

**U. S. DEPARTMENT OF COMMERCE
RADIO DIVISION**

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ABBREVIATIONS AND SYMBOLS

The necessary corrections to the List of Commercial and Government Radio Stations of the United States and to the International Lists of Radio 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 parentheses. |
| Power | =Height of antenna (meters) and intensity of current at its base (meters-amperes). |
| Service | =Nature of service maintained: PG=general public (ship to shore), PR=limited public (limited to public correspondence between fixed stations), P=private (limited commercial and special), O=Government business exclusively. |
| Class | =FX=fixed station (point-to-point service), RG=radio-compass station, FA=aeronautical station, AB=aviation beacon, RF=circular radiobeacon, B=ship station, FC=coast station, A=aircraft. |
| Hours | =Hours of operation: N=continuous service, X=no regular hour, Y=sunrise to sunset. |
| Accounts | =Message accounts settled by. |
| 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. |
| O. w. | =Continuous wave. |
| I. c. w. | =Interrupted continuous wave. |
| A. O. | =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. |
| Δ | =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, 1930, and to the International List of Fixed and Land Stations, published by the Berne bureau]

| Station | Class | Call signal | Frequency in kilocycles, meters in parentheses | Service | Hours | Licensese |
|--|--------|-------------|--|---------|-------|---|
| Ablene, Tex. ¹ ----- | FA, FX | KGUL | 278 (1,080), 3,484 (86.10), 5,630 (53.29). | P | X | Aeronautical Radio (Inc.). |
| Birmingham, Ala. ¹ | FA, FX | WSDE | ----- | P | X | Do. |
| Boston, Mass. (municipal air port). ² | FA, FX | WSDD | 278 (1,080), 3,238 (92.64), 5,600 (53.57). | P | X | Do. |
| Camden, N. J. ³ ----- | FA | WAEE | 278 (1,080), 393 (765), 400 (760), 414 (725), 420 (715), 3,082 (97.33), 3,468 (86.5), 5,510 (54.44), 6,365 (47.13), 8,015 (37.43), 12,180 (24.63). | P | X | Do. |
| Columbus, Ohio ⁴ .. | FA | WAEB | 278 (1,080), 3,082 (97.33), 3,468 (86.5), 5,510 (54.44), 6,365 (47.13), 8,015 (37.43), 12,180 (24.63). | P | X | Do. |
| Harrisburg, Pa. ⁵ ----- | FA | WAED | 278 (1,080), 393 (765), 400 (750), 414 (725), 420 (715), 3,082 (97.33), 3,468 (86.5), 5,510 (54.44), 6,365 (47.13), 8,015 (37.43), 12,180 (24.63). | P | X | Do. |
| Honolulu, Hawaii ⁷ | FO | KOX | 1,684 (178.15)----- | PG | N | Mutual Telephone Co. |
| Indianapolis, Ind. ⁸ .. | FA | WAEA | 278 (1,080), 3,082 (97.33), 3,468 (86.5), 5,510 (54.44), 6,365 (47.13), 8,015 (37.43), 12,180 (24.63). | P | X | Aeronautical Radio (Inc.). |
| Jackson, Miss. ⁹ ----- | FA, FX | WSDB | 278 (1,080), 3,484 (86.10), 5,630 (53.29). | P | X | Do. |
| Kahuku, Hawaii ¹⁰ | FX | KDE | 11,680 (25.68)----- | PR | N | R. O. A. Communications (Inc.). |
| Do. ¹⁰ ----- | FX | KDK | 7,520 (39.89)----- | PR | N | Do. |
| Milbuk, P.I. (Cotabato). ¹¹ | FX | KZFL | 4,735 (63.35)----- | P | X | Henry E. Neibert—(Philippine insular government). |
| Milwaukee, Wis. ¹² .. | FX | WPKD | 2,452 (122.34)----- | P | N | City of Milwaukee, Police Department. |
| Modesto, Calif. ¹³ --- | FX | KGVM | 3,184 (94.22)----- | P | X | Modesto Irrigation District (Inc.). |
| Newark, N. J. ¹⁴ ----- | FA | WAEF | 278 (1,080), 393 (900), 400 (750), 414 (725), 420 (715), 3,082 (97.33), 3,468 (86.5), 5,510 (54.44), 6,365 (47.13), 8,015 (37.43), 12,180 (24.63). | P | X | Aeronautical Radio (Inc.). |
| Newark, N. J. ¹⁵ ----- | FA, FX | WSDC | 278 (1,080), 3,484 (86.10), 5,600 (53.57). | P | X | Do. |
| Oklahoma City, Okla. ¹⁶ | FX | KGPH | 2,452 (122.34)----- | P | N | City of Oklahoma City. |
| Orland Township, Ill. ¹⁷ | FA, FX | WNAJ | 278 (1,080), 3,160 (94.9)--- | P | X | Aeronautical Radio (Inc.). |

¹ Loc. 99° 40' 28" W., 32° 26' 04" N.; type, A1, A2, A3.

² Loc. (approximate) 86° 50' 00" W., 33° 32' 00" N.; type, A1, A2, A3.

³ Loc. 71° 28' 00" W., 42° 17' 45" N.; type, A1, A2, A3; power, M/amp. 15.33/5.

⁴ Loc. (approximate) 70° 00' 00" W., 40° 00' 00" N.; type, A1, A2, A3.

⁵ Loc. (approximate) 82° 30' 00" W., 40° 00' 00" N.; type, A1, A2, A3.

⁶ Loc. (approximate) 77° 30' 00" W., 40° 30' 00" N.; type, A1, A2, A3.

⁷ Loc. 157° 37' 30" W., 21° 15' 00" N.; type, A3.

⁸ Loc. (approximate) 86° 30' 00" W., 39° 30' 00" N.; type, A1, A2, A3.

⁹ Loc. 90° 13' 16" W., 32° 19' 41" N.; type, A1, A2, A3.

¹⁰ Loc. 157° 58' 33" W., 21° 42' 12" N.; type, A1, A2, A3.

¹¹ Loc. 124° 16' 24" W., 6° 09' 33" N.; type, A2; power, M/amp. 17.8/1.

¹² Loc. 87° 55' 52" W., 43° 04' 58" N.; type, A3.

¹³ Type, A1.

¹⁴ Loc. (approximate) 75° 00' 00" W., 41° 00' 00" N.; type, A1, A2, A3.

¹⁵ Loc. (approximate) 73° 10' 00" W., 40° 45' 00" N.; type, A1, A3.

¹⁶ Loc. 97° 31' 20" W., 35° 28' 00" N.; type, A3.

¹⁷ Loc. (approximate) 87° 52' 00" W., 41° 35' 00" N.; type, A1, A2, A3.

Commercial land stations, alphabetically, by names of stations—Continued

[Additions to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1930, and to the International List of Fixed and Land Stations, published by the Berne bureau]

| Station | Class | Call signal | Frequency in kilocycles, meters in parentheses | Service | Hours | Licensee |
|---|--------|-------------|--|---------|-------|-------------------------------------|
| Pittsburgh, Pa. ¹⁴ --- | FA | WAEO | 278 (1,080), 393 (765), 400 (750), 414 (725), 420 (715), 3,082 (97.33), 3,468 (86.5), 5,510 (54.44), 6,365 (47.13), 8,015 (37.43), 12,180 (24.63). | P | X | Aeronautical Radio (Inc.). |
| Polillo, P. I. radio (Tayabas). ¹⁵ | FO | KUC | 300 (1,000), 315.8 (950), 333.3 (900), 352.9 (850), 375 (800), 400 (750), 428.6 (700), 461.5 (650), 500 (600), 545 (550). | PG | ----- | Philippine insular government. |
| Robertson, Mo. (St. Louis). ¹⁶ | FA | KGTR | 278 (1,080), 393 (765), 400 (750), 414 (725), 420 (715), 3,082 (97.33), 3,468 (86.5), 5,510 (54.44), 6,365 (47.13), 8,015 (37.43), 12,180 (24.63). | P | X | Aeronautical Radio (Inc.). |
| Shreveport, La. ¹⁷ --- | FA, FX | KGUK | 278 (1,080), 3,484 (86.10), 5,630 (53.29). | P | X | Do. |
| Springfield, Mo. ¹⁸ --- | FA | KGTQ | 278 (1,080), 393 (765), 400 (750), 414 (725), 420 (715), 3,082 (97.33), 3,468 (86.5), 5,510 (54.44), 6,365 (47.13), 8,015 (37.43), 12,180 (24.63). | P | X | Do. |
| Trujillo, Tex. (near). ¹⁹ | FA, FX | KGUM | 278 (1,080), 3,484 (86.10), 5,630 (53.29). | P | X | Do. |
| Tucson, Ariz. ²⁰ | FA, FX | KGUO | do. | P | X | Do. |
| Vallejo, Calif. ²¹ ----- Portable | FX | KGPG | 2,410 (124.5)----- | P | N | City of Vallejo Police Department. |
| California ²² ----- | FX | KGVL | 3,184 (94.22)----- | P | X | Modesto Irrigation District (Inc.). |

¹⁴ Type, A1.

¹⁵ Loc. (approximate) 80° 00' 00" W., 41° 00' 00" N.; type, A1, A2, A3.

¹⁶ Loc. 121° 58' 15" W., 14° 43' 15" N.; type, A1; power, M/amp. 17/6; hours, 8 to 12 a. m., 2 to 5.30 p. m. daily, 9 to 11 a. m. Sundays and holidays; ship schedule, 10th to 20th minutes of every hour; rates, cost charge, 8 cents per word.

¹⁷ Loc. (approximate) 90° 30' 00" W., 39° 00' 00" N.; type, A1, A2, A3.

¹⁸ Loc. 93° 48' 15" W., 32° 30' 30" N.; type, A1, A2, A3.

¹⁹ Loc. 93° 30' 00" W., 37° 37' 30" N.; type, A1, A2, A3.

²⁰ Type, A1, A2, A3.

²¹ Loc. 110° 57' 15" W., 32° 13' 40" N.; type, A1, A2, A3.

²² Loc. 122° 15' 24" W., 38° 06' 05" N.; type, A3.

Commercial ship stations, alphabetically, by names of vessels

[Additions to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1930, and to the International List of Ship Stations, published by the Berne bureau]

| Name of vessel | Call signal | Rates, all services (cents) | Service | Hours | Owner | Message accounts settled by— |
|----------------------------------|-------------|-----------------------------|---------|-------|-----------------------------------|------------------------------|
| Borinquen----- | KGWQ | | | | New York & Porto Rico S. S. Co. | |
| Brilliant----- | KGWS | 8 | PG | X | Standard Transportation Co. | R. M. C. A. |
| City of Dallas----- | KOPV | | | | Southern S. S. Co. | |
| Cotabato ¹ ----- | KZBW | 4 | PG | X | Hoa Hin Co. (Inc.) | Owner. |
| Florida----- | KGWR | | | | Peninsular & Occidental S. S. Co. | |
| Governor Taft ¹ ----- | KZBT | 4 | PG | X | Pond & Dean Navigation Co. (Inc.) | Do. |
| Lake Arline----- | KGWO | | | | Lake Arline S. S. Co. | |
| Lusitania----- | KGWN | | | | Manuel G. Rosa | |
| Newton----- | KGWK | | | | Boston Trawler Co. | |
| Sanwan ¹ ----- | KGWP | | | | Robert Moran | |
| Shogun----- | KGWM | | | | A. C. Murphy | R. M. C. A. |
| Thalia----- | KGWL | | | | Thomas M. Howell | |
| T. L. Durocher----- | KGOW | | | | T. L. Durocher & Co. | |
| Trudone----- | KGRZ | | | | Ross W. Judson | |

¹ Fr., 400 (750), 500 (600).

² Type, A1, A2; Fr., 375 (800), 400 (750), 425 (705), 468 (640), 500 (600).

Commercial aircraft stations, alphabetically, by names of craft

[Additions to the List of Radio Stations of the United States, edition of June 30, 1930, and to the International List of Aircraft Stations published by the Berne bureau]

| Station | Call signal | Frequency in kilocycles, meters in parentheses | Service | Hours | Licensee |
|-------------------------------|-------------|--|---------|-------|--|
| NC-228M ¹ | KHBYB | 3,106 (96.59), 3,172 (94.57), 5,660 (53). | P | X | Boeing Airplane Co., 200 West Michigan Street, Seattle, Wash. |
| NC-234M ¹ | KHJZA | 3,106 (96.59) | P | X | Boeing Air Transport (Inc.). |
| NC-489E | KHHBX | | P | X | Southern Air Fast Express (Inc.). |
| NC-580K | KHHCW | | P | X | Do. |
| NC-581K | KHHDV | | P | X | Do. |
| NC-651E | KHHEU | | P | X | Do. |
| NC-652E ¹ | KHQAZ | 3,106 (96.59), 3,484 (86.10), 5,600 (53.57). | P | X | Universal Air Lines (Inc.). |
| NC-668M | KH FYB | | P | X | Pan American Airways (Inc.). |
| NC-669M | KHFZA | | P | X | Do. |
| NC-740M ¹ | KH IYB | 3,106 (96.59) | P | X | Hancock Foundation College of Aeronautics. |
| NC-802E | KHHGS | | P | X | Southern Air Fast Express (Inc.). |
| NC-804E ¹ | KHQBY | 3,106 (96.59), 3,484 (86.10), 5,600 (53.57). | P | X | Universal Air Lines (Inc.). |
| NC-880E ¹ | KHQCK | do | P | X | Do. |
| NC-881E ¹ | KHQDW | do | P | X | Do. |
| NC-9166 | KHHIR | | P | X | Southern Air Fast Express (Inc.). |
| NC-9169 | KHHKP | | P | X | Do. |
| NC-9177 | KHHJQ | | P | X | Do. |
| NC-9716 | KHHLQ | | P | X | Do. |
| NC-10338 ¹ | KHNQJ | 3,106 (96.59) | P | X | Varney Air Lines (Inc.), 310 Balboa Building, 593 Market Street, San Francisco, Calif. |
| Zenith Albatross ¹ | KHNRI | do | P | X | Jimmie Angel. |

¹ Type, A3.¹ Type, A1, A3.*Government land stations, alphabetically, by names of stations*

[Addition to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1930, and to the International List of Fixed and Land Stations published by the Berne bureau]

| Station | Class | Call signal | Frequency in kilocycles, meters in parentheses | Service | Hours | Owner |
|-----------------------------------|--------|-------------|--|---------|-------|-------------|
| Mather Field, Calif. ¹ | FA, FX | WZAG | 200 (1,500), 220 (1,365) | O | ----- | U. S. Army. |

¹ Loc. (approximate), 121° 18' 00" W., 38° 35' 00" N.; type, A1; hours, 6 a. m. to 7 p. m. daily.*Government ship station, alphabetically, by name of station*

[Addition to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1930, and to the International List of Fixed and Land Stations published by the Berne bureau]

| Station | Call signal | Frequency in kilocycles, meters in parentheses | Service | Hours | Owner |
|-----------|-------------|--|---------|-------|--------------------|
| O. G. 925 | NRKW | | O | ----- | U. S. Coast Guard. |

Marine radiobeacon stations

[Additions to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1930, and to the International List of Stations Performing Special Services published by the Berne bureau]

EGMONT KEY LIGHT STATION, FLA.—Loc. 82° 45' 39" W., 27° 36' 02" N.; transmits every 180 seconds, groups of 1 dot, 2 dashes and 1 dot, for 60 seconds, silent 120 seconds, thus:

· — — · etc
Silent
60 seconds
120 seconds

Fy., 305 (984); hours, continuously during thick or foggy weather and daily in clear weather from 3 to 3.30 and 9 to 9.30 a. m. and p. m. (seventy-fifth meridian time).

SMITH ISLAND LIGHT STATION, WASH.—Loc. 122° 50' 38" W., 48° 19' 08" N.; radiobeacon to be established about November 15, 1930, will transmit on a frequency of 314 kilocycles (955 m.) every 180 seconds, groups of 2 dashes and 1 dot for 60 seconds, silent 120 seconds, thus:

— — · — — · etc.
Silent
60 seconds
120 seconds

Radiobeacon (class C low power) will be operated continuously during thick or foggy weather and daily in clear weather for the first 15 minutes of each hour (one hundred and twentieth meridian time).

POINT WILSON LIGHT STATION, WASH.—Loc. 122° 45' 13" W., 48° 08' 40" N.; radiobeacon to be established about November 15, 1930, will transmit on a frequency of 314 kilocycles (955 m.) every 180 seconds, groups of 2 dashes 1 dot and 1 dash for 60 seconds, silent 120 seconds, thus:

— — · — — — — · etc.
Silent
60 seconds
120 seconds

Radiobeacon (class C low power) will be operated continuously during thick or foggy weather and daily in clear weather for the first 15 minutes of each hour (one hundred and twentieth meridian time).

Commercial and Government land, ship, aircraft, radiobeacon, and radio-compass stations, alphabetically by call signals

| Call signal | Name of station | Call signal | Name of station |
|-------------|---|-------------|-----------------|
| KDE | Kahuku, Hawaii..... | fx | |
| KDK | do..... | fx | |
| KGOW | T. L. Durocher..... | b | |
| KGFG | Vallejo, Calif..... | fx | |
| KGPH | Oklahoma City, Okla..... | fx | |
| KGRZ | Trudione..... | b | |
| KGTQ | Springfield, Mo..... | fa | |
| KGTR | Robertson, Mo. (St. Louis)..... | fa | |
| KGUK | Shreveport, La..... | fa, fx | |
| KGUL | Abeline, Tex..... | fa, fx | |
| KGUM | Trujillo, Tex. (near)..... | fa, fx | |
| KGUO | Tucson, Ariz..... | fa, fx | |
| KGVL | California (portable)..... | fx | |
| KGVM | Modesto, Calif..... | fx | |
| KGWK | Newton..... | b | |
| KGWL | Thalia..... | b | |
| KGWM | Shogun..... | b | |
| KGWN | Lusitania..... | b | |
| KGWO | Lake Arline..... | b | |
| KGWP | Sanwan..... | b | |
| KGWQ | Borinquen..... | b | |
| KGWR | Florida..... | b | |
| KGWS | Brilliant..... | b | |
| KHBYB | NC-228M..... | a | |
| KHFZA | NC-699M..... | a | |
| KHHBB | NC-439E..... | a | |
| KHHOW | NC-580K..... | a | |
| KHHDV | NC-581K..... | a | |
| KHHEU | NC-651E..... | a | |
| KHHGS | NC-802E..... | a | |
| KHHIR | NC-9166..... | a | |
| KHHJQ | NC-9177..... | a | |
| KHHKP | NC-9169..... | a | |
| KHHLO | NC-9716..... | a | |
| KHIYB | NC-740M..... | a | |
| KHJZA | NC-234M..... | a | |
| KHFBYB | NC-668M..... | a | |
| KHNQJ | NC-10338..... | a | |
| KHNRI | Zenith Albatross..... | a | |
| KHQAZ | NC-852E..... | a | |
| KHQBY | NC-804E..... | a | |
| KHQCX | NC-880E..... | a | |
| KHQDW | NC-881E..... | a | |
| KOPV | City of Dallas..... | b | |
| KOX | Honolulu, Hawaii..... | fo | |
| KUC | Polillo, P. I. radio (Tayabas)..... | fo | |
| KZBT | Governor Taft..... | b | |
| KZBW | Cotabato..... | b | |
| KZFL | Milbuk, P. I. (Cotabato)..... | fx | |
| NRKW | C. G. 925..... | b | |
| WAEA | Indianapolis, Ind..... | fa | |
| WAEB | Columbus, Ohio..... | fa | |
| WAEK | Pittsburgh, Pa..... | fa | |
| WAEJ | Harrisburg, Pa..... | fa | |
| WAEF | Camden, N. J..... | fa | |
| WANA | Newark, N. J..... | fa | |
| WPDK | Orland Township, Ill..... | fa, fx | |
| WSDK | Milwaukee, Wis..... | fa, fx | |
| WSDC | Jackson, Miss..... | fa, fx | |
| WSDD | Newark, N. J..... | fa, fx | |
| WSDE | Boston, Mass, (Municipal Air- port)..... | fa, fx | |
| WSDE | Birmingham, Ala..... | fa, fx | |
| WZAG | Mather Field, Calif..... | fa, fx | |

Experimental stations, alphabetically, by names of stations

[Additions to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1930]

| Station | Call signal | Frequency in kilocycles, meters in parentheses | Power (watts) | Licensee |
|---|---------------|---|------------------|--|
| California: Los Angeles..... | W6XK | 1,715 (175) to 2,000 (150), 3,500 (8.57) to 4,000 (75), 7,000 (42.86) to 7,300 (41.1), 14,000 (21.43) to 14,400 (20.83), 28,000 (10.71) to 30,000 (10), 56,000 (5.36) to 60,000 (5), 400,000 (.75) to 401,000 (.74). | 500 | Don Lee (Inc.), 1078 West Seventh Street. |
| San Francisco..... | W6XU | 161 (1,985), 153 (1,960), 157 (1,910), 159 (1,885), 160 (1,875), 400 (750), 410 (730), 454 (660), 469 (640), 8,290 (36.19), 8,450 (35.5), 11,050 (27.15), 11,230 (26.71), 12,490 (24.02), 13,270 (22.61), 16,580 (18.094). | 10,000 | R. M. C. A. |
| Illinois: Elgin..... | W9KAN | 1,715 (175) to 2,000 (150), 3,500 (85.7) to 4,000 (75), 7,000 (42.86) to 7,300 (41.1), 14,000 (21.43) to 14,400 (20.83), 28,000 (10.71) to 30,000 (10), 56,000 (5.36) to 60,000 (5), 400,000 (.75) to 401,000 (.74). | 500 | Elgin National Watch Co., corner National Street and South Grove Avenue. |
| New Jersey: Deal..... | W2XDJ | 4,752.5 (63.12), 6,755 (44.41), 8,630 (34.76), 9,170 (32.72), 9,750 (30.77), 9,870 (30.40), 10,550 (28.44), 12,840 (23.36), 13,390 (22.40), 14,470 (20.73), 14,590 (20.56), 16,270 (18.439), 17,120 (17.523), 18,340 (16.358), 19,220 (15.609), 21,060 (14.245), 21,420 (14.006). | 20,000 | Bell Telephone Laboratories (Inc.). |
| Ocean Township, Whippany..... | W2XDG W3XP | do 1,608 (186.57), 2,302 (130.32), 3,076 (97.53), 4,108 (73.02), 6,155 (48.74). | 5,000 60,000 | Do. Do. |
| Ohio: Cleveland..... <i>Portable</i> | W8XAA | 278 (1,080)..... | 10 | Department of Airport, City of Cleveland. |
| First radio district... | W1XAL | 1,330 (225.6)..... | 50 | Doolittle Radio Corporation, Hotel Taft, New Haven, Conn. |
| New York: New York. | W2XDH | 4,752.5 (63.12), 6,755 (44.41), 8,630 (34.76), 9,170 (32.72), 9,750 (30.77), 9,870 (30.40), 10,550 (28.44), 12,840 (23.36), 13,390 (22.40), 14,470 (20.73), 14,590 (20.56), 16,270 (18.439), 17,120 (17.523), 18,340 (16.358), 19,220 (15.609), 21,060 (14.245), 21,420 (14.006). | 1,000 | Bell Telephone Laboratories (Inc.). |
| New Jersey: Ocean Township. <i>Aircraft</i> | W2XDI | do | 1,000 | Do. |
| NC-95ZV..... | W2XBX | 1,608 (186.57), 2,302 (130.32), 3,076 (97.5), 4,108 (73.028), 5,510 (54.46), 6,155 (48.74). | 500 | Do. |

Relay 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, 1930]

| Station | Call signal | Frequency in kilocycles, meters in parentheses | Power (watts) | Owner |
|------------------------|-------------|---|------------------|---|
| New York: New York. | W2XDA | 1,544 (194.30)..... | 50 | Atlantic Broadcasting Corporation, 485 Madison Avenue. |

Experimental, relay broadcasting, and visual broadcasting stations grouped by districts, alphabetically, by call signals

| Call signal | District and station | Call signal | District and station |
|-------------|--|-------------|-------------------------------------|
| W1XAL | First district: First Radio District (portable). Second district: New York, N. Y. | W3XP | Third district: Whippany, N. J. |
| W2XDA | New York, N. Y. | W6XK | Sixth district: Los Angeles, Calif. |
| W2XDG | Ocean Township, N. J. | W6XK | Do. |
| W2XDH | New York, N. Y. (portable). | W6XU | San Francisco, Calif. |
| W2XDI | Ocean Township, N. J. (portable). | W8XAA | Eighth district: Cleveland, Ohio. |
| W2XDJ | Deal, N. J. | W9XAN | Ninth district: Elgin, Ill. |
| | | W2XBX | Aircraft: NC-952V. |

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, 1930, and to the International List of Fixed and Land Stations, published by the Berne bureau]

- ALBUQUERQUE, N. MEX. (KGSD).—Fy., add 5,540 (54.15).
 AMARILLO, TEX.—Fy., add 5,540 (54.15).
 ANNETTE ISLAND, ALASKA, Radio.—Power, M/amp. 26/3.
 ATLANTA, GA. (Candler Field).—Loc. (approximate) 84° 26' 00" W., 33° 40' 00" N.; type, add A2, A3; fy., strike out 5,600 (53.57); add 5,630 (53.29); licensee, Aeronautical Radio (Inc.).
 AVALON, CALIF. (Catalina Island).—Loc. (approximate) 120° 00' 00" W., 34° 00' 00" N.; type, add A2.
 BAYTOWN, TEX.—*Read* Baytown, Tex., radio; service, strike out P, add PG; hours, strike out X, add 8 a. m. to 5 p. m.; rates, 10 cents per word.
 BEAUMONT, TEX. (WOD).—Power, M/amp. 42.68/8; hours, N.; licensee, Magnolia Radio Co.
 BIG SPRINGS, TEX. (municipal airport).—Loc., 101° 30' 30" W., 32° 14' 18" N.; type, add A2, A3; fy., strike out 5,600 (53.57), add 5,630 (53.29); power, M/amp. 15.38/5; licensee, Aeronautical Radio (Inc.).
 BOLINAS, CALIF. (KER).—Type, add A2, A3; power, M/amp. 15 to 150/100.
 BOLINAS, CALIF. (KEZ).—Type, add A2, A3; power, M/amp. 15 to 150/100.
 BOLINAS, CALIF. (KKR).—Type, add A2, A3; power, M/amp. 15 to 150/100.
 BOLINAS, CALIF. (KQR).—Type, add A2, A3; power, M/amp. 15 to 150/100.
 BOLINAS, CALIF. (KQZ).—Type, add A2, A3; power, M/amp. 15 to 150/100.
 BOSTON, MASS. (municipal airport).—Power, M/amp. 15.38/5.
 BOSTON, MASS., Radio (WBF).—Loc. changed to Hingham, Mass., radio; 70° 51' 30" W., 42° 11' 30" N.
 DALY, ALASKA, Radio.—Power, M/amp. 15/2.
 DALLAS, TEX. (Love Field—KGUF).—Loc. (approximate) 96° 47' 00" W., 32° 46' 00" N.; type, add A2, A3; fy., add 5,630 (53.29).
 DENVER, COLO. (KGSP).—Loc. (approximate) 105° 00' 00" W., 39° 30' 00" N.; type, strike out A3.
 DOUGLAS, ARIZ.—Call changed to KGUN; loc. 109° 27' 21" W., 31° 21' 04" N.; fy., add 3,484 (86.10), 5,630 (53.29).
 EDMONDS, WASH., Radio.—Power, M/amp. 20/1.5.
 EL PASO, TEX. (municipal airport—KGUA).—*Read* El Paso, Tex. (Western Air Field); loc. (approximate) 106° 22' 00" W., 31° 51' 00" N.; type, add A2, A3; fy., strike out 5,600 (53.57), add 5,630 (53.29).
 HOLBROOK, ARIZ.—Loc. (approximate) 110° 00' 00" W., 35° 00' 00" N.; type, add A2, fy., add 5,540 (54.15).
 JOLO, JOLO ISLAND, P. I., Radio.—Fy., add 316 (950), 333 (900), 353 (850).
 KAHUKU, HAWAII (KGI).—Power, M/amp. 156/400.
 KAHUKU, HAWAII (KIE).—Power, M/amp. 156/400.
 KANSAS CITY, Mo. (KGTG).—Loc. (approximate) 95° 00' 00" W., 38° 30' 00" N.; type, add A2; fy., add 393 (765), 400 (750), 414 (725), 420 (715), 3,082 (97.33), 3,468 (86.5), 5,510 (54.44), 5,540 (54.15), 6,365 (47.13).
 KARLUK, ALASKA (Kodiak Island).—*Read* Karluk, Alaska radio (Kodiak Island); power, M/amp. 15/1.5; service, add PG.
 KINGMAN, ARIZ. (KGTI).—Loc. (approximate) 114° 30' 00" W., 35° 30' 00" N.; type, add A2; fy., add 5,540 (54.15).

- LAS VEGAS, NEV.—Fy., add 5,540 (54.15); hours, strike out N.; add X.
 LAZY BAY, ALASKA, Radio.—Power, M/amp. 21/3.
 LOS ANGELES, CALIF. (Alhambra airport—KGTI).—Fy., add 5,540 (54.15).
 LOS ANGELES, CALIF. (KGX).—Loc., changed to Cypress, Calif.; fy., strike out 22,660 (13.239), add 22,700 (13.216); power, M/amp. 20/1.5.
 LOS ANGELES, CALIF. (KRM).—Power, M/amp. 20/2.
 LOUISVILLE, KY.—Type, add A2.
 MARION, MASS., Radio (WCC).—Type, add A2; fy., add 21,860 (13.724), 21,900 (13.699).
 MARION, MASS. (WRQ).—Power, M/amp. 136/400.
 MUSSEL ROCK, CALIF., Radio.—Fy., add 11,080 (27.08), 11,140 (26.93), 11,200 (26.79).
 NEW BRUNSWICK, N. J. (WAZ).—Type, add A2.
 NEW ROCHELLE, N. Y.—Loc. changed to Carlstadt, N. J.
 OAKLAND, CALIF. (Oakland airport—KFO).—Licensee, Aeronautical Radio (Inc.).
 PHILADELPHIA, PA., Radio (WNW).—Power, M/amp. 30/10.
 PHILADELPHIA, PA. (WPDP).—Hours, strike out X, add N.
 PHOENIX, ARIZ. (KGSJ).—Call changed to KGUP; loc. (approximate) 112° 00' 00" W., 32° 30' 00" N.; type, add A2; fy., add 3,484 (86.10), 5,630 (53.29).
 PONCA CITY, OKLA. (KSF).—Loc. 97° 05' 22.8" W., 36° 41' 29.7" N.
 PORT MOLLER, ALASKA, Radio.—Power, M/amp. 40/3.
 ROCKY POINT, N. Y. (WDA).—Power, M/amp. 15 to 50/100.
 ROCKY POINT, N. Y. (WDB).—Power, M/amp. 15 to 50/100.
 ROCKY POINT, N. Y. (WEG).—Loc. changed to New Brunswick, N. J.; power, M/amp. 100/25.
 ROCKY POINT, N. Y. (WET).—Type, add A2, A3; power, M/amp. 15 to 150/100.
 ROCKY POINT, N. Y. (WQH).—Type, add A2, A3; power, M/amp. 15 to 150/100.
 ROCKY POINT, N. Y. (WQS).—Type, add A2, A3; power, M/amp. 15 to 150/100.
 ROCKY POINT, N. Y. (WQV).—Type, add A2, A3; power, M/amp. 15 to 150/100.
 ROCKY POINT, N. Y. (WSS).—Power, M/amp. 137/400.
 SACRAMENTO, CALIF. (Mather Field—KFM).—Licensee, Aeronautical Radio (Inc.).
 SACRAMENTO, CALIF. (KRJ).—Power, M/amp. 25/2-3.
 SALINAS, CALIF.—Power, M/amp. 20/2.
 SALT LAKE CITY, UTAH (KGTH).—Fy., add 5,540 (54.15).
 SAN DIEGO, CALIF. (KGSX).—Loc. (approximate) 117° 30' 00" W., 35° 30' 00" N.; type, strike out A3, add A2.
 SAN FRANCISCO, CALIF. (KRG).—Power, M/amp. 25/3.
 SHERWOOD, OREG., Radio.—Power, M/amp. 22/1.5.
 SIASI, P. I., Radio (Sulu).—Fy., add 313.5 (955).
 TAMPA, FLA., Radio.—Licensee, George Collins Warner, jr.
 TORRANCE, CALIF., Radio (Los Angeles).—Power, M/amp. 62/10.
 TUCKERTON, N. J. (WCI).—Type, add A2; power, M/amp. 257/400.
 TUCKERTON, N. J. (WGG).—Type, add A2; power, M/amp. 257/400.
 TUCKERTON, N. J., Radio (WSC).—Fy., strike out 8,390 (35.76).
 UYAK, ALASKA, Radio (KHA).—Power, M/amp. 33/4.
 WARREN, ALASKA, Radio.—Power, M/amp. 17/2.
 WICHITA, KANS.—Fy., add 5,540 (54.15).

Portable

- California (KRN).—Read Brawley, Calif.; loc. (approximate) 115° 00' 00" W., 33° 30' 00" N.; power, M/amp. 20/2.
 Third Radio Zone No. 29.—Read Third, Fourth, and Fifth Radio Zones No. 29 (portable).
 Third Radio Zone No. 30.—Read Third, Fourth, and Fifth Radio Zones No. 30 (portable).
 Third Radio Zone No. 31.—Read Third, Fourth, and Fifth Radio Zones No. 31 (portable).
 Third Radio Zone No. 32.—Read Third, Fourth, and Fifth Radio Zones No. 32 (portable).
 Third Radio Zone No. 33.—Read Third, Fourth, and Fifth Radio Zones No. 33 (portable).
 Third Radio Zone No. 34.—Read Third, Fourth, and Fifth Radio Zones No. 34 (portable).
 Third Radio Zone No. 35.—Read Third, Fourth, and Fifth Radio Zones No. 35 (portable).
 Third Radio Zone No. 36.—Read Third, Fourth, and Fifth Radio Zones No. 36 (portable).

- Third Radio Zone No. 37.—*Read* Third, Fourth, and Fifth Radio Zones No. 37 (portable).
 Third Radio Zone No. 38.—*Read* Third, Fourth, and Fifth Radio Zones No. 38 (portable).
 Third Radio Zone No. 39.—*Read* Third, Fourth, and Fifth Radio Zones No. 39 (portable).
 Third Radio Zone No. 40.—*Read* Third, Fourth, and Fifth Radio Zones No. 40 (portable).
 Third Radio Zone No. 41.—*Read* Third, Fourth, and Fifth Radio Zones No. 41 (portable).
 Strike out all particulars of the following-named stations: Cedar Falls, Wash.; East Moriches, N. Y., Radio; Kenai, Alaska, Radio (KDZ); Portland, Oreg. (KLB); Rockport, Wash. (near); Seattle, Wash. (KVV); Underwood, Wash. (near).

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, 1930, and to the International List of Ship Stations, published by the Berne bureau]

- ADMIRAL WILEY.—Owner, Pacific S. S. Co. (Inc.).
 ALAMEDA.—Power, M/amp. 15.4/13; accounts, M. R. T. Co.
 ALASKA.—Power, M/amp. 20/10; accounts, M. R. T. Co.
 ANNAPOLIS.—Power, M/amp. 18/2.75; service, strike out PG, add P; rates, strike out.
 BEACONLIGHT.—Fy., strike out 155 (1,935).
 BEACONSTAR.—Owner, Standard Shipping Co. (Inc.).
 BETTY WEEMS.—Owner, A. H. Bull S. S. Co.
 CITY OF OMAHA.—Accounts, R. M. C. A. (U. S. L.).
 CREOLE (WEDN).—Power, M/amp. 13.85/3.
 DENALI.—Fy., strike out 155 (1,935); power, M/amp. 20/10; hours, strike out X; accounts, M. R. T. Co.
 DERBLAY.—Power, M/amp. 20/9; hours, strike out X.
 DORA WEEMS.—Owner, A. H. Bull S. S. Co.
 ECLIPSE.—Owner, Baltimore Mail S. S. Co. (Inc.).
 EDGAR F. LUCKENBACH.—Fy., add 454 (660); power, M/amp. 23/14.
 EL CAPITAN.—Power, M/amp. 25/8.
 ENSLEY CITY.—Owner, Isthmian S. S. Co. (Inc.).
 FOSS No. 21.—Power, M/amp. 25/5.
 FRANCES WEEMS.—Owner, A. H. Bull S. S. Co.
 GEORGIANA WEEMS.—Owner, A. H. Bull S. S. Co.
 HERBERT G. WYLIE.—Power, M/amp. 26/5.
 H. H. ROGERS.—Power, M/amp. 28/10.
 INDEPENDENCE.—Owner, Baltimore Mail S. S. Co. (Inc.).
 IOLANDA.—Type, add A2; fy., strike out 151 (1,985), add 157 (1,910); power, M/amp. 30-47/13.
 JEFF DAVIS.—Fy., add 159 (1,885); power, M/amp. 28/14; accounts, R. M. C. A. (U. S. L.).
 JOLIET.—Type, add A1; fy., strike out 160 (1,875), add 157 (1,910).
 KNOXVILLE CITY.—Owner, Isthmian S. S. Co. (Inc.).
 LA SALLE.—Type, add A1.
 LAVADA.—Type, strike out A1, A2; power, M/amp. 33/11; accounts, R. M. C. A.
 NANCY WEEMS.—Owner, A. H. Bull S. S. Co.
 NEVADA (WTUO).—Owner, Texas Co.
 SALMON KING.—Owner, Alaska Packers Association (Inc.).
 SELMA CITY.—Owner, Isthmian S. S. Co.
 SIERRA (WBDR).—Fy., add 400 (750), 5,525 (54.3), 5,555 (54), 6,590 (45.52), 8,330 (36.01), 11,050 (27.15), 11,110 (27), 16,580 (18.094), 16,660 (18.007).
 SOUTHERN TRADER.—Name changed to Atlantic Gulf; owner, Atlantic Gulf & Pacific Co.
 STEADFAST.—Owner, Baltimore Mail S. S. Co. (Inc.).
 STEELMAKER.—Owner, Isthmian S. S. Co. (Inc.).
 STEEL WORKER.—Owner, Isthmian S. S. Co. (Inc.).
 TEMPTRESS.—Name changed to Four Winds; call changed to KGDU; type, A1, fy., add 468 (640), 5,555 (54), 11,110 (27); owner, Stanley G. Harris.
 VICTORIOUS.—Owner, Baltimore Mail S. S. Co. (Inc.).
 WESTERN OCEAN.—Owner, Midland S. S. Corporation.
 Strike out all particulars of the following-named vessels: Amelia, Bayport, Fan Kwai, Four Winds, Vigilant (KOZP), Yale (WTBT).

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, 1930, and to the International List of Aircraft Stations, published by the Berne bureau]

- ARF PINT.—Fy., add 393 (765).
 CUBA.—Fy., add 393 (765).
 FLEETSTER No. 3.—Fy., add 393 (765).
 HAITI.—Fy., add 393 (765).
 JUNEAU.—Fy., add 393 (765).
 KETCHIKAN.—Fy., add 393 (765).
 NC-75K.—Fy., add 393 (765), 8,650 (34.68).
 NC-86K.—Fy., add 393 (765).
 NC-107H.—Fy., add 393 (765).
 NC-109H.—Fy., add 393 (765).
 NC-110H.—Fy., add 393 (765).
 NC-132H.—Fy., add 393 (765).
 NC-133H.—Fy., add 393 (765).
 NC-134H.—Fy., add 393 (765).
 NC-142M.—Fy., add 8,650 (34.68).
 NC-144M.—Fy., add 8,650 (34.68).
 NC-146M.—Fy., add 8,650 (34.68).
 NC-147H.—Fy., strike out 375 (800), 457 (655), add 8,015 (37.43).
 NC-300N.—Fy., add 393 (765), 8,650 (34.68).
 NC-304N.—Fy., add 393 (765), 8,650 (34.68).
 NC-306N.—Fy., add 8,650 (34.68).
 NC-309N.—Fy., add 8,650 (34.68).
 NC-801E.—Type, A3; fy., 3,484 (86.10), 5,600 (53.57).
 NC-811H.—Fy., strike out 375 (800), 457 (655), add 8,015 (37.43).
 NC-812H.—Fy., strike out 375 (800), 457 (655), add 8,015 (37.43).
 NC-813H.—Fy., strike out 375 (800), 393 (765), 3,106 (96.58), add 8,015 (37.43).
 NC-814H.—Fy., strike out 375 (800), 393 (765), 3,106 (96.58), add 8,015 (37.43).
 NC-945M.—Fy., add 8,650 (34.68).
 NC-8000.—Fy., add 8,650 (34.68).
 NC-8020.—Fy., add 8,650 (34.68).
 NC-8044.—Fy., add 8,650 (34.68).
 NC-9107.—Fy., add 8,650 (34.68).
 NC-9137.—Fy., strike out 457 (655), add 8,650 (34.68).
 NC-9144.—Fy., add 393 (765).
 NC-9151.—Fy., add 8,650 (34.68).
 NC-9608.—Fy., add 393 (765).
 NC-9609.—Fy., add 393 (765).
 NC-9637.—Fy., add 393 (765).
 NC-9688.—Fy., strike out 375 (800), 393 (765), 457 (655), 3,106 (96.58), add 8,015 (37.43).
 NC-9735.—Fy., add 393 (765).
 NC-9775.—Fy., add 8,650 (34.68).
 NC-9776.—Fy., add 8,650 (34.68).
 NR-41V.—Type, A1, fy., 333 (900), 414 (725), 500 (600), 2,662 (112.69), 3,070 (97.71), 3,106 (96.58), 5,690 (52.72), 8,015 (37.43), 8,650 (34.68).
 NR-496M.—Fy., strike out 3,106 (96.58), add 333 (900), 375 (800), 393 (765), 400 (750), 414 (725), 420 (715), 457 (655), 500 (600).
 PORTO RICO.—Fy., add 393 (765).
 PRIDE OF HOLLYWOOD.—Type, A3; fy., 2,368 (126.68), 3,106 (96.58).
 SAN JUAN.—Fy., add 393 (765).
 THREE JOHNS.—Fy., add 393 (765).
 TRINIDAD.—Fy., add 393 (765).
 X-657M.—Fy., add 393 (765).
 Strike out all particulars of the following-named stations: NC-810H, NC-7570, Pacific Era.

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, 1930, and to the International List of Fixed and Land Stations, published by the Berne Bureau]

Strike out all particulars of the following-named station: Sacramento, Calif. (Mather Field-KOC).

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, 1930, and to the International List of Ship Stations, published by the Berne bureau]

GEORGE E. BADGER.—Call changed to NRDO; owner, U. S. Coast Guard.

HERNDON.—Call changed to NRDL; owner, U. S. Coast Guard.

HUNT.—Call changed to NRDJ; owner, U. S. Coast Guard.

WELBORN C. WOOD.—Call changed to NRDK; owner, U. S. Coast Guard.

Strike out all particulars of the following-named vessels: Beale, Billingsley, Breck, Case, Charles Ausburne, Coghlan, Converse, Dale, Eagle 6, Eagle 7, Eagle 8, Eagle 14, Eagle 40, Flusser, Isherwood, Lamson, Lardner, Mahan, Maury, McCall, Osborne, Patterson, Paulding, Putnam, Reid, Roe, Sharkey, Terry, Toucey, Worden.

MARINE 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, 1930, and to the International List of Stations Performing Special Services, published by the Berne bureau]

SOUTHWEST PASS EAST JETTY, LA.—Characteristic of fog signal changed and radiobeacon signal synchronized with fog signal. Diaphone will sound a group of 4 blasts every 60 seconds thus:

| | Seconds |
|-------------|---------|
| Blast----- | 2 |
| Silent----- | 13 |
| Blast----- | 2 |
| Silent----- | 13 |
| Blast----- | 2 |
| Silent----- | 13 |
| Blast----- | 4 |
| Silent----- | 11 |

Radiobeacon will transmit, in addition to its regular characteristic, one long dash of 3 seconds' duration during each transmission period of 60 seconds. The end of the long dash of radiobeacon will sound simultaneously with the beginning of the long blast of the diaphone.

Vessels having radio receivers may determine their distance in miles from the fog-signal station by multiplying the number of seconds intervening between the reception of the radio dash and diaphone blast by 0.19.

Commercial and Government land, ship, aircraft, radiobeacon, and radio compass stations, alphabetically, by call signals

KDH, read Third, Fourth, and Fifth Radio Zones No. 41 (portable); KDV, read Third, Fourth, and Fifth Radio Zones No. 40 (portable); KDX, read Third, Fourth, and Fifth Radio Zones No. 39 (portable); KGSJ, read KGUP; KGSZ, read KGUN; KGUA, read El Paso, Tex. (Western Air Field); KGX, read Cypress, Calif.; KIB, read Third, Fourth, and Fifth Radio Zones No. 38 (portable); KIC, read Third, Fourth, and Fifth Radio Zones No. 37 (portable); KIJ, read Third, Fourth, and Fifth Radio Zones No. 36 (portable); KJV, read Baytown, Tex. Radio; KKD, read Third, Fourth, and Fifth Radio Zones No. 35 (portable); KKF, read Third, Fourth, and Fifth Radio Zones No. 34 (portable); KKV, read Third, Fourth, and Fifth Radio Zones No. 33 (portable); KKV, read Third, Fourth, and Fifth Radio Zones No. 32 (portable); KKK, read Third, Fourth, and Fifth Radio Zones No. 31 (portable); KKY, read Third, Fourth, and Fifth Radio Zones No. 30 (portable); KRN, read Brawley, Calif.; KSB, read Third, Fourth, and Fifth Radio Zones No. 29 (portable); KYK, read Karluk, Alaska Radio (Kodiak Island); KZEF, read Atlantic Gulf; NENJ, read NRDL, NUJF, read NRDJ, NUJG, read NRDO, NULJ, read NRDK; WAL, read Carlstadt, N. J.; WBF, read Hingham, Mass., Radio; WEG, read New Brunswick, N. J.; WIBJ, read KGDU, KGDU read Four Winds; strike out all particulars following the call signals: KDZ, KFL, KFR, KGCW, KGDU, KHFDW, KHIYB, KHNEV, KLB, KOC, KOZP, KUJC, KVV, NAPM, NEJJ, NEJK, NEJL, NEJS, NEPG, NEQK, NIBF, NRG, NRGL, NRGP, NRQQ, NRGR, NRGU, NULV, NULX, NULZ, NUNC, NUND, NUNF, NUNK, NUNM, NUNV, NUNX, NUPF, NUPG, NUPK, NUPQ, NUPR, NUQC, WEDO, WJE, WSH, WTBT.

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, 1930, and the International List of Broadcasting Stations published by the Berne bureau]

- KCRJ (Jerome, Ariz.).—Loc. (approximate) 112° 09' 00'' W., 34° 45' 00'' N.
 KFEL (Denver, Colo.).—Studio and post-office address, Albany Hotel.
 KFKA (Greeley, Colo.).—Studio, 925 Ninth Avenue.
 KFXJ (Edgewater, Colo.).—Licensee, R. G. Howell and Chas. Howell doing business as Western Slope Broadcasting Co.
 KGFL (Raton, N. Mex.).—Post-office address, studio and transmitter location, 115 N. Second St.
 KGGC (San Francisco, Calif.).—Studio, 2482 Mission St.
 KGHL (Billings, Mont.).—Loc., 108° 33' 32'' W., 45° 43' 18'' N.; power, 1,000.
 KGNO (Dodge City, Kans.).—Licensee, Dodge City Broadcasting Co. (Inc.).
 KLPM (Minot, N. Dak.).—Post-office address, 26 E. Central Avenue.
 KMIC (Inglewood, Calif.).—Call changed to KMCS.
 KOA (Denver, Colo.).—Post-office address, c/o Radio Corporation of America, Central Frequency Bureau, 66 Broad St., New York, N. Y.
 KTAB (Oakland, Calif.).—Power, 1,000.
 KTAT (Fort Worth, Tex.) (Birdville).—Main studio, Aviation Building.
 WALR (Zanesville, Ohio).—Studio, 306½ Main St.
 WBAA (W. Lafayette, Ind.).—Power, 500 night, 1,000 day.
 WBAM (Greensboro, N. C.).—Call changed to WBIG.
 WBAX (Plains Township, Pa.).—Loc., 75° 49' 49'' W., 41° 14' 48'' N.
 WBT (Charlotte, N. C.).—Loc., 80° 53' 28'' W., 35° 07' 52'' N.
 WCAO (Baltimore, Md.).—Post-office address and studio, 811 W. Lanvale St.
 WCSO (Springfield, Ohio).—Licensee, The WGAR Broadcasting Co.
 WEOF (Bellmore, N. Y.).—Post-office address, c/o Radio Corporation of America Central Frequency Bureau, 66 Broad Street, New York, N. Y.
 WEAN (Providence, R. I.).—Loc., 71° 24' 40'' W., 41° 49' 30'' N.
 WFJC (Akron, Ohio).—Licensee, the WGAR Broadcasting Co.
 WGR (Amherst, N. Y.).—Licensee, Buffalo Broadcasting Corporation.
 WHBL (Sheboygan, Wis.).—Post-office address, 636 Center Avenue.
 WHBY (West DePere, Wis.).—Loc., 88° 02' 49'' W., 44° 20' 22'' N.
 WIBA (Madison, Wis.).—Loc. (approximate), 89° 22' 00'' W., 43° 02' 00'' N.;
 fy., 1,280 (234.4); power, 500.
 WIBM (Jackson, Mich.).—Licensee, WIBM (Inc.); post-office address, Hotel Otsego.
 WJAR (Providence, R. I.).—Post-office address, 176 Weybosset St.
 WJBC (La Salle, Ill.).—Post-office address, studio and transmitter location, 2nd and Marquette Sts.
 WJZ (Bound Brook, N. J.).—Post-office address, c/o Radio Corporation of America Central Frequency Bureau, 66 Broad St., New York, N. Y.
 WKZO (Berrien Springs, Mich.).—Studio, WKZO Bldg., College Avenue.
 WLVA (Lynchburg, Va.).—Post-office address, Page St., between Morgan and Mount View Sts.
 WMAK (Grand Island, N. Y.).—Licensee, Buffalo Broadcasting Corporation.
 WMRJ (Jamaica, N. Y.).—Power, 100.
 WMT (Waterloo, Iowa).—Loc., 92° 12' 30'' W., 42° 29' 04'' N.
 WPAD (Paducah, Ky.).—Licensee, Paducah Broadcasting Co. (Pierce E. Lackey and S. Houston McNutt).
 WRC (Washington, D. C.).—Post-office address, c/o R. C. A. Central Frequency Bureau, 66 Broad St., New York, N. Y.
 WREN (Lawrence, Kans.).—Loc., 95° 15' 00'' W., 38° 38' 15'' N.
 WTAM (Brecksville, Village, Ohio).—Licensee, National Broadcasting Co. (Inc.).
 Strike out all particulars of the following-named stations: WCHI (Deerfield, Ill.); WRK (Hamilton, Ohio).

EXPERIMENTAL STATIONS, ALPHABETICALLY, BY NAMES OF STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1930]

- CALIFORNIA: Palo Alto (W6XV).—Fy., strike out 24,100 (12.448), 25,100 (11.952), 27,100 (11.070), 30,100 (9.97), 75,100 (3.99).
 COLORADO: Gunnison (W9XD).—Strike out all particulars.

ILLINOIS: Downers Grove (W9XF).—Fy., strike out 11,800 (25.42), 21,500 (13.953).

INDIANA: Culver (W9XB).—Strike out all particulars.

MASSACHUSETTS: Boston (W1XT).—Loc., changed to Hingham, Mass.

NEW JERSEY:

Camden (W3XAB).—Fy., strike out 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), add 25,700 (11.673), 34,600 (8.67), 51,400 (5.83), 60,000 (5) to 400,000 (.75).

Holmdel (W2XM).—Fy., add 60,000 (5) to 100,000 (3).

Newark (W2XAI).—Strike out all particulars.

NEW YORK:

Brooklyn (W2XBB).—Fy., strike out 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), add 25,700 (11.673), 34,600 (8.67), 60,000 (5) to 400,000 (.75) and above 401,000 (.74).

New York (W2XB).—Strike out all particulars.

Port Washington (W2XCS).—Strike out all particulars.

Rocky Point (W2XBI).—Fy., strike out 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), add 50,100 (5.98), 60,000 (5) to 400,000 (.75) and above 401,000 (.74).

Rocky Point (W2XS).—Fy., strike out 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), add 34,600 (8.67), 60,000 (5) to 400,000 (.75) and above 401,000 (.74).

Roosevelt Field (W2XCV).—Strike out all particulars.

South Schenectady (W2XAG).—*Read* regular experimental instead of Relay Broadcast.

OHIO: Dayton (W8XAG).—Strike out all particulars.

PENNSYLVANIA: Philadelphia (W3XC).—Strike out all particulars.

Portable

CALIFORNIA:

Los Angeles (W6XAP).—Strike out all particulars.

Orange (W6XE).—Fy., strike out 6,425 (46.69).

ILLINOIS: Chicago (W9XAH).—Strike out all particulars.

Aircraft

NC-4616 (W2XBX).—Strike out all particulars.

NC-8013 (W10XV).—Strike out all particulars.

NC-9746 (W10XI).—Fy., strike out 3,076 (97.5), 6,155 (48.74), add 3,256 (92.13), 6,425 (46.69).

Parachute (W10XT).—Strike out all particulars.

Unnamed (W10XZ).—Fy., add 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7).

RELAY BROADCASTING STATION, ALPHABETICALLY, BY NAMES OF STATION

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1930]

ILLINOIS: Addison (W9XAQ).—Strike out all particulars.

VISUAL BROADCASTING 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, 1930]

MASSACHUSETTS: Lawrence (W1XY).—Strike out all particulars.

NEW JERSEY: Camden (W3XAD).—Fy., strike out 2,850 (105.3) to 2,950 (101.7), add 2,100 (142.9) to 2,200 (136.4).

NEW YORK: New York (W2XCO).—Strike out all particulars.

MISCELLANEOUS

GENERAL ORDERS OF THE FEDERAL RADIO COMMISSION

*Regulations governing the licensing and operation of auxiliary broadcasting stations
(General Order No. 96, October 6, 1930)*

I. Upon a showing that a need exists therefore, a license may be issued upon application, for an auxiliary transmitter in addition to the regular transmitter of a broadcasting station. Auxiliary transmitters are defined as transmitters maintained for the purpose of transmitting the regular program of the station only in case of failure of the main transmitter.

Auxiliary transmitters will be permitted to be installed only at the same location as the main transmitter except that upon suitable showing of technical necessity therefor the commission may grant permission for other locations.

II. A licensed operator shall be in control whenever an auxiliary transmitter is placed in operation. The provisions of General Order No. 90 shall apply to licenses covering auxiliary transmitters.

All auxiliary transmitters shall be maintained so that they may be put into immediate operation at any time upon failure of the main transmitter or upon request of a duly authorized government official.

All auxiliary transmitters shall be tested at least once each week to determine that they are in proper operating condition and that they are adjusted to the proper frequency. Such tests shall be conducted between 1 a. m. and 12 o'clock noon. A record of the time, conditions, and results of tests shall be kept in a special record available for inspection at any time.

All auxiliary transmitters shall be equipped with satisfactory frequency checking or control equipment which will enable the maintenance of the frequency emitted from the station within the limits prescribed by the regulations of the commission.

All auxiliary transmitters which may be licensed at geographical locations different from that of the main transmitters, shall be equipped with a frequency control device which will automatically hold the frequency within 500 cycles of the licensed frequency without any manual adjustment during operation or when preparing to place in operation.

III. All auxiliary transmitters licensed at the present time and not in compliance with the above sections shall be made to comply therewith by the end of the license period ending January 31, 1931, or the license will not be renewed at that time.

All regulations applying to changes in the main transmitter equipment shall also apply to auxiliary transmitters. All provisions of General Order No. 91 apply equally to auxiliary transmitters as to main transmitters.

IV. Where broadcasting stations have their transmitting equipment in duplicate and arranged for alternate operation, one such duplicate shall be considered as an auxiliary transmitter subject to the terms and conditions of this order: *Provided, however,* That duplicate transmitters for alternate operation may be licensed where the commission is satisfied that desirable experimental development work is being carried on. In this event, the licensee shall file reports with the commission at the quarterly periods 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.

V. Within two days after each use of the auxiliary transmitter, except for testing, the radio supervisor shall be notified of the date, time, and power at which the auxiliary transmitter is operated and the reasons for each use.

*Regulations governing the power of broadcasting stations (General Order No. 97,
October 6, 1930)*

It is hereby ordered: SECTION I. That no radio broadcasting station will be licensed by the Federal Radio Commission to operate after January 31, 1931, with a greater power than can be satisfactorily delivered and maintained by the licensed transmitter with a percentage of modulation of over 75 per cent on peaks with not over 10 per cent combined audio harmonics.

SEC. II. No radio broadcasting station license will be granted by the Federal Radio Commission authorizing the operation of any station after January 31,

1931, with a greater power than the maximum rated carrier power of the transmitter as determined by existing general orders of the Federal Radio Commission.

SEC. III. All radio broadcasting stations specifying or claiming operating constants that give greater carrier power than the maximum rated power of the transmitter as determined by existing general orders of the Federal Radio Commission shall submit data showing the antenna input power by direct measurement and oscillograms of the maximum satisfactory modulation to prove licensed power output and proper modulation.

SEC. IV. (a) The oscillograms required by Section III of this general order shall be taken while modulating the transmitter with a frequency of approximately 200 cycles at maximum licensed power and under normal operating conditions. Reference lines shall be run on the oscillograms as follows: (1) One line indicating carrier position; (2) one line for 100 per cent negative modulation; and (3) one line for 100 per cent positive modulation. These lines shall be one-half inch or more apart. Such oscillograms may be taken with time delay relays so that one-third of the oscillogram shows no current through vibrator; one-third shows rectified carrier only, and one-third shows modulation.

(b) One overload oscillogram shall be taken with the 200-cycle tone input voltage 25 per cent greater than the input voltage necessary, to produce the maximum satisfactory modulation which the licensee claims the transmitter is capable of producing.

(c) Complete data on a measuring of the antenna resistance shall be submitted to the commission for its approval, together with full operating constants of the transmitter while taking such oscillograms.

SEC. V. (a) The data required in Section IV shall be submitted and approved by the commission on or before January 31, 1931, or the licensed power will be reduced to conform to maximum rated carrier power of the transmitter as determined by existing general orders of the Federal Radio Commission.

(b) No changes shall be made in any radio broadcasting transmitter affecting the maximum rated carrier power thereof until such changes have been authorized by the commission.

*Broadcasting stations not to be moved unless authorized upon formal application
(General Order No. 98, October 27, 1930)*

It is ordered, That General Order No. 28, heretofore issued by the commission on April 20, 1928, be and the same is hereby amended to read as follows:

Under the radio law of 1928, approved by the President March 28, 1928, it is specified that "allocation shall be charged to the State, district, territory, or possession wherein the studio is located and not where the transmitter is located."

In this particular it is ordered that no broadcasting station shall move its main studio outside of the borders of the city, State, district, territory, or possession in which it is located without first making written application to the commission for authority to so move said studio and securing written permission for such removal. Permission to move the main studio of a station from one location to another within a city or town is not required but licensees shall notify the commission first of any such change.

The studio from which the majority of the local programs originate and from which a majority of station announcements are made of programs originating at remote points shall be considered the main studio.

This order shall not apply to purely secondary or auxiliary studios or remote-control apparatus.

This order shall be effective on the day first above written.

Changes in frequency allocations to aeronautical services-chains established (General Order No. 99, October 27, 1930)

It is ordered, 1. That General Order No. 94 is hereby repealed.

2. Upon proper application of any companies or agencies maintaining, or proposing to maintain, aeronautical stations, if the commission is satisfied that the particular applicant is qualified and that the issuance of the license or licenses in question would serve public interest, convenience or necessity, frequencies will be designated solely for use by all of said stations which comprise a continuous series of stations, or chain, along a particular airway.

3. In the interest of economy in the use of frequencies, to coordinate the radio facilities and secure the maximum flexibility, it is required that, where the service provided by a chain is regularly used, as distinguished from casual, incidental

or emergency use, the owners of the transport aircraft which use such chain, or chains, shall cooperate among themselves as to the operation, maintenance, and liability of the stations: *Provided however*, That nothing herein shall impose upon the commission any authority or responsibility whatever with reference to the private business or transactions of any licensee. Aeronautical stations licensed pursuant to this plan are required to provide service, without discrimination, for all and any aircraft, the owners of which enter into such cooperation. In addition, chain stations shall provide reasonable and fair service to itinerant aircraft upon the frequencies designated for that purpose.

4. For the purpose of this order, two types of aircraft are defined:

(a) Transport aircraft—those commercially transporting persons and/or property and operating regularly on fixed routes.

(b) Itinerant aircraft—all those other than transport or Government aircraft.

5. An aeronautical station shall be defined as one being capable of giving:

(a) Ground-to-aircraft communication.

(b) Point-to-point communication (provided frequencies have been designated for this service pursuant to paragraph a of section 9).

(c) Distress, calling, and navigational service.

6. All frequencies assigned for aviation purposes shall be designated in three classes as follows:

(a) Frequencies used by aeronautical or aircraft stations on a chain or chains for communication purposes either between aeronautical stations and aircraft or between aeronautical stations.

(b) Frequencies used for distress, calling, and aids to navigation.

(c) Other aviation frequencies.

7. The distress, calling, and navigational frequencies, and frequencies other than those permanently assigned to chains shall be as follows:

278 kc. Airport frequency. Calling and working frequency from all ground stations to aircraft. Power not to exceed 15 watts. To be required for all ground stations after September 1, 1931.

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

357 kc. Radio compass.

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

3,106 kc. National calling and working frequency for all itinerant aircraft. It may also be assigned to transport aircraft in addition to the chain frequencies. Aircraft calling or working ground stations on this frequency will conduct a 2-way communication by utilizing the 3,106-kilocycle frequency for transmitting from aircraft to the ground and the 278-kilocycle frequency for receiving from the ground to aircraft.

5,525, 11,050, 16,580 kc. Primarily for coastal stations and ships. May also be assigned to aircraft only for the purpose of calling a coastal station or ship when aircraft is in flight over the sea.

414,457 kc. Working frequencies for aircraft on sea flights desiring intermediate frequencies. Those desiring high frequencies may use the frequencies designated for maritime calling and working.

8. The frequencies, 12,180 and 12,210 kilocycles designated by the President as reserved for Government experimental stations but available for assignment to commercial companies subject to recall by the Government upon six months' notice, are made available on such temporary basis for aeronautical point-to-point communications on chains during daylight hours only provided, however, that applicants desiring the use of such frequencies can show that such frequencies are necessary. Licensees are hereby notified that these frequencies may be recalled on or before July 1, 1931.

9. Frequencies licensed for use by aeronautical stations shall not be used for point-to-point service except in conjunction with communication between aircraft and ground and then only:

(a) Where frequencies are allocated to a chain and cooperatively used, as described in paragraph 2, a point-to-point service will be licensed upon application or frequencies to be designated, provided, that the use of such service shall be open to all of the cooperative participants upon an equal basis and then only to the extent of the actual aviation needs of the users.

(b) That at all times, the licensee of point-to-point service shall be required to transmit, without charge or discrimination, all necessary messages in times of public emergency which involve the safety of life or property.

10. In no event shall the use of any frequency authorized under the provisions of this order by a licensee extend to commercial correspondence or to paid or toll messages in the sense in which these terms are generally understood and accepted.

11. The chains shall be established as indicated upon a map to be maintained by the commission and this map shall show (1) the location of all aeronautical stations, (2) the frequencies allocated by the commission, and (3) as nearly as possible all proposed chains (following, connecting with, or independent of existing chains). Copies of this map are available upon request.

12. The chains shall be established, as indicated upon this map in colored lines, the colors having the frequency designations as follows:

NORTHERN TRANSCONTINENTAL CHAIN AND FEEDERS (RED)

Mobile service

[Available for aircraft and aeronautical stations]

3,160 kc., 3,166 kc., 3,172 kc., 3,178 kc., unlimited hours; 5,570 kc., 5,660 kc., day only.

Fixed service

The primary use shall be for the relay of messages destined for or originating on aircraft and relating to the actual aviation needs of the users and on condition that no interference is caused to mobile services.

2,482 kc., 2,506 kc., 4,124 kc., unlimited hours; 6,215 kc., 6,230 kc., day only.

MID-TRANSCONTINENTAL CHAIN AND FEEDERS (BLUE)

Mobile service

[Available for aircraft and aeronautical stations]

3,070 kc., 3,076 kc., unlimited hours, west of Kansas City, Kans.

3,082 kc., 3,088 kc., unlimited hours, east of Kansas City, Kans.

5,510 kc., day only, west of Kansas City, Kans.

5,540 kc., day only, east of Kansas City, Kans.

Fixed service

The primary use shall be for the relay of messages destined for or originating on aircraft and relating to the actual aviation needs of the users and on condition that no interference is caused to mobile services.

2,722 kc., 2,734 kc., 4,108 kc., unlimited hours.

6,350 kc., day only, west of Kansas City, Kans.

6,365 kc., day only, east of Kansas City, Kans.

6,380 kc., 8,015 kc., 12,180 kc., day only Los Angeles to Salt Lake City to Great Falls.

SOUTHERN TRANSCONTINENTAL CHAIN AND FEEDERS (BROWN)

Mobile service

[Available for aircraft and aeronautical stations]

3,238 kc., 3,244 kc., unlimited hours; must not interfere with Canadian services.

3,452 kc., 3,460 kc., 3,468 kc., 3,484 kc., unlimited hours, not to be used west and north of Chicago, Ill.

5,600 kc., 5,630 kc., day only, for Canadian aeronautical services. May be assigned in southern United States provided no interference is caused to Canadian communications.

Fixed service

The primary use shall be for the relay of messages destined for or originating on aircraft and relating to the actual aviation needs of the users and on condition that no interference is caused to mobile services.

2,326 kc., 2,344 kc., 4,140 kc., unlimited hours.

6-260 kc., 6,275 kc., 12,210 kc., day only.

ATLANTIC COASTAL CHAIN AND FEEDERS (ORANGE)

Mobile service

[Available for aircraft and aeronautical stations]

3,070 kc., 3,076 kc., unlimited hours.

5,405 kc., 5,690 kc., day only—Miami, Fla., Brownsville, Tex., and other stations south of these locations. Not available for aircraft.

8,650 kc., unlimited hours—available only for assignment to aircraft and to be used only when operating south of Miami, Fla., and Brownsville, Tex.

Fixed service

The primary use shall be for the relay of messages destined for or originating on aircraft and relating to the actual aviation needs of the users and on condition that no interference is caused to mobile services.

2,662 kc., 4,164 kc., unlimited hours, also available for mobile service.

6,305 kc., 6,320 kc., 8,015 kc., 12,210 kc., day only.

13. In all cases herein where the word "day" occurs in connection with a specific frequency, such use of the word "day" shall be construed to mean that period of time included between two hours after local sunrise and two hours before local sunset. If, for any reason, it is impossible to shift from a day to a night frequency at the exact time required, such shift in frequency shall be made at the earliest possible moment and with respect to any aircraft, under no circumstances shall the use of a day frequency be continued at night after such aircraft has once landed at one of the regular airports along its route, following the time when such shift is required to be made.

14. No aeronautical station will be licensed to use more than 1 kilowatt power on frequencies of 1,500 kc. and above.

15. All aeronautical stations will maintain a watch on such frequencies and for such periods of time as may be designated.

16. Licenses, both of aeronautical and aircraft stations, shall install equipment of such construction and efficiency as will assure the service which the station is intended to give.

17. All licenses, whether aircraft or aeronautical, shall be posted at all times in a conspicuous place in the station so licensed. The license of every station operator shall be available for inspection at all times while on duty.

18. This order is, and shall be, construed as a regulation of the commission, violation of which will be cause for revocation of license as provided by the act of 1927, as amended.

It is further ordered, That all general orders or parts thereof and all rules and regulations in conflict herewith be, and the same are hereby, repealed.

This order shall be effective on the day first above written.

ANNUAL LISTS OF RADIO STATIONS NOW AVAILABLE FOR DISTRIBUTION

The June 30, 1930, edition of the annual list of Amateur Radio Stations of the United States is now available for distribution by the Superintendent of Documents, Government Printing Office, this city, at 25 cents a copy.

The list of Commercial and Government Radio Stations will probably be ready for distribution during the current month. The price will be 15 cents a copy, the same price as the edition for last year.

Remittances should not be forwarded to this department but should be sent direct to the Government Printing Office, preferably by money order.

NO CHANGE MADE IN METHOD OF TRANSMITTING TIME SIGNALS BY NAVAL STATIONS

No change has been made in the time of transmitting time signals by United States naval stations. They still begin at five minutes before the hour and not three minutes as has been erroneously published.

RATIFICATIONS OF THE INTERNATIONAL RADIOTELEGRAPH CONVENTION

The Department of State has been informed of the adherence of the Governments of Hong Kong, the Straits Settlements, Kenya, and certain British colonies, protectorates and mandated territories.

It has also been informed by the Portuguese Minister at Washington, that the instrument of ratification of that country deposited on July 25, 1929, includes Portuguese West Africa, Portuguese East Africa, and the Portuguese Asiatic possessions.

NEW AMATEUR STATIONS IN THE PHILIPPINE ISLANDS

The division has been informed that the following-named persons have been authorized to operate amateur stations in the Philippines, using the call signals shown after their names: Frank W. McCalli (KA3FM), Levi B. Price (KA3LP), John McKenna (KA1DJ), Joseph W. Tufts (KA1SU), Mario C. Villanueva (KA1MV), John J. Earle, jr. (KA1EA), and John V. Murphy (KA1JM).

CHANGE IN COASTAL RATE OF PHILIPPINE STATIONS

Effective July 19, 1930, the coastal station charge of the Philippine insular government on all radiograms transmitted via any of its coast stations has been fixed at 8 cents (42 centimes) per word, irrespective of the distance of the coastal station from the office of delivery within the Philippine Islands, and regardless of the number of relaying stations which may be used in effecting delivery of the messages in said islands. No cable or telegraph charge for forwarding from the coast station to any point in the Philippine Islands is now collected.

ACCURATE METHOD OF MEASURING TRANSMITTED WAVE FREQUENCIES AT 5,000 AND 20,000 KILOCYCLES PER SECOND

In a paper of the above title, by E. L. Hall, Research Paper No. 220, Bureau of Standards Journal of Research, September, 1930, a method of measuring radio transmitting station frequencies with great accuracy is described. It is applicable to any frequency, but deals primarily with frequencies of approximately 5,000 and 20,000 kilocycles. Briefly, the method of measurement consists of tuning a receiving set to the frequency of the station to be measured, adjusting a radio-frequency generator to the same frequency or a submultiple of it, and measuring the frequency of the generator. Rather than employ the zero-beat method commonly used, a known audio-frequency is produced by setting the generator to match the note of a tuning fork. The frequency of the generator so adjusted is measured in terms of an accurate standard of frequency.

The measurement of the frequency of a radio transmitting station with its frequency held specially constant offers a convenient means of intercomparison of frequency standards. The present method is so accurate that it is suitable for use in intercomparing the primary standards of different nations.

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 on application.

PROGRESS IN AERONAUTIC RADIO RESEARCH

The development of radio aids to aviation is being forwarded through work of the Bureau of Standards, which is operating also as the research division of the Aeronautics Branch, Department of Commerce. In recent months improvements have been made in equipment for use with the system of radio range beacons which the department is installing on the airways. Since a beginning has been made in the installation of beacons of the type which operate a visual indicator, a greater need has been felt for an automatic volume control on the receiving set used aboard the airplanes. The bureau has developed such a device. It relieves the pilot entirely of manipulation in the use of the visual indicator of the beacon signals. It can be used to advantage also in receiving aural type beacon signals. Another application is in connection with the runway localizing beacon for use either at airports or as part of the system of blind landing aids which the bureau is developing. In connection with the automatic volume control, a deflection instrument is used which serves as an approximate distance indicator. Recent experiments have also added a means of indicating when the airplane is directly over the beacon transmitter, so that the landing field location is thus conveniently and directly indicated to the pilot.

Another device the bureau has developed to facilitate the use of the visual-type range beacon is an instrument called a "deviometer." By its use a pilot can follow any chosen course, within limits, on either side of the equisignal line for

which the beacon transmitter is adjusted. It is a shunting arrangement which varies the relative current in the coils actuating the two reeds of the reed indicator, and a pointer indicates the number of degrees off the equisignal line for which the deviometer is set. The device has been found useful in experimental flight tests. The bureau recently furnished one to an air-transport company for service tests.

As part of its aeronautical radio work the bureau has devoted special attention to receiving sets. For receiving both telephone messages and beacon signals aboard an airplane, receiving sets of special design must be employed. They must be so designed as to function under particular conditions of vibration, local interference, small input voltage, high output level required, and special audio-frequency requirements. The bureau has developed basic designs for such sets. It also keeps in touch with commercial developments in aircraft radio receivers by means of laboratory measurements and experimental trials on an airplane. Satisfactory receiving sets are now found to be available commercially.