370 (24.25), 16,575 (18.10), 16,850 (18.094), 22,100 (13.575), 22,400 (13.393).
 MOBILE, ALA. (WPP).—Fy., 143 (2,100), 165 (1,818), 274 (1,095), 438 (6,849), 500 (600), 3,420 (87.7), 6,515 (46.05).
 MUSSELL ROCK, CALIF.—Fy., 500 (600), 5,525 (54.3), 8,630 (34.76), 11,050 (27.15), 11,200 (26.79), 16,580 (18.094), 16,900 (17.751).
 NAKEEN, ALASKA (BRISTOL BAY).—Notice in Radio Service Bulletin for last month should have read Type, add A1 and A3; fy., add 2,320 (129.3).
 NEWARK, N. J.—Loc. changed to Sayville, N. Y. (WKI); fy., 4,396 (68.243), 4,400.5 (68.18), 4,405 (68.10), 4,410 (68.02), 4,415 (67.95), 5,975 (50.20), 5,982.5 (50.15), 5,990 (50.083), 7,662.5 (39.15), 7,737.5 (38.75), 7,752.5 (38.70), 8,980 (33.41), 10,170 (29.50), 10,820 (27.73), 10,890 (27.55), 13,015 (23.05), 17,140 (17.503), 17,680 (16.968); hours, N.
 NEW ORLEANS, LA., RADIO.—Type, A1 and A2; fy., 73 (4,110), 90 (3,333), 143 (2,100), 149 (2,013), 176 (1,750), 448 (670), 500 (600), 6,785 (44.22), 10,470 (28.65), 12,970 (23.13), 4,148 (72.32), 5,525 (54.3), 6,650 (45.11), 8,550 (35.09), 11,050 (27.15), 12,340 (24.31), 16,580 (18.094), 17,100 (17.544), 22,100 (13.575); 22,340 (13.429).
 NEW YORK, N. Y., RADIO (WCG).—Fy., 135 (2,222), 143 (2,100), 442 (680), 500 (600).
 NEW YORK, N. Y., RADIO (WHD).—Fy., 5,645 (53.144), 6,545 (45.84), 8,250 (36.36), 11,260 (26.64), 16,500 (18.182).
 NORTH BEND, OREG., RADIO.—Fy., 460 (650), 500 (600).
 NUSHAGAK, ALASKA (KZV).—Type, add A1.
 OAKLAND, CALIF. (KFO).—Type, A1 and A3; fy., 3,452 (86.906), 5,570 (53.86).
 PALO ALTO, CALIF. (NEAR) (KNW).—Fy., 6,815 (44.02), 6,875 (43.64), 7,655 (39.09), 7,662.5 (38.65), 7,670 (39.11), 7,730 (38.81), 7,737.5 (38.78), 7,745 (38.74), 7,752.5 (38.7), 7,760 (38.66), 8,075 (37.15), 8,710 (34.44), 8,850 (33.9), 8,970 (33.44), 8,980 (33.41), 8,990 (33.37), 9,070 (33.08), 9,290 (32.29), 10,170 (29.5), 10,490 (28.6), 10,810 (27.75), 10,820 (27.73), 10,830 (27.7), 10,890 (27.55), 13,000 (23.08), 13,015 (23.05), 13,030 (23.02), 13,750 (21.82), 13,960 (21.49), 14,680 (20.44), 14,695 (20.415), 14,710 (20.39), 14,725 (20.375), 14,740 (20.35), 14,755 (20.335), 14,770 (20.31), 17,140 (17.503), 17,420 (17.222), 17,660 (16.988), 17,680 (16.968), 17,700 (16.949), 18,260 (16.429), 18,780 (15.974), 19,540 (15.253), 19,560 (15.337), 19,580 (15.322), 19,600 (15.306), 19,620 (15.291), 19,740 (15.198), 20,300 (14.778), 20,980 (14.299), 21,380 (14.032).
 PALO ALTO, CALIF. (KWT).—Fy., 39.39 (7,616), 51.68 (5,804), 63.18 (4,748), 68.92 (4,291), 83.86 (3,574), 97.50 (3,077), 4,396 (68.243), 4,400.5 (68.18), 4,405 (68.10), 4,410 (68.02), 4,415 (67.95), 5,975 (50.20), 5,982.5 (50.15), 5,990 (50.083), 7,662.5 (39.15), 7,737.5 (38.75), 7,752.5 (38.70), 8,850 (33.90), 8,980 (33.41), 10,170 (29.50), 10,820 (27.73), 10,890 (27.55), 13,015 (23.05), 17,140 (17.503), 17,680 (16.968).
 POINT REYES, CALIF. (BOLINAS).—Owner, R. C. A. Communications (Inc.)
 PORT ALEXANDER, ALASKA.—Type, A2; fy., 180 (1,667), 246 (1,220), 410 (730), 500 (600); service and class FX and FC (PR).
 PORT ARTHUR, TEX., RADIO.—Fy., 131 (2,290), 143 (2,100), 418 (720), 500 (600), 5,525 (54.3), 6,455 (46.47), 8,370 (35.84), 11,650 (25.75), 12,670 (23.68), 16,580 (18.094), 21,820 (13.749), 22,100 (13.575).

- PORTLAND, OREG. RADIO (KKB).—Fy., 500 (600), 5,525 (54.2986), 8,630 (34.76), 11,050 (27.15), 11,200 (26.79), 16,580 (18.094).
- PORTLAND, OREG. RADIO (KPK).—Loc. (approximately), 122° 46' 00" W.; 45° 36' 18" N.; fy., 460 (650), 500 (600).
- PORT MOLLER, ALASKA.—Type, A1 and B; fy., 186.3 (1,610), 283 (1,060), 425 (705), 500 (600), 5,880 (51.02); class and service, PG and PR.
- QUINCY, MASS.—Fy., add 1,592 (188.44), 6,515 (4,605).
- ROCKY POINT, N. Y. (WDS).—Owner, R. C. A. Communications (Inc.).
- ROCKY POINT, N. Y. (WEB).—Owner, R. C. A. Communications (Inc.).
- ROCKY POINT, N. Y. (WEE).—Owner, R. C. A. Communications (Inc.).
- ROCKY POINT, N. Y. (WEF).—Owner, R. C. A. Communications (Inc.).
- ROCKY POINT, N. Y. (WEJ).—Owner, R. C. A. Communications (Inc.).
- ROCKY POINT, N. Y. (WEM).—Owner, R. C. A. Communications (Inc.).
- ROCKY POINT, N. Y. (WKM).—Owner, R. C. A. Communications (Inc.).
- ROCKY POINT, N. Y. (WLL).—Owner, R. C. A. Communications (Inc.).
- ROCKY POINT, N. Y. (WNL).—Hours, N.
- ROCKY POINT, N. Y. (WKP).—Owner, R. C. A. Communications (Inc.).
- ROCKY POINT, N. Y. (WQB).—Owner, R. C. A. Communications (Inc.).
- ROCKY POINT, N. Y. (WQC).—Owner, R. C. A. Communications (Inc.).
- ROCKY POINT, N. Y. (WQO).—Owner, R. C. A. Communications (Inc.).
- ROCKY POINT, N. Y. (WQQ).—Owner, R. C. A. Communications (Inc.).
- ROCKY POINT, N. Y. (WQX).—Owner, R. C. A. Communications (Inc.).
- ROCKY POINT, N. Y. (WTT).—Owner, R. C. A. Communications (Inc.).
- SACRAMENTO, CALIF. (KFM).—Fy., 3,452 (86.906), 5,570 (53.86).
- SACRAMENTO, CALIF. (KRJ).—Type, add A2 and A3.
- SAN FRANCISCO, CALIF. (KUP).—Fy., 5,585 (53.71), 6,530 (45.94), 8,230 (36.45), 11,170 (26.86), 16,460 (18.226).
- SAYVILLE, N. Y. RADIO (WSL).—Fy., add 5,525 (54.3), 5,675 (52.863), 8,670 (34.60), 11,050 (27.15), 11,350 (26.43), 16,580 (18.094), 16,900 (17.751), 22,100 (13.575), 22,700 (13.216).
- SEATTLE, WASH., RADIO (KPE).—Fy., 143 (2,100), 163 (1,840), 167 (1,796), 460 (650), 500 (600).
- SEATTLE, WASH., RADIO (KSA).—Fy., 5,525 (54.3), 8,630 (34.76), 11,050 (27.15), 11,200 (26.79), 16,580 (18.094), 16,900 (17.751).
- STEAMBOAT BAY, ALASKA (Noyes Island).—Type, A2.
- TORRANCE, CALIF. (Los Angeles), RADIO.—Loc. 118° 21' 22" W.; 33° 49' 06" N.; fy., add 5,525 (54.3), 6,485 (46.26), 8,430 (35.59), 11,050 (27.15), 12,430 (24.14), 12,490 (24.02), 16,580 (18.094), 22,040 (13.612), 22,100 (13.575), 22,520 (13.321).
- VIEQUES, P. R., RADIO.—Fy., strike out 174 (1,724), 2,320 (129.3), 5,765 (52.03), add 1,592 (188.44), 5,525 (54.298), 6,515 (46.04).
- WAHIAWA, HAWAII (ISLAND OF OAHU), RADIO.—Fy., 143 (2,100), 163 (1,840), 410 (730), 500 (600), 5,525 (54.3), 6,515 (46.04).
- WARREN, ALASKA.—Fy., 186.3 (1,610), 283 (1,060); service, PR.
- WEST DOVER (CLEVELAND), OHIO, RADIO.—Fy., add 5,525 (54.2986).
- WEST PALM BEACH, FLA., RADIO (WMR).—Fy., 121 (2,480), 143 (2,100), 392 (765), 500 (600), 5,525 (54.3), 6,575 (45.63), 8,690 (34.52), 11,050 (27.15), 11,320 (26.50), 16,580 (18.094), 21,620 (13.876), 22,100 (13.575).
- WINSLOW, ARIZ. (KSY).—Fy., strike out 457 (656.5), add 400 (750).
- ZACHAR BAY, ALASKA.—Type, A2; fy., 283 (1,060), 425 (705), 500 (600); class, FC and FX; owner, Alitak Fish Co.

PORTABLE:

- Louisiana, Mississippi, and Texas No. 1A.—Read Louisiana, Mississippi, and Texas No. 14; type, A2 and A3.
- Louisiana, Mississippi, and Texas No. 2A.—Read Louisiana, Mississippi, and Texas No. 1; type, A2 and A3.
- Louisiana, Mississippi, and Texas No. 3A.—Read Louisiana, Mississippi, and Texas No. 2; type, A2 and A3.
- Louisiana, Mississippi, and Texas No. 4A.—Read Louisiana, Mississippi, and Texas No. 3; type, A2 and A3.
- Louisiana, Mississippi, and Texas No. 5A.—Read Louisiana, Mississippi, and Texas No. 4; type, A2 and A3.
- Louisiana, Mississippi, and Texas No. 6A.—Read Louisiana, Mississippi, and Texas No. 5; type, A2 and A3.
- Louisiana, Mississippi, and Texas No. 7A.—Read Louisiana, Mississippi, and Texas No. 6; type, A2 and A3.
- Louisiana, Mississippi, and Texas No. 8A.—Read Louisiana, Mississippi, and Texas No. 7; type, A2 and A3.

PORTABLE—Continued.

- Louisiana, Mississippi, and Texas No. 9A.—Read Louisiana, Mississippi, and Texas No. 8; type, A2 and A3.
- Louisiana, Mississippi, and Texas No. 10A.—Read Louisiana, Mississippi, and Texas No. 9; type, A2 and A3.
- Louisiana, Mississippi, and Texas No. 11A.—Read Louisiana, Mississippi, and Texas No. 10; type, A2 and A3.
- Louisiana, Mississippi, and Texas No. 12A.—Read Louisiana, Mississippi, and Texas No. 11.
- Louisiana, Mississippi, and Texas No. 13A.—Read Louisiana, Mississippi, and Texas No. 13; type, A2 and A3.
- No. 6.—Read Louisiana, Mississippi, and Texas No. 12.
- Portable (KJO).—Read No. 1 (portable).
- Portable (KND).—Read No. 1 (portable); type, A1-2-3; fy., 1,600 (187.5), 1,652 (181.6), 1,664 (180.29), 1,680 (178.6), 1,704 (176.06); hours, X.
- Portable (KJN).—Read No. 2 (portable).
- Portable (KNC).—Read No. 2 (portable); fy., 1,600 (187.5), 1,652 (181.6), 1,664 (180.29), 1,680 (178.6), 1,704 (176.06); hours, X.
- Portable (KJT).—Read No. 3 (portable).
- Portable (KNE).—Read No. 3 (portable); type, A1, A2 and A3; fy., 1,600 (187.5), 1,652 (181.6), 1,664 (180.29), 1,680 (178.6), 1,704 (176.06); hours, X.
- Portable (KJW).—Read No. 4 (portable) (KJW).
- Portable (KNF).—Read No. 4 (portable); type, A1, A2 and A3; fy., 1,600 (187.5), 1,652 (181.6), 1,664 (180.29), 1,680 (178.6), 1,704 (176.06); hours, X.
- Portable (KJY).—Read No. 5 (portable).
- Portable (KNB).—Read No. 5 (portable); type, A1, A2 and A3; fy., 1,600 (187.5), 1,652 (181.6), 1,664 (180.29), 1,680 (178.6), 1,704 (176.06); hours, X.
- Strike out all particulars of the following-named stations: Bypro, Ky.; Cleveland, Ohio (WLI); Dallas, Tex. (KFB); Fifth Radio District (portable); Houston, Tex. (KGM); Los Angeles, Calif. (portable) (KFZ); Los Angeles, Calif. (portable) (KGV); Nelsmoor, Alaska; New York, N. Y. (WHI); Palo Alto, Calif. (KKC); Philadelphia, Pa. (WHE); Pincrest, Fla.; Umnak, Alaska; Unalaska, Alaska.

COMMERCIAL SHIP STATIONS, ALPHABETICALLY, BY NAMES OF VESSELS

[Alterations and corrections to be made to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1928, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

- A. A. AUGUSTUS.—Fy., 375 (800), 410 (730), 425 (705).
- ADAM E. CORNELIUS.—Fy., 375 (800), 410 (730), 425 (705).
- A. D. MACBETH.—Fy., 375 (800), 410 (730), 425 (705).
- A. E. R. SCHNEIDER.—Fy., 375 (800), 410 (730), 425 (705);
- ALABAMA (WHDN).—Fy., 375 (800), 400 (750), 410 (730), 425 (705), 454 (660), 468 (640), 500 (600); service, P; hours, X; accounts, owner.
- ALABAMA (WPCT).—Fy., 375 (800), 394 (760), 410 (730).
- ALEX B. UHRIG.—Fy., 375 (800), 410 (730), 425 (705).
- ALICE COOKE.—Type, A2; fy., 375 (800), 400 (750), 410 (730), 425 (705), 454 (660), 468 (640), 500 (600); service, PG; hours, X; rates, 6 cents per word; accounts, owner.
- ALPENA.—Fy., 189 (1,587), 394 (760), 410 (730).
- AMASA STONE.—Fy., 143 (2,100), 151 (1,985), 153 (1,960), 155 (1,935), 157 (1,910), 375 (800), 394 (760), 410 (730).
- AMAZON.—Fy., 375 (800), 410 (730), 425 (705).
- A. M. BYERS.—Fy., 375 (800), 410 (730), 425 (705).
- AMERICA.—Owner, United States Lines.
- AMERICAN BANKER.—Fy., add 410 (730), 454 (660).
- AMERICAN TRADER.—Owner, United States Lines.
- ANCON.—Accounts, R. M. C. A.
- ANGELINE.—Fy., 375 (800), 410 (730), 425 (705).
- ANN ARBOR No. 3.—Fy. 375 (800), 394 (760), 410 (730).
- ANN ARBOR No. 4.—Fy., 375 (800), 394 (760), 410 (730).
- ANN ARBOR No. 5.—Fy., 375 (800), 394 (760), 410 (730).
- ANN ARBOR No. 6.—Fy., 375 (800), 394 (760), 410 (730).
- ANN ARBOR No. 7.—Fy., 375 (800), 394 (760), 410 (730).
- ARIZONA.—Fy., 410 (730), 425 (705).
- ASHTABULA.—Fy., 375 (800), 394 (760), 410 (730).

- BALDBUTTE.—Owner, Baldbutte S. S. Co.
 BALDHILL.—Owner, Baldhill S. S. Co.
 BALLANTRAE.—Type, A1; fy., 2,740 (109.5), 3,420 (87.7); service, P; hours, X.
 BARRALLTON.—Fy., 375 (800), 410 (730), 425 (705), 454 (660), 500 (600); service PG; rates, Great Lakes, 4 cents per word, North and South American and trans-oceanic, 8 cents per word.
 BENSON FORD.—Fy., 143 (2,100), 157 (1,910).
 BETTERTON.—Fy., add 410 (730), 454 (660).
 B. H. TAYLOR.—Fy., 410 (730), 425 (705).
 BIBBCO.—Owner, Mississippi Shipping Co.
 BRANDON.—Fy., 375 (800), 410 (730), 425 (705).
 BUENAVENTURA.—Fy., add 410 (730), 454 (660); accounts, R. M. C. A.
 BUTTERCUP.—Fy., 143 (2,100), 157 (1,910), 375 (800), 394 (760), 410 (730), 425 (705).
 CADILLAC.—Fy., 375 (800), 410 (730), 425 (705).
 CALCITE.—Fy., 410 (730), 425 (705).
 CARL D. BRADLEY.—Fy., 410 (730), 425 (705).
 CAROLINA.—Fy., 375 (800), 410 (730), 425 (705).
 CATHERINE O'BOYLE.—Name changed to Arminda; accounts, I. R. T. Co.
 CHARLES C. WEST.—Fy., 375 (800), 410 (730), 425 (705).
 CHARLES L. HUTCHINSON.—Fy., 375 (800), 410 (730), 425 (705).
 CHARLES M. SCHWAB.—Fy., 143 (2,100), 157 (1,910), 375 (800), 394 (760), 410 (730), 5,525 (54.3), 5,555 (54), 5,615 (53.428), 8,330 (36.01).
 CHESTER SUN.—Name changed to D. J. Moran; owner, Gladstone Transportation Co.
 CHIPPEWA.—Fy., 375 (800), 410 (730), 425 (705).
 CHRISTOPHER COLUMBUS.—Fy., 375 (800), 410 (730), 425 (705).
 CITY OF BENTON HARBOR.—Fy., 375 (800), 410 (730), 425 (705).
 CITY OF BUFFALO.—Fy., 375 (800), 410 (730), 425 (705).
 CITY OF CLEVELAND III.—Type, strike out B; fy., 143 (2,100), 157 (1,910), 375 (800), 394 (760), 410 (730), 425 (705).
 CITY OF DETROIT III.—Type, strike out B; fy., 143 (2,100), 157 (1,910), 375 (800), 394 (760), 410 (730), 425 (705).
 CITY OF ERIE.—Fy., 375 (800), 410 (730), 425 (705).
 CITY OF GRAND RAPIDS.—Type, A2; fy., 375 (800), 394 (760), 410 (730), 425 (705).
 CITY OF HOLLAND.—Fy., 375 (800), 410 (730), 425 (705).
 CITY OF ST. IGNACE.—Name changed to Keystone; fy., 375 (800), 394 (760), 410 (730), 425 (705).
 CITY OF ST. JOSEPH.—Fy., 375 (800), 410 (730), 425 (705).
 CITY OF SAUGATUCK.—Fy., 375 (800), 410 (730), 425 (705).
 CLEMENS A. REISS.—Fy., 375 (800), 410 (730), 425 (705).
 CLETUS SCHNEIDER.—Fy., 375 (800), 410 (730), 425 (705).
 CLIFFORD A. MOLL.—Fy., 375 (800), 410 (730), 425 (705).
 COLONEL.—Fy., 375 (800), 410 (730), 425 (705).
 COLONEL JAMES PICKANDS.—Fy., 143 (2,100), 151 (1,985), 153 (1,960), 155 (1,935), 157 (1,910), 375 (800), 394 (760), 410 (730), 425 (705).
 CONNEAUT.—Fy., 189 (1,587), 394 (760), 410 (730), 425 (705).
 CONTOY.—Accounts, R. M. C. A.
 CORSIKANA.—Name changed to Timberman.
 CARRIER.—Type, A2; fy., 375 (800), 400 (750), 410 (730), 425 (705), 454 (660), 468 (640), 500 (600).
 DANNEDAIKE.—Owner, Dannedaik Shipping Co.
 DAVID P. THOMPSON.—Fy., 375 (800), 410 (730), 425 (705).
 D. E. CALLENDER.—Fy., 375 (800), 410 (730), 425 (705).
 DELPHINE.—Fy., 143 (2,100), 153 (1,960), 157 (1,910), 375 (800), 394 (760), 410 (730), 425 (705).
 DILWORTH.—Owner, Dilworth S. S. Co.
 DWIGHT F. DAVIS.—Type, A1 and A2; fy., 400 (750), 425 (705), 500 (600), 3,420 (87.7), 6,590 (45.52); service, P; hours, X.
 EASTERN LEADER.—Name changed to Malang; owner, Malco S. S. Co.
 EAST INDIAN.—Fy., 143 (2,100), 151 (1,985), 153 (1,960), 155 (1,935), 157 (1,910), 375 (800), 394 (760), 410 (730), 425 (705).
 EASTERN STATES.—Fy., 143 (2,100), 157 (1,910), 375 (800), 394 (760), 410 (730), 425 (705).
 E. G. MATHIOTT.—Fy., 375 (800), 410 (730), 425 (705); accounts, R. C. A.

- ELEN.—Type, A1-2; fy., 375 (800), 400 (750), 410 (730), 425 (705), 454 (660), 468 (640), 500 (600); service, PG; hours, X; rates, 8 cents per word; accounts, R. M. C. A.
- ELTON HOYT II.—Fy., 375 (800), 410 (730), 425 (705).
- ENCHANTRESS (WPBN).—Accounts, R. M. C. A.
- F. A. BAILEY.—Fy., 410 (730), 425 (705).
- FAVORITE (KDNV).—Type, B; fy., 500 (600); hours, X.
- FAVORITE (KIFG).—Fy., 375 (800), 394 (760), 410 (730), 425 (705), 5,525 (54.3), 5615 (53.42), 8330 (36.01).
- FAYETTE BROWN.—Fy., 375 (800), 410 (730), 425 (705).
- FIREBOAT (Unnamed).—Name changed to John Kendall; type, A3; fy., 1,596 (18.797).
- FONTANA.—Fy., 375 (800), 410 (730), 425 (705).
- FRANK BILLINGS.—Fy., 375 (800), 410 (730), 425 (705).
- FRANK D. STOUT.—Name changed to Cottoneva.
- FRANK H. GOODYEAR.—Fy., 375 (800), 410 (730), 425 (705).
- FRANK SEITHER.—Fy., 375 (800), 410 (730), 425 (705).
- FRED W. GREEN.—Fy., 375 (800), 394 (760), 410 (730), 425 (705), 5,525 (54.3), 5,555 (54), 5,615 (53.428), 8,330 (36.01).
- FRONTENAC.—Fy., 375 (800), 410 (730), 425 (705).
- G. A. TOMLINSON.—Fy., 375 (800), 410 (730), 425 (705).
- GENERAL M. H. SHERMAN.—Fy., 143 (2,100), 151 (1,985), 160 (1,875), 375 (800), 425 (705), 500 (600).
- GEORGE F. RAND.—Fy., 375 (800), 410 (730), 425 (705).
- GEORGE H. INGALLS.—Fy., 410 (730), 425 (705).
- GEORGIAN (WACF).—Fy., add 410 (730), 454 (660).
- G. J. GRAMMER.—Fy., 410 (730), 425 (705).
- GLENDON.—Type, A2; fy., 375 (800), 400 (750), 410 (730), 425 (705), 454 (660), 468 (640), 500 (600).
- G. N. WILSON.—Fy., 410 (730), 425 (705).
- GOODTIME.—Fy., 375 (800), 410 (730), 425 (705).
- GOOD WILL.—Fy., 375 (800), 394 (760), 410 (730), 425 (705), 500 (600).
- GORGONA.—Fy., 375 (800), 425 (705), 500 (600).
- GRAND ISLAND.—Fy., 375 (800), 410 (730), 425 (705).
- GREATER BUFFALO.—Type, A1 and A2; fy., 143 (2,100), 157 (1,910), 375 (800), 394 (760), 410 (730), 425 (705); service, PG; hours, N (first class), X (third class).
- GREATER DETROIT.—Type, A1 and A2; fy., 143 (2,100), 157 (1,910), 375 (800), 394 (760), 410 (730), 425 (705); service, PG; hours, N (first class), X (third class).
- GUAYAQUIL.—Fy., add 410 (730), 454 (660); accounts, R. M. C. A.
- GULFKING.—Type, A2; fy., add 400 (750), 410 (730), 454 (660), 468 (640).
- Haida.—Name changed to Sinaloa; owner, L. E. Hanchett.
- HARRY COULBY.—Fy., 375 (800), 410 (730), 425 (705).
- HARRY W. CROFT.—Fy., 375 (800), 410 (730), 425 (705).
- HARRY YATES.—Fy., 375 (800), 410 (730), 425 (705).
- HARVEY H. BROWN.—Fy., 375 (800), 410 (730), 425 (705).
- HELEN OLMSTEAD.—Name changed to Washington; owner, Texas S. S. Co.
- HELEN VINMONT.—Name changed to California; owner, Texas S. S. Co.
- HENRY FORD II.—Fy., 375 (800), 394 (760), 410 (730), 425 (705).
- HENRY G. DALTON.—Fy., 375 (800), 410 (730), 425 (705).
- HENRY P. WERNER.—Fy., 375 (800), 410 (730), 425 (705).
- HILDA.—Fy., 375 (800), 410 (730), 425 (705), 454 (660), 500 (600).
- H. J. LAWRENCE.—Name changed to Elwyn C. Hale; fy., add 410 (730), 454 (660); hours, N.
- HUGH KENNEDY.—Fy., 410 (730), 425 (705).
- HUMRICK.—Fy., strike out 454 (660).
- HURON.—Fy., 143 (2,100), 189 (1,587), 394 (760), 410 (730), 425 (705).
- HUTCHINSON.—Name changed to Peter Helms.
- ILLINOIS (WPCY).—Fy., 375 (800), 410 (730), 425 (705).
- ISHPEMING.—Fy., 375 (800), 410 (730), 425 (705).
- JAMES E. FERRIS.—Fy., 375 (800), 410 (730), 425 (705).
- JAMES McNAUGHTON.—Fy., 375 (800), 410 (730), 425 (705).
- JAMES P. WALSH.—Fy., 375 (800), 410 (730), 425 (705).
- JEAN.—Type, B; fy., 375 (800), 410 (730), 425 (705), 454 (660), 500 (600).
- J. E. SAVAGE.—Fy., 375 (800), 410 (730), 425 (705).
- J. H. SHEADLE.—Fy., 375 (800), 410 (730), 425 (705).

- JITNEY.—Type A1; fy., 143 (2,100), 151 (1,987), 375 (800), 468 (640), 500 (600), 2,320 (129.3).
- J. J. SULLIVAN.—Fy., 375 (800), 410 (730), 425 (705).
- J. L. REISS.—Fy., 375 (800), 410 (730), 425 (705).
- JOHN A. DONALDSON.—Fy., 375 (800), 410 (730), 425 (705).
- JOHN A. KLING.—Fy., 375 (800), 410 (730), 425 (705).
- JOHN ANDERSON.—Fy., 375 (800), 410 (730), 425 (705).
- JOHN C. FITZPATRICK.—Fy., add 410 (730), 454 (660).
- JOHN F. CUSHING.—Fy., 375 (800), 410 (730), 425 (705).
- JOHN G. MUNSON.—Fy., 410 (730), 425 (705).
- JOHN J. BOLAND.—Fy., 375 (800), 410 (730), 425 (705).
- JOHN MCCARTNEY KENNEDY.—Fy., 375 (800), 410 (730), 425 (705).
- JOHN P. REISS.—Fy., 375 (800), 410 (730), 425 (705).
- JOHN R. WILLIAMS.—Type, A1; fy., 375 (800), 400 (750), 410 (730), 425 (705); 454 (660), 468 (640), 500 (600); rates, 8 cents per word.
- JOHN S. MANUEL.—Fy., 375 (800), 410 (730), 425 (705).
- JOHN STANTON.—Fy., 375 (800), 410 (730), 425 (705).
- JOHN W. BOARDMAN.—Fy., 189 (1,587), 394 (760), 425 (705).
- JOSEPH G. BUTLER, Jr.—Fy., 375 (800), 410 (730), 425 (705).
- JUNIATA (WADM).—Fy., 375 (800), 410 (730), 425 (705).
- KATHERINE.—Fy., 375 (800), 400 (750), 410 (730), 425 (705), 454 (660), 468 (640), 500 (600), 2,320 (129.3).
- LA BREA.—Fy., strike out 141 (2,130), add 410 (730), 454 (660).
- LAGONDA.—Fy., 143 (2,100), 151 (1,985), 157 (1,910), 375 (800), 394 (760), 410 (730), 425 (705).
- LAKE BENBOW.—Fy., 375 (800), 410 (730), 425 (705), 500 (600).
- LAKE CRYSTAL.—Fy., 410 (730), 425 (705).
- LAKE GORIN.—Fy., add 410 (730).
- LAKE HEMLOCK.—Type, B; fy., 410 (730), 425 (705).
- LAKE KYTTLE.—Type, B; fy., 410 (730), 425 (705).
- LAKE LOUISE.—Type, B; fy., 410 (730), 425 (705).
- LAKE MIRAFLORES.—Fy., add 410 (730), 454 (660).
- LAKE ORMOC.—Fy., strike out 159 (1,885), 160 (1,875), add 5,525 (54.3), 5,555 (54), 8,330 (36.01), 11,110 (27), 16,575 (18.099), 16,660 (18.007).
- LANIKAI.—Fy., 375 (800), 400 (750), 410 (730), 425 (705), 454 (660), 468 (640), 500 (600).
- LANSING.—Fy., strike out 137 (2,190).
- LA PURISIMA.—Fy., strike out 137 (2,190).
- L. E. BLOCK.—Fy., 375 (800), 410 (730), 425 (705).
- LEVIATHAN.—Type, add A3; fy., add 3,428 (87.514), 5,615 (53.428).
- LIO.—Fy., 375 (800), 400 (750), 410 (730), 425 (705), 454 (660), 468 (640), 500 (600).
- LOUIS R. DAVIDSON.—Fy., 375 (800), 410 (730), 425 (705).
- LOS ANGELES.—Fy., strike out 137 (2,190).
- LUBRICO.—Fy., strike out 141 (2,130).
- LYNFORD E. GEER.—Fy., 375 (800), 410 (730), 425 (705).
- M. A. BRADLEY.—Fy., 375 (800), 410 (730), 425 (705).
- MAITLAND No. 1.—Fy., 375 (800), 410 (730), 425 (705).
- MALCHACE.—Type, A2; fy., 375 (800), 400 (750), 410 (730), 425 (705), 454 (660), 468 (640), 500 (600).
- MANISTIQUE.—Fy., 375 (800), 410 (730), 425 (705).
- MANITOU.—Fy., 375 (800), 410 (730), 425 (705).
- MARIAN OTIS CHANDLER.—Fy., add 410 (730), 454 (660).
- MARQUETTE.—Fy., 375 (800), 410 (730), 425 (705).
- MARTIN MULLEN.—Fy., 375 (800), 410 (730), 425 (705).
- MARY ELLEN O'NEIL.—Name changed to Australia; owner, Texas S. S. Co.
- MARJ III.—Fy., add 394 (760), 5,525 (54.3), 5,615 (53.428), 8,330 (36.01).
- MARYLAND.—Fy., 375 (800), 410 (730), 425 (705).
- MEMNON.—Fy., strike out 137 (2,190), add 151 (1,985).
- MICHAEL GALLAGHER.—Fy., 375 (800), 410 (730), 425 (705).
- MICHIGAN (KFLN).—Fy., 375 (800), 410 (730), 425 (705).
- MIZPAH.—Fy., 143 (2,100), 151 (1,985), 153 (1,960), 155 (1,935), 157 (1,910), 159 (1,885), 160 (1,875), 375 (800), 400 (750), 410 (730), 425 (705), 454 (660), 468 (640), 500 (600).
- MORRIS S. TREMAINE.—Fy., 375 (800), 410 (730), 425 (705).
- MUNISING.—Fy., 375 (800), 410 (730), 425 (705).
- NÉGAUNEE.—Fy., 375 (800), 410 (730), 425 (705).

- NILIRAGA.—Type, A1 and A2; fy., 375 (800), 400 (750), 410 (730), 425 (705), 454 (660), 468 (640), 500 (600); accounts, owner.
- NOMAD.—Accounts, R. M. C. A.
- NORTH AMERICAN.—Fy., 375 (800), 410 (730), 425 (705).
- OCTORARA.—Fy., 375 (800), 410 (730), 425 (705).
- OLEUM.—Fy., add 410 (730), 454 (660).
- ONEIDA (KDJO).—Fy., 143 (2,100), 151 (1,985), 375 (800), 394 (760), 410 (730), 425 (705), 500 (600).
- ONONDAGA.—Fy., 137 (2,190), 141 (2,128), 143 (2,100), 151 (1,985), 157 (1,910), 161 (1,865), 375 (800), 394 (760), 400 (750), 425 (705), 468 (640), 500 (600).
- ORMIDALE.—Fy., 410 (730), 425 (705).
- O. S. MCFARLAND.—Fy., 375 (800), 410 (730), 425 (705).
- OUANANICHE.—Fy., 143 (2,100), 151 (1,985), 157 (1,910), 161 (1,865), 375 (800), 394 (760), 400 (750), 410 (730), 425 (705), 500 (600).
- PAUL SHOUP.—Fy., add 410 (730), 454 (660).
- PERE MARQUETTE 15.—Fy., 375 (800), 394 (760), 410 (730), 425 (705).
- PERE MARQUETTE 17.—Fy., 375 (800), 394 (760), 410 (730), 425 (705).
- PERE MARQUETTE 18.—Fy., 375 (800), 394 (760), 410 (730), 425 (705).
- PERE MARQUETTE 19.—Fy., 375 (800), 394 (760), 410 (730), 425 (705).
- PERE MARQUETTE 20.—Fy., 375 (800), 394 (760), 410 (730), 425 (705).
- PERE MARQUETTE 21.—Fy., 375 (800), 394 (760), 410 (730), 425 (705).
- PERE MARQUETTE 22.—Fy., 375 (800), 394 (760), 410 (730), 425 (705).
- PETER REISS.—Fy., 375 (800), 410 (730), 425 (705).
- PETER WHITE.—Fy., 375 (800), 410 (730), 425 (705).
- PHILIP D. BLOCK.—Fy., 375 (800), 410 (730), 425 (705).
- PHILIP PUBLICKER.—Name changed to Paco.
- PIONEER (KFMK).—Fy., 375 (800), 410 (730), 425 (705).
- POINT GORDA.—Fy., add 410 (730), 454 (660).
- POINT SAN PABLO.—Owner, Gulf Pacific Line.
- POINT SAN PEDRO.—Owner, Gulf Pacific Line.
- PONTIAC.—Fy., 375 (800), 410 (730), 425 (705).
- PRESIDENT ADAMS.—Fy., 143 (2,100), 151 (1,985), 153 (1,960), 155 (1,935), 157 (1,910), 159 (1,885), 160 (1,875), 375 (800), 400 (750), 410 (730), 425 (705), 454 (660), 468 (640), 500 (600).
- PRESIDENT GRANT.—Fy., 143 (2,100), 151 (1,985), 153 (1,960), 155 (1,935), 157 (1,910), 159 (1,885), 160 (1,875), 375 (800), 400 (750), 410 (730), 425 (705), 454 (660), 468 (640), 500 (600).
- PREESQUE ISLE.—Fy., 375 (800), 410 (730), 425 (705).
- PRICE MCKINNEY.—Fy., 375 (800), 410 (730), 425 (705).
- PURITAN.—Fy., 375 (800), 394 (760), 410 (730), 425 (705).
- RADIANT.—Name changed to General Markham; fy., add 420 (730), 454 (660).
- REPUBLIC (WTCW).—Owner, United States Lines.
- RICHARD J. REISS.—Fy., 375 (800), 410 (730), 425 (705).
- RICHMOND (KDOQ).—Fy., 375 (800), 410 (730), 425 (705), 454 (660), 500 (600); service, P.
- RIPPLE (KFLF).—Type, A2; fy., 375 (800), 425 (705), 500 (600), 5,525 (54.3), 5,555 (54), 8,290 (36.19).
- ROANOKE.—Owner, Texas Co.
- ROBERT HOBSON.—Fy., 143 (2,100), 151 (1,985), 153 (1,960), 155 (1,935), 157 (1,910), 375 (800), 394 (760), 410 (730), 425 (705).
- ROBERT JOHNSON.—Fy., add 410 (730), 454 (660).
- ROBERT J. PAISLEY.—Fy., 375 (800), 410 (730), 425 (705).
- SACCARAPPA.—Owner, South Atlantic S. S. Co.
- SALINA.—Name changed to Garnet Hulings.
- SAMUEL MATHER.—Fy., 143 (2,100), 151 (1,985), 153 (1,960), 155 (1,935), 157 (1,910), 375 (800), 394 (760), 410 (730), 425 (705).
- SAMUEL MITCHELL.—Fy., 189 (1,587), 394 (760), 425 (705).
- SANDMASTER.—Fy., 375 (800), 410 (730), 425 (705).
- S. B. COOLIDGE.—Fy., 375 (800), 410 (730), 425 (705).
- S. B. WAY.—Fy., 375 (800), 410 (730), 425 (705).
- SEA THRUSH.—Fy., add 410 (730), 454 (660); accounts, R. M. C. A.
- SEEBANDBEE.—Fy., 375 (800), 410 (730), 425 (705).
- SENATOR.—Fy., 375 (800), 410 (730), 425 (705).
- SIERRA (WKCM).—Fy., add 410 (730), 454 (660).
- SOUTH AMERICAN.—Fy., 375 (800), 410 (730), 425 (705).
- SOUTHERN TRADERS.—Correct name Southern Trader; call changed to KZEF.
- S. T. CRAPO.—Fy., 189 (1,587), 394 (760), 425 (705).

- STELTON.—Fy., 375 (800), 410 (730), 425 (705).
 STELLARIS.—Type, A2; fy., 375 (800), 394 (760), 410 (730), 425 (705).
 STEPHEN M. CLEMENT.—Fy., 410 (730), 425 (705).
 STOCKTON.—Name changed to Walter Miller; owner, Gladstone Transportation Co.
 SULPHITE.—Fy., 375 (800), 410 (730), 425 (705).
 TAVERNILLA.—Hours, X.
 TEMPTRESS.—Type, A1; fy., 375 (800), 425 (705), 500 (600), 5,525 (54.3), 8,290 (36.19), 11,050 (27.15), 13,240 (22.66), 16,580 (18.094), 16,860 (17.794); service, P; hours, N.
 THE HARVESTER.—Fy., 375 (800), 394 (760), 410 (730), 425 (705).
 THEODORE H. WICKWIRE.—Fy., 410 (730), 425 (705).
 THEODORE H. WICKWIRE, Jr.—Fy., 410 (730), 425 (705).
 THEODORE ROOSEVELT.—Fy., 375 (800), 394 (760), 410 (730), 425 (705).
 THOMAS BRITT.—Fy., 375 (800), 410 (730), 425 (705).
 TIONESTA.—Fy., 375 (800), 410 (730), 425 (705).
 TULSAGAS.—Fy., 143 (2,100), 151 (1,985), 153 (1,960), 155 (1,935), 157 (1,910), 159 (1,888), 160 (1,875), 375 (800), 400 (750), 410 (730), 425 (705), 454 (660), 468 (640).
 T. W. ROBINSON.—Fy., 143 (2,100), 157 (1,910), 394 (760), 410 (730), 425 (705).
 VELMA LYKES.—Fy., add 410 (730), 454 (660).
 VENUS (WPBI).—Fy., 143 (2,100), 151 (1,985), 153 (1,960), 155 (1,935), 157 (1,910), 375 (800), 394 (760), 410 (730), 425 (705).
 WAPAMA.—Fy., add 410 (730), 454 (660).
 W. D. CALVERLEY, Jr.—Fy., 375 (800), 410 (730), 425 (705).
 W. E. FITZGERALD.—Fy., 375 (800), 394 (760), 410 (730), 425 (705).
 WERIKA.—Name changed to Mallemak; type, A2; fy., 375 (800), 400 (750), 410 (730), 425 (705), 454 (660), 468 (640), 500 (600).
 WESTERN STATES.—Fy., 143 (2,100), 157 (1,910), 375 (800), 394 (760), 410 (730), 425 (705).
 W. F. WHITE.—Fy., 143 (2,100), 157 (1,910), 394 (760), 410 (730), 425 (705).
 W. G. POLLOCK.—Fy., 375 (800), 410 (730), 425 (705).
 W. H. BECKER.—Fy., 375 (800), 410 (730), 425 (705).
 W. H. MCGEAN.—Fy., 375 (800), 410 (730), 425 (705).
 WILLIAM A. PAINE.—Fy., 375 (800), 410 (730), 425 (705).
 WILLIAM A. REISS.—Fy., 375 (800), 410 (730), 425 (705).
 WILLIAM C. ATWATER.—Fy., 375 (800), 410 (730), 425 (705).
 WILLIAM G. MATHER.—Fy., 375 (800), 394 (760), 410 (730), 425 (705).
 WILLIAM K. FIELD.—Fy., 375 (800), 410 (730), 425 (705).
 WILLIAM McLAUCHLAN.—Fy., 143 (2,100), 151 (1,985), 153 (1,960), 155 (1,935), 157 (1,910), 375 (800), 394 (760), 410 (730), 425 (705).
 WILLIAM NELSON.—Fy., 375 (800), 410 (730), 425 (705).
 WILLIAM T. ROBERTS.—Fy., 375 (800), 410 (730), 425 (705).
 WILLSOLO.—Name changed to Georgian; owner, Williams S. S. Corporation.
 WILLZIPO.—Owner, Williams S. S. Corporation.
 WISCONSIN.—Fy., 375 (800), 410 (730), 425 (705).
 WM. A. LYDON.—Fy., 375 (800), 394 (760), 410 (730), 425 (705).
 W. M. TUPPER.—Type, A2; fy., add 400 (750), 410 (730), 454 (660), 468 (640).
 WYANDOTTE.—Fy., 189 (1,587), 394 (760), 425 (705).
 YOSEMITE.—Fy., 375 (800), 410 (730), 425 (705).

Strike out all particulars of the following-named vessels: Alcyone, Aleutian, American Star, Amphitrite, Annette Rolph, Ansonia (WBUU), Bethlehem, Bridget, Buffalo Bridge, Cambria, Caribbean, Caronia, Castle Town, Chetopa, City of Sydney, Colorado, Comerio, Cytherea, Daniel J. Morrell, Darien, Dunsyre, Edward J. Berwind, Edward Y. Townsend, Emory L. Ford, Enchantress (KGBT), Ernest H. Meyer (WCDX), Ethel M. Sterling, Euzkadi, Fort Armstrong, Fred Baxter, Fred G. Hartwell, Georgina Rolph, Griffdu, Hedelca, Indiana (KGBL), Iris, Jack, John W. Ailes, John W. Wells, King, Lake Chelan, Lake Ellendale, Lebanon, Lehigh (WCDN), Louise (KUKN), Maoi, Marsodak, Maryland, Mauna Loa, Mazatlan, Michabo, Munwood, Nirvana, Oneida (WLX), Osage, Ozark, Patrick J. O'Hara, Petaluma, Plow City, Point Loma, Rioco No. 1, Riposo, St. Katherine, Saucon, Saunterer, Siele, Socony 84, Socony 85, Speejacks, Star of Finland, Star of Greenland, Star of Scotland, Star of Shetland, Steelton, Storm King, Transford II, Waegwoitic, Wanderlust, W. B. Storey, Zapora.

COMMERCIAL LAND AND SHIP STATIONS, ALPHABETICALLY, BY CALL SIGNALS

KDCB, read Washington; KDDS, read Walter Miller; KDEW, read Paco; KDHY, read Malang; KDRC, read California; KFZD, read Arminda; KGDN, read Cottoneva; KIXX, read Mallema; KJG, read Louisiana, Mississippi, and Texas No. 12 (portable); KJN, read No. 2 (portable); KJO, read No. 1 (portable); KJT, read No. 3 (portable); KJW, read No. 4 (portable); KJY, read No. 5 (portable); KNB, read No. 5 (portable); KNC, read No. 2 (portable); KND, read No. 1 (portable); KNE, read No. 3 (portable); KNF, read No. 4 (portable); KNN, read Kailua (Honolulu), Hawaii; KUDL, read Georgian; KUJP, read Peter Helms; KUZQ, read Garnet Hulings; KZET, call changed to KZEF, read Southern Trader; KZOA, read Elwyn C. Hale; WBB, read Louisiana, Mississippi, and Texas No. 1 (portable); WBD, read Louisiana, Mississippi, and Texas No. 2 (portable); WBE, read Louisiana, Mississippi, and Texas No. 3 (portable); WBG, read Louisiana, Mississippi, and Texas No. 4 (portable); WBH, read Louisiana, Mississippi, and Texas No. 5 (portable); WBK, read Louisiana, Mississippi, and Texas No. 6 (portable); WBN, read Louisiana, Mississippi, and Texas No. 7 (portable); WBS, read Louisiana, Mississippi, and Texas No. 8 (portable); WBX, read Louisiana, Mississippi, and Texas No. 9 (portable); WCA, read Louisiana, Mississippi, and Texas No. 10 (portable); WCB, read Louisiana, Mississippi, and Texas No. 11 (portable); WCD, read Louisiana, Mississippi, and Texas No. 13 (portable); WCH, read Louisiana, Mississippi, and Texas No. 14 (portable); WFDP, read General Markham; WGDC, read Sinaloa; WIM, read Marion, Mass.; WJDP, read John Kendall; WKI, read Sayville, N. Y.; WMI, read Lawrenceville, N. J.; WPCS, read D. J. Moran; WQBB, read Timberman; WQBV, read Australia; WQBY, read Keystone; strike out all particulars following the call signals, KDBG, KDD, KDIL, KDJI, KDWJ, KECN, KEPN, KERF, KETX, KETZ, KFB, KFCU, KFFK, KFFL, KFHE, KFKJ, KFKL, KFOI, KFOS, KFTL, KFTY, KFVB, KFWK, KFYG, KFZ, KGAI, KGAO, KGBD, KGBE, KGBL, KGBT, KGCD, KGCT, KGED, KGIU, KGIV, KGIY, KGM, KGUE, KGV, KIPP, KIZF, KKC, KKEI, KOCB, KOCR, KOFR, KOGM, KOKG, KQUO, KSA, KUBQ, KUCC, KUKF, KUKN, KULG, KUMF, KUVN, KZDJ, WAYG, WBUU, WCCR, WCDN, WCDQ, WCDR, WCDS, WCDX, WCOE, WDDH, WDDI, WDDO, WDDQ, WDDY, WFCA, WFDS, WFDU, WGDO, WHCC, WHCO, WHDE, WHE, WHI, WIDO, WKAE, WLCX, WLCY, WLEE, WLG, WLI, WNAU, WPBP, WQCO, WRBA, WRP.

COMMERCIAL AIRCRAFT STATIONS, ALPHABETICALLY, BY NAMES OF CRAFT

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1928, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

F-15.—Type, A1; fy., 6,410 (46.80).

BROADCASTING STATIONS, BY CALL SIGNALS

[Alterations and corrections to be made to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1928]

KFBB (Great Falls, Mont.).—Change to Havre, Mont.
 KFOR (Lincoln, Nebr.).—Power, 100 night, 250 day.
 KFYO (Abilene, Tex.).—Power, 100 night, 250 day.
 KGFI (San Angelo, Tex.).—Change to Corpus Christi, Tex. (near).
 KGFV (Ravenna, Nebr.).—Fy., 1,310 (229); power, 50.
 KGGM (Albuquerque, N. Mex.).—Fy., 1,230 (243.9); power, 500.
 KPQ (Seattle, Wash.).—Owner, Taft and Wasmer (Inc.).
 KUJ (Longview, Wash.).—Owner, Columbia Broadcasting Co.
 KVOS (Bellingham, Wash.).—Owner, KVOS, Inc.
 KWKH (Kennonwood, La.).—Power, 10,000.
 WASH (Grand Rapids, Mich.).—Power, 500.
 WBAW (Nashville, Tenn.).—Call changed to WTNT.
 WBT (Charlotte, N. C.).—Owner, Station WBT, Inc.; power, 5,000.
 WCAH (Columbus, Ohio).—Power, 500.
 WCSO (Springfield, Ohio).—Fy., 1,450 (206.9), power, 500.
 WDOD (Chattanooga, Tenn.).—Power, 1,000 night, 2,500 day.
 WEAO (Columbus, Ohio).—Fy., 570 (526), power, 750.

- WFBL (Syracuse, N. Y.).—Owner, Onondaga Hotel Co.
 WGR (Buffalo, N. Y.).—Change to Amherst, N. Y.
 WHB (Kansas City, Mo.).—Power, 500.
 WHBP (Johnstown, Pa.).—Call changed to WJAC.
 WHDF (Calumet, Mich.).—Owner, Upper Michigan Broadcasting Co.
 WHDL (Tupper Lake, N. Y.).—Operates day time only.
 WHK (Cleveland, Ohio).—Power, 1,000.
 WNOX (Knoxville, Tenn.).—Owner, Sterchi Brothers.
 WPRC (Harrisburg, Pa.).—Call changed to WCOD; owner, Norman R. Hoffman.
 WREC (Whitehaven, Tenn.).—Power, 500 night, 1,000 day.
 WSMK (Dayton, Ohio).—Fy., 1,380 (217.4); power, 200.
 WTIC (Hartford, Conn.).—Change to Avon (Avon Mt.), Conn.; fy., 1,060 (283); power, 25,000 normally, 50,000 experimentally.
 Strike out all particulars of the following-named stations: WAAD (Cincinnati, Ohio); WSR0 (Middletown, Ohio); WTAZ (Chesterfield Hills, Va.).

GOVERNMENT LAND STATIONS, ALPHABETICALLY, BY NAMES OF STATIONS

[Alterations and corrections to be made to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1928, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

- ASTORIA, OREG., RADIO.—Fy., 102 (2,939), 500 (600); transmits weather reports on 102 (2,939), at 0130, 0430, 1330, 1730, 2130; and time signals from 1655 to 1700, G. C. T.
 ATLANTA, GA.—Fy., strike out 230 (1,304), 238 (1,261); hours, 8 p. m. to 8 a. m.
 BALBOA, CANAL ZONE (DARIEN) RADIO (NBA).—Fy., 46 (6,518), 500 (600), 102 (2,939), 143 (2,100); transmits time signal on 46 (6,518) from 0355 to 0400 and from 1755 to 1800, hydrographic warnings at 1000 and 1800, G. C. T.
 BELLEFONTE, PA.—Type, A1 and A3; fy., strike out 233 (1,287), add 238 (1,260), 315 (950), 333 (900).
 BOLLING FIELD (ANACOSTIA), D. C.—Class, FA and FX.
 BOSTON, MASS. (NAD).—Fy., 102 (2,939); transmits weather, hydrographic warnings, and ice reports (in season) at 1600 and 2200, G. C. T.
 BOSTON, MASS. (WVO).—Fy., 212 (1,415), 223 (1,345), 4,445 (67.5), 8,890 (33.75).
 BOWMAN FIELD (LOUISVILLE), KY.—Class, FA and FX.
 BROWNSVILLE, TEX.—Fy., 104 (2,883); transmits weather reports at 0000, 0500, and 1700, G. C. T.
 BRYAN, OHIO.—Fy., add 238 (1260); hours, N.
 BURGESS FIELD (UNIONTOWN), PA.—Class, FA and FX.
 BURLEY, IDAHO.—Type, A1; fy., strike out 230 (1304).
 CAMP DEVENS (AYER), MASS.—Fy., 212 (1,415).
 CAMP HARRY J. JONES (DOUGLAS), ARIZ.—Fy., 275 (1,090), 4,090 (73.35), 8,180 (36.67).
 CAMP KNOX, KY.—Fy., 275 (1,090).
 CAMP LEONARD WOOD, MD.—Name changed to Fort Geo. G. Meade, Md.
 CAMP MARFA, KY.—Fy., 275 (1,090), 4,090 (73.35), 8,180 (36.67).
 CAMP MCCLELLAN (ANNISTON), ALA.—Fy., 275 (1090), 445 (675).
 CAMP NICHOLS, P. I. (RIZAL).—Class, FA and FX.
 CAMP STEPHEN D. LITTLE (NOGALES), ARIZ.—Fy., 275 (1,090), 4,090 (73.35), 8,180 (36.67).
 CAMP STOTSENBERG, P. I.—Fy., 187 (1,605).
 CAVITE, P. I. (NPO).—Fy., 56 (5,354), 108 (2,776), 8,872 (33.81), 13,308 (22.54); transmits on all these frequencies time signal at 0255 to 0300, weather reports at 0430, and time signal, weather reports, and hydrographic warnings at 1355 to 1400, G. C. T.
 CHANUTE FIELD (RANTOUL), ILL.—Class, FA and FX.
 CHARLESTON, S. C., RADIO.—Fy., 122 (2,458), 500 (600); transmits weather reports and hydrographic warnings on 122 (2,458) at 1,530 and 2,300, G. C. T.
 CHEYENNE, WYO.—Type, strike out A, arc; fy., strike out 236 (1,271), add 206 (1,456).
 CHICAGO, ILL.—Fy., 220 (1,364), 4,380 (68.49), 6,990 (42.92), 8,760 (34.25), 13,140 (22.83).
 CIRCLE, ALASKA.—Fy., 172 (1745), 343 (875).
 CLARK FIELD (CAMP STOTSENBERG), P. I.—Class, FA and FX.
 CLEVELAND, OHIO (WWO).—Type, A1 and A3; fy., 230 (1,304), 238 (1,260), 333 (900), 344 (870), 3,360 (89.3), 3,370 (89), 5,935 (50.54), 5,940 (50.51).

- COLON, PANAMA RADIO.—Transmits on 132 (2,271), time signal from 0355 to 0400 and from 1755 to 1800 and hydrographic warnings at 1000, G. C. T.
- CORDOVA, ALASKA RADIO.—Fy., strike out 48 (2,646).
- CRISSY FIELD (PRESIDIO OF SAN FRANCISCO), CALIF.—Class, FA and FX; hours, Y.
- CUMBERLAND FIELD, MD.—Class, FA and FX.
- DARBY, PA. (FOURTH NAVAL DISTRICT RESERVE UNIT).—Loc. changed to Wilmington, Del.
- DAYTON, OHIO.—Class, FA and FX.
- DENVER, COLO. (FITZSIMONS GENERAL HOSPITAL).—Fy., 315 (950), 4,090 (73.35), 8,180 (36.67).
- DRYDEN, TEX.—Class, FA and FX.
- DUTCH HARBOR, ALASKA, RADIO.—Fy., 185 (1,621), 500 (600); transmits on 185 (1,621) local weather reports at 0530 and 2030, G. C. T.
- ELKO, NEV.—Type, strike out A, arc; fy., strike out 208 (1,442), add 210 (1,429); hours, N.
- EUREKA, CALIF., RADIO.—Transmits on 108 (2,776), weather reports and hydrographic warnings at 0018, 0418, 0818, 1218, 1618 and 2018, G. C. T.
- FAIRBANKS, ALASKA.—Fy., 81 (3,704), only.
- FORT BARRANCAS (PENSACOLA), FLA.—Fy., 275 (1,090) only.
- FORT BLISS (EL PASO), TEX.—Fy., 78 (3,840), 4,090 (73.35), 8,180 (36.67).
- FORT BRAGG, N. C.—Fy., 200 (1,500), 219 (1,370) only.
- FORT BROWN (BROWNSVILLE), TEX.—Fy., 275 (1,090), 4,090 (73.35), 8,180 (36.67).
- FORT CLARK (BRACKETTVILLE), TEX.—Fy., 275 (1,090), 4,090 (73.35), 8,180 (36.67).
- FORT CROCKETT (GALVESTON), TEX.—Fy., 200 (1,500), 275 (1,090) only; class, FA and FX.
- FORT D. A. RUSSELL, WYO.—Fy., 192 (1,567), 4,090 (73.35), 8,180 (36.67).
- FORT DES MOINES (DES MOINES), IOWA.—Fy., 445 (675).
- FORT DOUGLAS (SALT LAKE CITY), UTAH.—Fy., 192 (1,567), 4,030 (74.45), 8,060 (37.22).
- FORT EUSTIS, VA.—Fy., 250 (1,200), 275 (1,090).
- FORT HAYES (COLUMBUS), OHIO.—Fy., 212 (1,415), 4,080 (73.53), 6,990 (42.92), 8,160 (36.76).
- FORT HOWARD (BALTIMORE), MD.—Fy., 192 (1,567).
- FORT HUACHUCA, ARIZ.—Fy., 275 (1,090), 4,090 (73.35), 8,180 (36.67).
- FORT JOHN HAY, P. I.—Read Camp John Hay, P. I.
- FORT KAMEHAMHEA (HONOLULU), HAWAII.—Fy., 185 (1,620).
- FORT LEAVENWORTH (LEAVENWORTH), KANS.—Fy., 72 (4,170), 217 (1,380), 4,305 (69.7), 8,610 (34.84), 4,375 (68.571), 8,750 (34.29), 13,125 (22.86), 17,500 (17.143).
- FORT MCPHERSON, GA.—Fy., add 6,990 (42.92).
- FORT MCINTOSH, TEX.—Fy., 275 (1,090) only.
- FORT MONMOUTH (LONG BRANCH LABORATORIES), N. J. (WLY).—Fy., variable.
- FORT MONMOUTH, N. J. (WTW).—Fy., add 6,990 (42.92).
- FORT OMAHA, NEBR.—Fy., add 6,990 (42.92).
- FORT RILEY, KANS. (WUI).—Fy., strike out 13,290 (22.57), 17,720 (16.93).
- FORT RINGGOLD, TEX.—Fy., 275 (1,090) only.
- FORT SAM HOUSTON (SAN ANTONIO), TEX.—Fy., add 4,430 (67.72), 6,990 (42.92), 8,860 (33.86), 13,290 (22.57), 17,720 (16.930); hours, N.
- FORT SHAFTER, HAWAII (HONOLULU).—Fy., 185 (1,620), 4,080 (73.53), 8,160 (36.76), 12,240 (24.51), 16,320 (18.382).
- FORT SILL, OKLA.—Fy., 200 (1,500), 275 (1,090), 4,090 (73.35), 8,180 (36.67).
- FORT WAYNE (BATTLE CREEK), MICH.—Fy., 227 (1,320).
- FORT WORTH, TEX.—Fy., strike out 226 (1,327), 230 (1,304); hours, 5 p. m. to 9 a. m.
- FRANCE FIELD, C. Z.—Class, FA and FX.
- GOVERNORS ISLAND, N. Y.—Fy., add 6,990 (42.92).
- GREAT LAKES, ILL.—Fy., 122 (2,458); transmits time signal from 1,655 to 1,700 and weather and hydrographic warnings at 0400, 1615 and 2200, G. C. T.
- GREENSBORO, N. C.—Fy., strike out 230 (1,304), 244 (1,229); hours 8 p. m. to 8 a. m.
- GUANTANAMO BAY, CUBA.—Fy., 113 (2,653); transmits weather reports from July 1 to October 15 at 0115 G. C. T.
- HAT BOX FIELD, OKLA.—Class, FA and FX.

- HONOLULU, HAWAII (HEEIA POINT—NHP).—Fy., 54 (5,552); transmits weather reports and hydrographic warnings at 0230, 0630, 1830 and 2230, G. C. T.
- HONOLULU, HAWAII (PEARL HARBOR—NPM).—Fy., 26.1 (11,490), 106 (2,828); transmit time signal on both frequencies at 2355 to 2400, G. C. T.
- IOWA CITY, IOWA.—Type, strike out A, arc; fy., 206 (1,456), 230 (1,304), 3,340 (89.8), 3,342.5 (89.7), 3,370 (89), 5,922.5 (50.66), 5,940 (50.51).
- JUPITER, FLA.—Transmits weather reports at 1630 and 2300, G. C. T.
- KANSAS CITY, MO.—Fy., strike out 228 (1,315), 230 (1,304); hours, 5 p. m. to 9 a. m.
- KETCHIKAN, ALASKA, RADIO.—Fy., 66 (4,540), 173 (1,730), 500 (600), 550 (545), 4,025 (74.5), 8,050 (37.27), 12,075 (24.85), 16,100 (18.634), 20,125 (14.92); service and class FA and FX, PG and PR.
- KEY WEST, FLA. RADIO (NAR).—Fy., change 113 (2,650) to 113 (2,653); transmits time signal on 106 (2,828) from 1,655 to 1,700, G. C. T.; transmits weather reports on 113 (2,653) at 0400 and 1800, G. C. T.
- KEY WEST, FLA. (WBP).—Fy., 3,350 (89.6), 3,370 (89), 5,940 (50.51), 5,960 (50.34).
- KINDLEY FIELD, P. I. (CORREGIDOR ISLAND).—Fy., 631 (475), 666 (450); class FA and FX.
- KOTZEBUE, ALASKA.—Fy., 689 (435.4).
- LANGLEY FIELD (HAMPTON), VA.—Class FA and FX.
- LA PALMA, PANAMA.—Hours, strike out footnote 13 (U. S. L.).
- LORDSBURG, N. MEX.—Class, FA and FX.
- LOS ANGELES, CALIF. (WZH).—Fy., strike out 12,090 (24.81), 16,120 (18.61), 20,150 (14.88).
- LOVE FIELD (DALLAS), TEX.—Class, FA and FX.
- LUKE FIELD (PEARL HARBOR), HAWAII.—Class, FA and FX.
- MANILA (FORT SANTIAGO), P. I. (LUZON).—Fy., 187 (1,605), 4,305 (69.69), 8,610 (34.84), 4,030 (74.44), 8,060 (37.22), 12,090 (24.81), 16,120 (18.610), 20,150 (14.888).
- MARCH FIELD, CALIF.—Fy., 200 (1,500), 220 (1,364); class, FA and FX.
- MAXWELL FIELD, ALA.—Class, FA and FX.
- MAYWOOD, ILL.—Type, strike out A, arc; fy., strike out 242 (1,239), add 238 (1,260).
- MIDDLETOWN, PA.—Class, FA and FX.
- MITCHEL FIELD, N. Y. (MINEOLA, L. I.).—Class, FA and FX.
- MOLINE, ILL.—Fy., strike out 230 (1,304); hours, 5 p. m. to 9 a. m.
- NEW BRUNSWICK, N. J. (HADLEY FIELD).—Type, A1 and A3; fy., 230 (1,305), 238 (1,260), 333 (900), 338 (890), 3,345 (89.6), 3,370 (89), 5,920 (50.68), 5,940 (50.51).
- NEW ORLEANS, LA. (NAT).—Fy., 104 (2,883), transmits weather reports at 1,600; time signal and hydrographic warnings from 1655 to 1700, G. C. T.
- NEW YORK, N. Y. (NAH).—Fy., 102 (2,939), transmits weather reports, hydrographic warnings, and ice reports (in season) at 1530 and 2130, G. C. T.
- NOME, ALASKA, RADIO.—Fy., strike out 4,380 (68.49), 8,760 (34.25), 13,140 (22.83), add 500 (600); service and class FC and FX, PG and PR.
- NORFOLK, VA., RADIO (NAM).—Fy., 122 (2,458), 500 (600); transmits weather reports at 0130 and 1330; weather reports, hydrographic warnings, and ice reports (in season) at 0900, 1600 and 2100, G. C. T.
- NORFOLK, VA. (NDE).—Read Norfolk, Va. (fifth district reserve unit).
- NORTH PLATTE, NEBR.—Type, strike out A, arc; fy., strike out 202 (1,485), add 206 (1,456).
- NULATO, ALASKA.—Fy., 93.7 (3,200), 166.6 (1,800), 471 (637).
- OAKLAND, CALIF.—Type, A1; fy., strike out 207 (1,449), add 210 (1,429); hours, N.
- OAKLAND, CALIF. (TWELFTH NAVAL DISTRICT) (NDO).—Read Oakland, Calif. (twelfth district reserve unit).
- OMAHA, NEBR.—Type, strike our A, arc; fy., strike out 197 (1,523), add 206 (1,456).
- OKLAHOMA CITY, OKLA.—Fy., strike out 224 (1,339), 230 (1,304); hours, 5 p. m. to 9 a. m.
- PENSACOLA, FLA. (NAS).—Fy., 113 (2,653); transmits weather reports at 1645 and 2300, G. C. T.
- PENSACOLA, FLA. (AIRCRAFT ONLY).—Hours, N aircraft only—footnote 13, (U. S. L.).
- PHILADELPHIA, PA.—Fy., 104 (2,883), transmits weather reports at 1545 and 2200, G. C. T.
- POINT BARROW, ALASKA.—Fy., 447 (670), 4,365 (68.7), 8,730 (34.36).

- PUGET SOUND, WASH. (KEYPORT) (NPC).—Fy., 102 (2,939); transmits weather reports at 0100, 0400, and 1300; weather reports and hydrographic warnings at 0300, 1700, and 2100, G. C. T.
- RENO, NEV.—Type, strike out A, arc; fy., strike out 232 (1,293), add 210 (1,429); hours, N.
- RICHMOND, VA.—Fy., strike out 230 (1,304), 221 (1,357); hours, 8 p. m. to 8 a. m.
- ROCK SPRINGS, WYO.—Type, strike out A arc; fy., add 210 (1,429); hours, N.
- ROCKWELL FIELD, CALIF.—Fy., 200 (1,500), 220 (1,364); class, FA and FX.
- RUBY, ALASKA.—Fy., 750 (400).
- ST. LOUIS, MO. (WZK).—Fy., 396 (760), 2,607 (115).
- SALT LAKE CITY, UTAH.—Type, strike out A, arc; fy., 210 (1,429), 230 (1,304), 3,367.5 (89.3), 3,367.5 (89.3), 3,370 (89), 5,940 (50.51), 5,942.5 (50.48); hours, N.
- SAN DIEGO, CALIF. (CHOLLIS HEIGHTS) (NPL).—Fy., 30.6 (9,798), 102 (2,939); transmits time signal on both frequencies from 1,655 to 1,700 and weather reports on 102 (2,939), at 0430, 1630, and 2200, G. C. T.
- SAN FRANCISCO, CALIF. (MARE ISLAND) (NPG).—Transmits weather reports (Bonita Channel) on 108 (2,776), at 0000, 0430, 0800, 1200, 1630, and 2000; transmits aviation weather reports on 108 (2,776) and 42.8 (7,005) at 0215 and 1415; transmits marine weather and hydrographic warnings on 108 (2,776), 42.8 (7,005) and 8,590 (34.90) at 0330 and 1,530; transmits time signals on all four frequencies from 0555 to 0600 and from 1955 to 2000, G. C. T.
- SAN FRANCISCO, CALIF. (PRESIDIO OF SAN FRANCISCO) (WVY).—Fy., 173 (1,730), 4,030 (74.45), 4,300 (69.77), 6,990 (42.92), 8,060 (37.22), 8,600 (34.88), 12,900 (23.26), 17,200 (17,443).
- SAN JUAN, P. R. (CAYEY), RADIO (NAU).—Fy., change 113 (2,650) to 113 (2,653); transmit Caribbean weather reports from July 1 to November 15 on 48 (6,246) at 0045, 0400, and 1600 and on 113 (2,653) at 0200, G. C. T.
- SAVANNAH, GA., RADIO.—Transmits weather reports on 185 (1,621) at 1,600 and 2,330, G. C. T.
- SCOTT FIELD (BELLEVILLE), ILL.—Class, FA and FX.
- SEATTLE, WASH. (WVD).—Fy., 4,085 (73.45), 4,370 (68.65), 8,170 (36.72), 8,740 (34.32), 16,340 (18.360), 20,400 (14.706), 12,255 (24.48).
- SELFRIDGE FIELD, MICH. (MOUNT CLEMENS).—Class, FA and FX.
- SEWARD, ALASKA, RADIO.—Fy., strike out 17,480 (17.162), 13,110 (22.88), 8,740 (34.32), 4,370 (68.65).
- SITKA, ALASKA (WXC).—Fy., strike out 500 (600); service, PR.
- SKAGWAY, ALASKA.—Fy., 4,310 (69.61), 8,620 (34.80); service, PR.
- SPARTANBURG, S. C.—Fy., strike out 230 (1,304), 241 (1,244); hours, 8 p. m. to 8 a. m.
- SQAW HARBOR (UNGA ISLAND), ALASKA, RADIO.—Fy., 500 (600), 4,365 (68.74), 8,730 (34.36); service and class, FC and FX, PG and PR.
- STREVELL, IDAHO.—Type, A1; fy., strike out 230 (1,304).
- TACOTNA, ALASKA.—Fy., 536 (560), 558 (540).
- TUCSON, ARIZ.—Class, FA and FX.
- VALDEZ, ALASKA, RADIO.—Service and class, FC and FX, PG and PR.
- VANCOUVER BARRACKS, WASH.—Fy., 220 (1,364), 4,030 (74.44), 8,060 (37.22).
- WASHINGTON, D. C. (ANNAPOLIS, MD.) (NSS).—Fy., 17.8 (16,840); transmits time signal from 0255 to 0300, from 0755 to 0800 and from 1,655 to 1,700, G. C. T.
- WASHINGTON, D. C. (ARLINGTON, VA.) (NAA).—Fy., 68 (4,409), 113 (2,653), 690 (434.5), 4,015 (74.72), 8,030 (37.34), 12,045 (24.9), 16,060 (18.67); transmits time signals on 113 (2,653), 690 (434.5), 4,015 (74.72), 8,030 (37.34) and 12,045 (24.9) from 0255 to 0300, from 0755 to 0800 and from 1,655 to 1,700; aviation weather reports and upper air current reports on 4,015 (74.72), 8,030 (37.34), and 12,045 (24.9) at 0115 and 1,315; hydrographic warnings and ice reports (in season) on 113 (2,653) at 0200 and 1700; marine weather reports on 68 (4,409), 113 (2,653) and 16,060 (18.67) at 0300 and 1500; weather broadcast to Europe on 4,015 (74.72) and 16,060 (18.67) at 0400 and 1600, G. C. T.
- WASHINGTON, D. C. (Navy Yard—NAL).—Fy., 690 (434.5); type, A3; transmits weather reports at 2,045.
- WASHINGTON, D. C. (WAR).—Fy., 4,020 (74.63), 4,025 (74.54), 4,255 (70.5), 6,990 (42.92), 8,040 (37.31), 8,050 (37.27), 8,510 (35.25), 12,060 (24.88), 12,075 (24.84), 12,765 (23.5), 16,080 (18.657), 16,100 (18.634), 17,020 (17.626), 20,125 (14.907).
- WASHINGTON, D. C. (WWX).—Fy., 82 (3,660), 88 (3,410); hours, N.

WHEELER FIELD, HAWAII (OAHU).—Class, FA and FX.
 WICHITA, KANS.—Fy., strike out 230 (1,304), 235 (1,276).
 YUMA, ARIZ.—Fy., 200 (1,500), 220 (1,364); class, FA and FX.
 Strike out all particulars of the following-named stations: Blue Canyon, Calif.;
 Fort Riley, Kans. (WYV); Indianhead, Md.

GOVERNMENT SHIP STATIONS, ALPHABETICALLY, BY NAMES OF STATIONS

[Alterations and corrections to be made to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1928, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

DELTA.—Name changed to Griffith; type A2; fy., 428 (700).

GOVERNMENT LAND AND SHIP STATIONS, ALPHABETICALLY, BY CALL SIGNALS

NAM, strike out Virginia Beach, Va. only; NDC, read Wilmington, Del. (fourth district reserve unit); NDE, read Norfolk, Va. (fifth district reserve unit); NDO, read Oakland, Calif. (twelfth district reserve unit); WUK, read Fort George G. Meade, Md.; WYCZ, read Griffith; WZQ, read Camp John Hay, P. I.; strike out all particulars following the call signals, KWZ, NBG, WYV.

SPECIAL STATIONS, BY NAMES OF STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1928]

CALIFORNIA:

Berkeley (W6XM).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

Bolinas (W6XI).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

Long Beach (W6XBV).—Strike out all particulars.

Los Angeles (W6XAI).—Strike out all particulars.

Palo Alto (W6XAY).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7).

Palo Alto (W6XV).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

Piedmont (W6XAO).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

Sar Mateo County (W6XAQ).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

CONNECTICUT:

Hartford (W1XL).—Fy., 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

Middletown (W1XN).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

South Manchester (W1XAM).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

DISTRICT OF COLUMBIA: Washington (W3XT).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

FLORIDA: Hialeah (W4XG).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

HAWAII: Kahuku (K6XO).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

ILLINOIS: Chicago (W9XY).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

INDIANA: Culver (W9XB).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

LOUISIANA: New Orleans (W5XH).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

MARYLAND:

Baltimore (W3XI).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57).

Hyattsville (W3XR).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

MASSACHUSETTS:

- Boston (W1XT).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Cambridge (W1XJ).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35).
- Cambridge (W1XM).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Cambridge (W1XO).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Dartmouth (W1XV).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57).
- Gloucester (W1XI).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Lexington (W1XAY).—Fy., strike out 4,800 (62.5) to 4,900 (61.22).
- Marion (W1XC).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Medford (W1XAW).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Newton (W1XS).—Change to Chestnut Hill, Mass.; fy., 12,850 (23.35), 17,300 (17.341).
- Worcester (W1XZ).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57).

- MINNESOTA: Minneapolis (W9XI).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- MISSOURI: Carterville (W9XV).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- MONTANA: Bozeman (W7XB).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

NEW JERSEY:

- Bound Brook (W3XL).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341); experimental only.
- Cliffwood (W2XF).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Deal (W2XJ).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Jersey City (W2XCD).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Newark (W2XAI).—Fy., 6,425 (46.7).
- New Brunswick (W2XAM).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Ocean Township (W2XG).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Tuckerton (W2XD).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Whippany (W3XN).—Fy., 327 (9170), 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

NEW YORK:

- Beacon (W2XBU).—Fy., 2,000 (150) to 2,100 (142.9).
- Brooklyn (W2XBB).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Brooklyn (W2XCE).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Brooklyn (W2XCL).—Fy., 2,000 (150), to 2,100 (142.9).
- Long Island City (W2XV).—Fy., 4,795 (62.57), 8,650 (34.68), 17,300 (17.341).
- New Dorp (W2XCC).—Fy., 4,795 (62.56), 6,425 (46.69).
- New York (W2XAB).—Change to Yonkers, N. Y., fy.; 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- New York (W2XB).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- New York (W2XN).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- New York (W2XW).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

NEW YORK—Continued.

- Rochester (W8XAC).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Rocky Point (W2XA).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Rocky Point (W2XAS).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Rocky Point (W2XBI).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Rocky Point (W2XS).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Rocky Point (W2XT).—Fy., 17,300 (17.341).
- Schenectady (W2XCH).—Fy., 2,302 (130.32), 3,076 (97.5).
- South Schenectady (W2XAC).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- South Schenectady (W2XAD).—Fy., add 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341); class, add experimental.
- South Schenectady (W2XAF).—Fy., add 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341); class, add experimental.
- South Schenectady (W2XAG).—Fy., 550 (545), 660 (455), 790 (380), 1,150 (260.9), 1,500 (200).
- South Schenectady (W2XAH).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- South Schenectady (W2XAK).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- South Schenectady (W2XAW).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- South Schenectady (W2XAZ).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- South Schenectady (W2XH).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- South Schenectady (W2XK).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- South Schenectady (W2XO).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Stapleton (W2XCB).—Change to Grasmere, N. Y.; fy., 4,795 (62.56), 6,425 (46.69).
- Winfield (W2XP).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Yonkers (W2XAJ).—Change to Woodlawn Heights, N. Y.; fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

OHIO: Dayton (W8XAG).—Fy., 8,650 (34.68).

PENNSYLVANIA:

- East Pittsburgh (W8XS).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Philadelphia (W3XC).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).
- Philadelphia (W3XS).—Fy., 2,398 (125.1).
- State College (W8XE).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

RHODE ISLAND: Providence (W1XAA).—Strike out all particulars.

TEXAS: Port Arthur (W5XK).—Strike out all particulars.

WASHINGTON: Seattle (W7XE).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

WISCONSIN: Madison (W9XH).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

Aircraft

AIRPLANE (W8XA).—Fy., 2,302 (130.32), 4,108 (73.028).

Portable

CALIFORNIA:

Los Angeles (W6XAP).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57).

Stanford University (W6XH).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341); owner, Herbert Hoover, jr.

DISTRICT OF COLUMBIA: Washington (W3XU).—Now stationary; fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

MASSACHUSETTS: Dartmouth (W1XAN).—Fy., 1,608 (186.57), 2,302 (130.32), 3,076 (97.5), 4,108 (73.028), 5,510 (54.45), 6,155 (48.74).

NEBRASKA: Omaha (W9XAB).—Strike out all particulars.

NEW JERSEY: Ocean Township (W2XAV).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

NEW YORK:

New York (W2XAA).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

New York (W2XCI).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

OHIO: Cleveland (W8XF).—Now stationary; fy., 1,712 (175.23).

PENNSYLVANIA: East Pittsburgh (W8XP).—Fy., 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35), 17,300 (17.341).

RADIOBEACON STATIONS

[Alterations and corrections to be made to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1928, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Five Fathom Bank Lightship, N. J.—Hours, now operated at the second 15 minutes of each third hour, 3, 5, and 9 a. m., 12, 3, 6, 9, and 12 p. m.

MISCELLANEOUS

GENERAL ORDERS OF THE FEDERAL RADIO COMMISSION

Regulations governing issuance of relay broadcasting, visual broadcasting, general experimental and aircraft experimental station licenses (General Order No. 64, May 20, 1929)

It is ordered: All licenses for experimental stations, including experimental relay broadcasting, experimental visual broadcasting, general experimental, and experimental aircraft stations, shall be issued for a period of one year.

It is further ordered: (1) Experimental stations may be used only for experimental purposes. They are not licensed to conduct message traffic of any kind. (2) All licensees of experimental stations shall file with the commission reports as to each such station for each quarter of the year, ending March 31, June 30, September 30, and December 31, setting forth the nature of the experiments conducted and the results thereof during the preceding period of three months. These reports shall be mailed in time to reach the commission within 15 days after the end of each quarter.

Each such report shall contain statements of: (a) The specific hours of operation on each frequency during the period reported, together with a duly authenticated copy of the station log for that period. (b) The general results accomplished in said period. (c) The technical studies in progress at the time of filing thereof.

It is also ordered that this general order be made a part of each experimental license hereafter to be issued by the commission, and that failure to comply with this order or any provision contained herein shall be ground for the revocation of any such license.

Authorization for members and employees of Federal Radio Commission to travel for purpose of holding and assisting at hearings and investigations (General Order No. 65, May 27, 1929)

It appearing that the commission has declared a recess from June 15, 1929, to September 3, 1929, for the purpose of permitting the members of the commission to visit the several zones from which they were appointed; and

It further appearing that applications (including applications for construction permits, for licenses, for renewal of licenses, and for modification of licenses) have heretofore been filed, and that similar applications will be filed during the period of said recess; and

It further appearing that certain of said applications may warrant hearing to determine whether public interest, convenience, or necessity will be served by the granting thereof, and that conditions in said zones may also warrant investigation and hearing; now, therefore,

It is ordered that members of the commission be, and they are hereby, authorized both as commissioners and examiners, to travel to, from, and within the zones from which they were appointed for the purpose of making such investigations and conducting such hearings as circumstances may warrant, with full power to take and report testimony for the consideration of the commission; and

It is further ordered that the general counsel and any assistant he may designate for such purpose be, and they are hereby, authorized both as attorneys and examiners, to travel to, from, and within any of the several zones, for the purpose of assisting or advising members of the commission in connection with the hearings or investigations hereinabove mentioned, or for the purpose of making any investigations which may be necessary in connection with the legal work of the commission; and

It is further ordered that the chief engineer and the secretary be, and they are hereby, authorized, at the request of members of the commission or the general counsel, to designate qualified employees of the commission to assist in the hearings and investigations contemplated in this order; and

It is further ordered that members of the commission and examiners be, and they are hereby, empowered to summon witnesses, administer oaths, and compel the production of books, documents and papers; and

It is further ordered that members of the commission, the general counsel, and employees duly designated to render assistance in the hearings and investigations authorized herein, be, and they are hereby, authorized to incur expenses for travel and for stenographic and clerical assistance which are reasonably necessary to fulfill the purpose of this order; and the secretary is hereby directed to provide such transportation requests and issue such travel orders as may be required for the proper administration of this order.

Rules and regulations requiring broadcasting stations to give absolute priority to distress communication or signals (General Order No. 66, June 10, 1929).

It is ordered, for the purpose of carrying out the provisions of section 22 of the radio act of 1927, that the following rules and regulations be and the same are hereby, adopted, and promulgated by the Federal Radio Commission.

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

2. Each broadcasting station, operating on any frequency in any location shall cease transmitting immediately upon notification by any Government or commercial marine station, for the purpose of clearing the air of interference for distress signals or distress traffic.

3. Stations operating on 550 to 1,000 kilocycles, inclusive, and of the following powers and within the following distances from the seacoast, Great Lakes or from any commercial or Government radio receiving station engaged in marine communication, shall keep and maintain an effective continuous watch by a licensed operator, on the frequencies used for distress calls, during the entire period the transmitter of said station is in operation:

| Transmitter powers | Transmitter distances |
|---|-----------------------|
| | Miles |
| To and including 5 KW..... | 30 |
| From 5 KW. to and including 10 KW..... | 45 |
| From 10 KW. to and including 25 KW..... | 70 |
| From 25 KW. to and including 50 KW..... | 100 |

4. Each station covered by the above ruling shall cease transmitting immediately upon intercepting distress signals or distress traffic and shall remain silent until the distress traffic has been completed, or it is determined that the operation of the station will not interfere with the distress traffic.

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

6. No two or more broadcasting stations shall maintain a joint or common watch upon frequencies used for distress calls, without first having submitted their plans to and having obtained the express authorization of the commission so to do.

7. No broadcasting station shall utilize the watch maintained upon the frequencies used for distress calls by a commercial marine station, without first having obtained the express authorization of the commission so to do.

8. The commission may hereafter require stations not included herein to keep an effective continuous watch.

9. The commission may hereafter designate stations included herein to be excluded from these regulations.

Regulations governing issuance of subpoenas (General Order No. 67, June 10, 1929)

It is ordered:

(a) By whom issued: Subpoenas requiring the attendance of witnesses from any place in the United States at any designated place of hearing, or designated place for taking the deposition of such witness, may be issued by any member of the commission, the secretary of the commission, or by any examiner appointed by the commission.

(b) When issued: No subpoena will be issued at the instance of any party to a proceeding before the commission or before an examiner except upon written application therefor timely made. Any member of the commission or examiner may issue subpoenas on his own motion when necessary.

(c) Application for: The application for subpoenas shall state the name and address of each witness required, the time and place at which and the person before whom he is to appear.

(d) Subpoenas duces tecum: If evidence other than oral testimony is required, such as documents or written data, the application shall set forth the specific matter to be produced and sufficient facts to indicate that the production of such matters is reasonably necessary to establish the cause of action or defense of the applicant. All applications for subpoenas duces tecum shall be verified by the applicant or his attorney. Any member of the commission or examiner may refuse to issue such subpoenas duces tecum if of the opinion that the production of such documentary or written evidence is unnecessary. The secretary of the commission may issue subpoenas duces tecum only when authorized to do so by a member of the commission or an examiner. Any member of the commission, or any examiner, may issue subpoenas duces tecum on his own motion if he shall deem necessary.

(e) Service: The commission will not serve subpoenas, but will leave service to be procured by the party making the application. Service of subpoenas may be made by any citizen of the United States over the age of 21 years and competent to be a witness, and not a party to or in any way interested in the proceeding.

(f) Proof of service: Proof of service may be made by affidavit.

Regulations governing issuance of construction permits and licenses for relay broadcasting stations (General Order No. 68, June 10, 1929)

It is ordered that all construction permits and licenses for relay broadcasting shall be issued on the following conditions:

1. No station engaged in relay broadcasting shall grant authority to any radio station within the United States to rebroadcast its programs without first obtaining written consent of the commission.

2. Stations engaged in relay broadcasting shall report at least once each quarter, to wit: March 31, June 30, September 30, December 31—said reports to be filed within 15 days after the close of such quarter—(a) the stations located

abroad which are regularly receiving and rebroadcasting the program originated by the licensee, (b) the times during which reception abroad is of sufficient intensity and quality to render rebroadcasting practicable, (c) the frequencies utilized abroad for reception of said programs, (d) the nature and extent of tests conducted abroad where relay broadcasting is carried on only for experimental purposes and not for rebroadcasting.

3. The conditions in General Order No. 64 relating to experimental service.

Extension of broadcasting station licenses until October 31, 1929, and all other classes of station licenses and construction permits until October 1, 1929 (General Order No. 69, June 20, 1929)

It is ordered (1) that all existing licenses to broadcast, which by their terms expire at 3 a. m., eastern standard time, July 31, 1929, are extended from such time until 3 a. m., eastern standard time, on October 31, 1929: *Provided, (a)* That this order shall apply only to stations which shall have filed applications for such renewal with the commission, in full and proper form, on or before July 31, 1929, and (b) that where any change of status or condition of any station has taken place during the present license period which might be considered by the commission in determining whether the further operation thereof is in the public interest, convenience, and necessity, which change shall come to the attention of the commission after the extension of license herein provided for, the right to set the same aside is specifically reserved, and (c) that by special order or minute entry the commission may make this order inapplicable to any specifically named station. (2) That all existing licenses for stations other than broadcasting stations, as well as construction permits of all classes, which expire at any time from June 15, 1929, to September 10, 1929, both inclusive, are hereby extended until 3 a. m., eastern standard time, October 1, 1929.

IMPROVEMENT OF TRAFFIC FACILITIES ON HIGH FREQUENCIES, BY PORTISHEAD,
BRITISH COAST STATION

In order to accommodate seasonal traffic and to accelerate the service given by Portishead Radio (GKU), a fourth receiving point was brought into use on April 1, last. It will remain in operation until October 31, 1929, from 1330 to 2100, G. M. T. on week days. Portishead Radio now has the following transmitting and receiving facilities:

| Transmitting | | Receiving | | Hours of service and working arrangements |
|-----------------------|--------------------------------|--------------------|------------------|---|
| Number of transmitter | Frequency and power, kilowatts | Number of receiver | Frequency | |
| 1..... | 149 (2,013) 25 | 1 | 149 (2,013) | Open always; calls made on the frequency of 149 kilocycle-seconds, either by GKU or by ships should be answered on the same frequency. 1230 to 2000, G. M. T., except Sundays; this frequency is prohibited for traffic; during the above hours calls made by ships on 143 kilocycle-seconds, are answered on the same frequency and the frequencies to be used for working traffic and for listening for replies are then arranged. 0900 to 2400 G. M. T., daily; during these hours calls made by ships on 125 kilocycle-seconds, will be answered on 121 kilocycle-seconds; the 121 kilocycle-seconds transmitter is also used in conjunction with the 143 kilocycle-seconds receiver. 1330 to 2100 G. M. T., except Sundays; during these hours the fourth receiver is used in conjunction with the 149 kilocycle-seconds channel ships' frequencies being indicated by GKU. |
| 2..... | 143 (2,100) 10 | 2 | 143 (2,100) | |
| 3..... | 121 (2,479) 10 | 3 | 125 (2,400) | |
| | | 4 | (¹) | |

¹ No fixed frequency.

Portishead radio calls ships for which there is traffic on hand every three hours on a frequency of 149 kilocycle-seconds (2,013 m.) at 30 minutes past the hour, G. M. T.; that is at 0030, 0330, 0630, etc., and assigns the frequencies on which communications will take place. Ships must normally call Portishead radio on the frequency of 149 kilocycle-seconds (2,013 m.) and pass traffic on

the frequencies assigned. Additionally, they may call on other frequencies on which Portishead radio keeps watch during the hours mentioned above. If the amount of traffic demands a second or third receiving point will be opened during nonpeak hours at any time of the year.

TRAFFIC LIST CALLS FROM BRITISH COAST STATIONS

Normally traffic lists are sent by British coast stations on 500 kilocycle-seconds (600 m.) at the following times, which are published in the International List of Radiotelegraph Stations:

Cullercoats, North Foreland, Lands End, Seaforth, and Malin Head: At 5 minutes past every even hour G. M. T.; viz, at 0005, 0205, 0405, etc.

Wick, Humber, Niton, Fishguard, Portpatrick, and Valencia: At 25 minutes past every even hour G. M. T., viz, at 0025, 0225, 0425, etc.

Additional calls will be made at the discretion of the coast station.

In order to avoid clashing with traffic lists sent by foreign stations, the published times will be adhered to as far as possible.

Operators must listen carefully for these traffic lists when within range, and it is important to bear in mind that the sending of a TR to a British coast station and the completion of the transmission of any traffic then on hand does not relieve the operator of the responsibility of copying subsequent traffic lists while within range.

Ships which do not keep watch at the times when traffic lists are sent are normally called only during their published hours of watch. They may, however, be called at other times at the discretion of the coast station.

If a ship's operator comes on watch outside his published hours of watch, it is his duty to make his presence known to the nearest coast station.

Traffic lists are preceded by "CQ de . . ."; "CQ" and the "call signal" of the calling station being sent three times each.

SEAFORTH, BRITISH COAST STATION EQUIPPED WITH NEW WORKING FREQUENCY

In accordance with article 17, 1 (5) of the Radiotelegraph Regulations, Washington, 1927, Seaforth radio has been fitted with a working frequency of 425 kilocycle-seconds (706 m.). The use of 375 kilocycle-seconds (800 m.) has been discontinued.

RADIOBEACON ESTABLISHED AT DUNGENESS, BRITISH LIGHT STATION

This beacon, located in approximately 50° 55' N., 0° 58' E., operates on a frequency of 300 kilocycle-seconds (1,000 m.) continuously for 1 minute every 4 minutes during thick and foggy weather as follows: The signal GDM (— . . . —) at the rate of 15 words per minute for 48 seconds, approximately; a continuous dash for 10 seconds, approximately; the signal GDM made once and taking 2 seconds, approximately; a silent interval of 3 minutes. During clear weather in order to afford vessels facilities for obtaining bearings, three emissions of the whole characteristic of the signal described above will be made consecutively at half-hour intervals, commencing at 17 minutes past the hour. Although this signal is to be permanent it may be found necessary to make some adjustment after establishment, and the station should be considered as under test during the next three months, during which time the signals may be subject to temporary interruptions.

TIME SIGNALS TRANSMITTED BY NORDDEICH, GERMANY

This station now transmits time signals on a frequency of 182 (1,648), type A3, from 2355 to 2400 G. M. T., corresponding to 0055 to 0100 standard time.

DAYLIGHT-SAVING TIME ESTABLISHED IN PORTUGAL AND AT GIBRALTAR

Daylight-saving time for the current year was established in Portugal on April 20 and at Gibraltar on April 20 at 2300 G. M. T.; normal time at Gibraltar will be resumed on October 5.

RATIFICATIONS OF THE INTERNATIONAL RADIOTELEGRAPH CONVENTION

On May 2, 1929, Germany ratified the International Radiotelegraph Convention, and the General and Supplementary Regulations, Washington, 1927. On April 22, 1929, the Latvian Minister for Foreign Affairs advised the State Department that his government had decided to adhere. For names of other countries which have adhered see the February, March, April, and May, 1929, editions of this publication.

RADIOBEACON ESTABLISHED AT COVE ISLAND, CANADA

This beacon, located in approximately 81° 44' 09" W., 45° 19' 40" N., transmits the letters VGO (... — — — . — — —) for 60 seconds, silent 120 seconds, thus:

| | |
|------------------------|---------------|
| ... — — — . — — — etc. | <u>Silent</u> |
| 60 seconds | 120 seconds |

The beacon operates on a frequency of 300 (1,000) continuously during thick or foggy weather and hourly in clear weather for 4 minutes, commencing exactly on the hour.

AMENDMENT TO REGULATIONS GOVERNING ISSUANCE OF RADIO OPERATORS LICENSES

The following changes effective June 19, 1929, should be made to the regulations governing the issuance of operators licenses published in the December 31, 1928, No. 141, edition of the Radio Service Bulletin:

A new grade of operator licenses is established to be known as "Broadcast Class—Limited," the requirements of which are as follows:

Broadcast class—Limited.—Requirements for this class of license are the same as for the unlimited broadcast class license except that no code test is required. Holders of this class of license are authorized to act as operators only at a licensed broadcast station not required to maintain a listening watch on marine distress frequencies.

Radiotelephone class.—Strike out last sentence and insert: "Holders of this class are authorized to act as operators only at licensed radiotelephone stations, other than broadcast or amateur, of 300 watts or less input power."

Radiotelephone class licenses previously issued for the operation of small broadcast stations must be replaced by Broadcast Class licenses prior to January 1, 1930, as they will be no longer valid for that purpose after that date.

NEW INTERNATIONAL LIST OF RADIO STATIONS OF THE WORLD NOW AVAILABLE FOR DISTRIBUTION BY THE BERNE BUREAU

The International Bureau of the Telegraph Union, Radiotelegraph Service, Berne, Switzerland, has for distribution the publications named hereunder at the prices indicated:

| Name | Price |
|---|---------------------|
| | <i>Swiss francs</i> |
| | <i>(gold)</i> |
| Fixed and land stations, first edition, January, 1929..... | 7½ (\$1.50) |
| Stations performing special services, first edition, March, 1929 (includes radiocompass, radiobeacon, and stations transmitting time signals, meteorological information, notices to mariners and press notices)..... | 7½ (\$1.50) |
| Ship stations, first edition, February, 1929..... | 12 (\$2.40) |
| Aircraft stations, first edition, April, 1929..... | 4½ (\$0.90) |
| Broadcasting stations, first edition, April, 1929..... | 4½ (\$0.90) |

The price includes postage and all supplements to the end of the current year.
Do not send remittances to this department.

REFERENCES TO CURRENT RADIO LITERATURE

This is a monthly list of references prepared by the Bureau of Standards and is intended to cover the more important papers of interest to professional radio engineers which have recently appeared in periodicals, books, etc. The number at the left of each reference classifies the reference by subject, in accordance with the

scheme presented in A Decimal Classification of Radio Subjects—An Extension of the Dewey System, Bureau of Standards Circular No. 138, a copy of which may be obtained for 10 cents from the Superintendent of Documents, Government Printing Office, Washington, D. C. The various articles listed below are not obtainable from the Government. The various periodicals can be secured from their publishers and can be consulted at large public libraries.

R100.—Radio principles

- R113 Eckersley, T. An investigation of short waves. *Experimental Wireless and Wireless Engineering* (London), 6, pp. 255-260; May, 1929.
Abstract of an extensive paper discussing echoes and scattering effects, errors and their sources in direction finding; fading, magnetic storms, and the theory of the action of the Heaviside layer.
- R113 Quäck, E., and Mögel, H. Double and multiple signals with short waves. *Proc. Inst. Radio Engrs.*, 17, pp. 791-823; May, 1929.
Results of oscillographic tests of round-the-world signals. Relations to magnetic effects and twilight zone.
- R113 Quäck, E., and Mögel, H. Short range echoes with short waves. *Proc. Inst. Radio Engrs.* 17, pp. 824-829; May, 1929.
Oscillograph records showing short range echoes and round-the-world signals simultaneously.
- R113.1 Parkinson, T. Some observations of short-period radio fading. *Bureau of Standards Journal of Research*, 2, pp. 1057-1075; June, 1929.
Causes of fading are investigated by means of graphic fading records made simultaneously with different types of receiving antennas. Evidences found of fading due to interference; to direction shifts; to rotation of plane of polarization, and to varying intensity of indirect rays; to multiple rays.
- R113.5 Mesny, R. *Activite solaire et propagation. (Solar activity and propagation.) L'Onde Electrique*, 8, pp. 103-110; March, 1929.
A summary of results of several investigators attempting to correlate variations in reception with periods of increased solar activity. Results of Espenschied, Anderson, and Bailey, of Pickard, and Austin are considered.
- R113.5 Wymore, I. J. Relation of radio wave propagation to disturbances in terrestrial magnetism, *Bureau of Standards Journal of Research*, 2, pp. 1201-1211; June, 1929.
Study of radio reception on low frequencies showing that for daylight reception over distances of 4,000 to 7,100 km. the signal intensity increases following the height of severe magnetic disturbances, while for distances of 250 to 459 km. intensity increases before, is normal during, and increases after the maximum of a magnetic storm.
- R125.1 Hell, R. Direktzeigendes funkentelegraphisches Peilverfahren. (A direct reading radio direction finder). *Zeits. für Hochfrequenztechnik*, 33, pp. 138-145; April, 1929.
Discusses a method of using two crossed receiving loops or one loop and a vertical antenna in connection with a switching arrangement and a current indicator for determining course. The indicator shows pilot continuously his position with respect to the course.
- R125.6 Chireix, H. French system of directional aeriels for transmission on short waves. *Experimental Wireless and Wireless Engineers* (London), 6, pp. 235-244; May, 1929.
Principles and construction of antennas for unidirectional horizontal beam transmission, using only one pair of feeders.
- R132 Jackson, W. The measurement of the voltage amplification factor of tetrodes. *Experimental Wireless and Wireless Engineers* (London), 6, pp. 252-255; May, 1929.
A bridge method for measuring the amplification factor and plate resistance (hence mutual conductance) of tetrodes, as affected by changes in battery voltages.
- R133 Hollmann, H. E. Zum Problem der Erzeugung kurzer elektrischer Wellen durch Bremsfelder. (Production of electric waves having a wave length of the order of 13 to 18 centimeters). *Zeits. für Hochfrequenztechnik*, 33, pp. 128-132; April, 1929.
A thorough investigation into the production of 13 to 18 cm. electric waves using a metal T. M. C. type tube; also, a comparison of results with those attained by Pierret and by Barkhausen and Kurz.
- R134 Terman, F. E. and Dysart, B. Detection characteristics of screen grid and space charge grid tubes. *Proc. Inst. Radio Engrs.*, 17, pp. 830-833; May, 1929.
Measurements of the "voltage constant" of tetrodes and comparison of tetrodes with triode detectors.
- R145.3 Positive and negative mutual inductance (editorial). *Experimental Wireless and Wireless Engineers* (London), 6, pp. 233-234; May, 1929.
Discussion of proper convention to be used in indicating sign of mutual inductance. It is shown desirable to call the mutual inductance positive if, having adopted a convention as to positive direction of currents, an increase of current in circuit 2 causes an E. M. F. in circuit 1 in the same direction as would be caused by an increase of current in circuit 1.
- R145.3 Bashenoff, V. I. The establishment of a general formula for the inductance of single turn circuits of any shape. *Experimental Wireless and Wireless Engineers* (London), 6, pp. 245-251; May, 1929.
It is shown that the ordinary formulas for single-turn circuits are special cases of the author's general formula. Experiments are made on large and small closed aeriels, checking the accuracy of the general formula.

- R149 Shaw, A. E. Cold-cathode rectification. Proc. Inst. Radio Engrs., 17, pp. 489-863; May, 1929.
Investigation of discharge phenomena and asymmetric conductivity in gas-filled cold cathode rectifiers.
- R170 Smith-Rose, R. L. Man-made static—High voltage overhead electrical transmission lines and radio interference. Wireless World and Radio Review, 24, pp. 476-480; May 8, 1929.
A discussion of radio interference due to high-voltage transmission lines. Description of experiments conducted at the National Physical Laboratory by the author.
- R170 Allen, J. G. Radio interference. Proc. Inst. Radio Engrs., 17, pp. 882-891; May, 1929.
A consideration of the sources of interference and methods of detection and elimination.

R200.—*Radio measurements and standardization*

- R201.6 Soucy, C. I., and Bayly, B. de F. A direct reading frequency bridge for the audio range based on Hay's bridge circuit. Proc. Inst. Radio Engrs., 17, pp. 834-840; May, 1929.
A simple and accurate bridge in which the frequency is determined directly by the resistance introduced for balance.
- R261 Lubcke, H. R. Vacuum-tube voltmeter design. Proc. Inst. Radio Engrs., 17, pp. 864-872; May, 1929.
Equation for optimum design for a given input range and meter.
- R261 Rhodes, H. E. A simple two-tube vacuum-tube voltmeter. Radio Broadcast, 15, pp. 107-108; June, 1929.
An apparatus of improved design for audio-frequency work.

R300.—*Radio apparatus and equipment*

- R330 Westman, H. P. Two recently announced tubes—The UY-224 and the UX-245. QST, 13, pp. 41-43; June, 1929.
Data on screen-grid A. C. heater tube, UY-224, and the amplifier tube, UX-245.
- R341 Neue Glimmlichtgleichrichter. (A new glow discharge rectifier). Zeits für Hochfrequenztechnik, 33, pp. 145-148; April, 1929.
A description of the "Anatron," a product of the firm of Dr. G. Seibt; also, a comparison of this type of rectifier with the audion type.
- R342.15 Podliasky, I. Sur les transformateurs intermediaires et la reproduction sans distortion. (On interstage transformers and reproduction without distortion). L'Onde Electrique, 8, pp. 111-118; March, 1929.
Theory of resonance in transformers and its effect on frequency distortion. The effect of tube capacities is considered.
- R342.7 David, P. La qualite de la reception radiophonique. (The quality of radiotelephone reception.) Eighth article of a series. L'Onde Electrique, 8, pp. 119-129; March, 1929.
Audio-frequency amplification. Circuit and speaker considerations involved in preserving quality in audio-frequency amplifiers. Discussion.
- R343 Lucas, P. S. Modern ideas on the portable receiver. Radio (San Francisco), 11, pp. 12-13; June, 1929.
Complete directions for constructing a compact 4-tube screen-grid set with power detector.
- R344.8 Meissner, E. R. Logarithmic scale for beat-frequency oscillator. Proc. Inst. Radio Engrs., 17, pp. 879-881; May, 1929.
Equation for shape of variable condenser plates for giving a logarithmic frequency scale.
- R386 Kuhlemann, C. A. Chart for design of band-pass filters. Radio (San Francisco), 11, pp. 18-19; June, 1929.
Design data.
- R390 Fisher, E. H. Voltage surges in audio-frequency apparatus. Proc. Inst. Radio Engrs., 17, pp. 841-848; May, 1929.
Measurements of amplitude and frequency of transient voltages produced in audio transformers by opening the plate circuit. Discussion of protective measures.

R500.—*Applications of radio*

- R526.1 Pratt, H. Field intensity characteristics of double-modulation type of directive radiobeacon. Proc. Inst. Radio Engrs., 17, pp. 873-878; May, 1929.
Equations and graphs showing space pattern obtained with this beacon.
- R526.2 Bouck, Z. Making the air safe for traffic—The lighthouse of the air—The radiobeacon. Radio News, 10, pp. 1065-1068; June, 1929.
Description of work on radiobeacon developed by the Bureau of Standards.
- R526.2 Gloeckner, M. H. Der Bordpeilempfänger im Flugzeug. (The direction finder on the airplane). Zeits. für Hochfrequenztechnik, 33, pp. 132-138; April, 1929.
A conclusion of discussion of the direction finder as applied to aviation.
- R526.2 Kahn, L. Nouvelles cartes aeriennes pour l'emploi de la T. S. F. en navigation. (New aerial maps for the use of radiotelegraphy in navigation). L'Onde Electrique, 8, pp. 87-102; March, 1929.
New kinds of maps which simplify radio position finding in aerial navigation.

R800.—Nonradio subjects

621.313.7 Hermanspann, P. Hochfrequenz-Gleichrichter-Anlage mit automatischer Konstanthaltung der Gleichspannung. (High frequency rectifier with automatic voltage control). Zeits. für Hochfrequenztechnik, **33**, pp. 121-127; April, 1929.

At a frequency of 8,000 cycles a transformer with core of so-called Hochfrequenzblech shows a marked superiority to the air-core type. A method of controlling voltage and keeping it constant and independent of the load is shown.

SOME OBSERVATIONS OF SHORT PERIOD RADIO FADING

In a paper, Some Observations of Short Period Radio Fading, by T. Parkinson, Research Paper No. 70, appearing in the Bureau of Standards Journal of Research for June, 1929, data are presented showing results of an investigation started at the beginning of 1928 with the object of studying short period fading of radio broadcast transmissions. Particular attention was paid to those intensity changes which take place during periods ranging from a few seconds to several minutes. Various antenna combinations were used in making simultaneous records of the same transmission in order to separate the effects of various causes of fading.

It was concluded that, in addition to the more commonly accepted causes, there may be a number of reflected or refracted waves which traverse different paths and arrive with their planes of polarization continuously rotating. These give rise to the variations in intensity of the received signal. Some of the conclusions are consistent with those of other workers in the field, but new explanations are necessary for some of the data.

Reprint copies of this paper will be available within a few weeks and may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. The price will be quoted by that office upon application.