

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

# RADIO SERVICE BULLETIN

ISSUED MONTHLY

**Washington, August 31, 1931—No. 173**

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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, A8 = phone, B = spark.
- Fy. = Frequency in kilocycles; normal frequency in italics; wave length in meters in parentheses.
- Power = Height (meters) of antenna and intensity of current (meter-amperes) at its base (sample of manner in which published—100/100) or the normal radiated power expressed in meter-amperes (sample of manner in which published—100 m. amp.).
- 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.
- Accts. = 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.
- C. w. = Continuous wave.
- I. c. w. = Interrupted continuous wave.
- A. C. = Alternating current.
- V. t. = Vacuum tube.
- M. a. = Meter-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, 1931, 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 <sup>1</sup>
Albany, N. Y. <sup>1</sup>	FA, FX	WSDM	2,326 (128.98), 2,344 (127.99), 3,238 (92.65), 3,244 (92.49), 3,452 (86.91), 3,460 (86.71), 3,468 (86.51), 3,484 (86.11), 4,140 (72.46), 5,600 (53.57), 5,630 (53.29), 6,260 (47.92), 6,275 (47.81).	P	X	Aeronautical Radio (Inc.).
Berea, Ohio (Cleveland municipal airport) <sup>2</sup>	FA, FX	WSDQ	do	P	X	Do.
Bangor, Me. (Godfrey Field) <sup>3</sup>	FA, FX	WRB	2,662 (112.7), 3,070 (97.71), 4,164 (72.04), 5,690 (52.72), 6,305 (47.58), 8,015 (37.43).	P	X	Pan American Airways (Inc.).
Buffalo, N. Y. (municipal airport) <sup>4</sup>	FA, FX	WSDO	2,326 (128.98), 2,344 (127.99), 3,238 (92.65), 3,244 (92.49), 3,452 (86.91), 3,460 (86.71), 3,468 (86.51), 3,484 (86.11), 4,140 (72.46), 5,600 (53.57), 5,630 (53.29), 6,260 (47.92), 6,275 (47.81).	P	X	Aeronautical Radio (Inc.).
Calais, Me. <sup>5</sup>	FA, FX	WRK	2,662 (112.7), 3,070 (97.71), 4,164 (72.04), 5,690 (52.72), 6,305 (47.58), 8,015 (37.43).	P	X	Pan American Airways (Inc.).
Scarboro, Me. <sup>6</sup>	FA, FX	WBC	do	P	X	Do.

<sup>1</sup> Loc. (approximate) 73° 48' 30" W., 42° 45' 00" N.; type, A1, A2, A3.<sup>2</sup> Loc. (approximate) 81° 50' 45" W., 41° 24' 50" N.; type, A1, A2, A3.<sup>3</sup> Loc. 68° 51' 42" W., 44° 47' 59" N.; type, A1, A2.<sup>4</sup> Loc. 78° 43' 22" W., 42° 56' 12" N.; type, A1, A2, A3.<sup>5</sup> Loc. 67° 11' 33" W., 45° 10' 30" N.; type, A1, A2.<sup>6</sup> Loc. 70° 14' 00" W., 43° 34' 22" N.; type, A1, A2.

## 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, 1931, 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 account settled by—
Buccaneer <sup>1</sup>	WFET	8	PG	X	Messrs. Leon Mandel and Fred L. Mandel, Jr.	R. M. C. A.
Colombus	WFES	8	PG	X	Kiyoo Yamashita	Do.
Frieda <sup>2</sup>	WQCT	8	PG	X	Union Sulphur Co.	M. R. T. Co.
Harpoon (RC) <sup>3</sup>	KDKC	8	PG	X	Shepard S. S. Co.	Do.
Holiday <sup>4</sup>	WFEW	8	PG	X	Arthur Morris	Owner.
Karlaon <sup>5</sup>	KZAW	4	PG	X	Hollo Shipping Co. (Inc.)	Do.
Kenowis	KOSV	4	PG	X	U. S. S. B.	Do.
Little Viking	WFEX	4	P	X	Fred L. Schoenwolf	Do.
Mayflower <sup>6</sup>	WFEV	4	P	X	Mayflower Operating Co.	Do.
Mayon <sup>7</sup>	KZAP	4	PG	N	Philippine Inter-Island S. Co.	Do.
Princesa <sup>8</sup>	KZBP	4	PG	X	Insular Navigation Co.	Do.
Rizal <sup>9</sup>	KZAD	4	PG	X	LaNaviera Filipina (Inc.)	Do.
San Lucas	WFEU	8	PG	X	D. Tani	Hamlet Loftfield Surf-side Colony, Seal Beach, Calif.
Trabajador <sup>10</sup>	KZBR	4	PG	X	Visayan Stevedore Transportation Co.	Owner.

<sup>1</sup> Type, A1, A2; fy., 143 (2,100), 151 (1,985), 153 (1,960), 155 (1,935), 157 (1,910), 394 (760), 410 (730) 425 (705), 500 (600).<sup>2</sup> Fy., 375 (800), 400 (750), 425 (705), 468 (640), 500 (600), 5,525 (54.3), 5,555 (54), 6,590 (45.52), 6,605 (45.42), 8,290 (36.19), 8,450 (35.50), 11,050 (27.15), 11,110 (27), 13,240 (22.66), 16,580 (18.094), 16,660 (18.007), 22,100 (13.575), 22,200 (13.514).<sup>3</sup> Type, B; power, 22/13.<sup>4</sup> Type, A1; fy., 5,525 (54.3), 5,555 (54), 8,330 (36.01), 11,050 (27.15), 16,580 (18.094), 16,660 (18.007); power, 15/3.<sup>5</sup> Fy., 450 (665), 500 (600); hours, 7 to 12 a. m., 1 to 5 p. m., and 6 to 10.30 p. m.<sup>6</sup> Type, A1; fy., 5,525 (54.3), 5,555 (54), 8,290 (36.19).<sup>7</sup> Fy., 375 (800), 500 (600), 4,255 (70.5), 8,330 (36.01), 8,345 (35.95), 11,110 (27).<sup>8</sup> Fy., 400 (750), 500 (600); hours, 7.30 to 12 a. m., 12.30 to 1 p. m., 3 to 5 p. m., and 7.30 to 10.30 p. m.<sup>9</sup> Fy., 417 (720), 500 (600); hours, 7 to 12 a. m., 2 to 10.30 p. m.<sup>10</sup> Fy., 500 (600), 8,340 (35.97), 11,200 (26.79), hours, 8 to 10 a. m., 12 a. m. to 2 p. m., 4 to 6 p. m., and 8 to 10 p. m.

*Commercial aircraft stations, alphabetically, by names of craft*

[Additions to the List of Radio Stations of the United States, edition of June 30, 1931, and to the International List of Aircraft Stations published by the Berne bureau]

Station	Call signal	Frequency, in kilocycles; meters in parentheses	Service	Hours	License
NC-69E	KHVFU		P	N	Northwest Airways (Inc.). Transcontinental & Western Air (Inc.).
NC-966Y <sup>1</sup>	KHMMN		P	X	
NC-985Y <sup>1</sup>	KHMNM		P	X	Do.
NC-986Y <sup>1</sup>	KHMOL		P	X	Do.
NC-992Y <sup>1</sup>	KHMPK		P	X	Do.
NC-993Y <sup>1</sup>	KHMQJ		P	X	Do.
NC-994Y <sup>1</sup>	KHMRI		P	X	Do.
NC-10351 <sup>1</sup>	KHSWD	3,106 (96.59), 3,160 (94.9), 3,166 (94.75), 3,172 (94.57), 3,178 (94.39), 5,570 (53.86), 5,660 (53).	P	X	National Air Transport (Inc.).
NC-10352 <sup>1</sup>	KHSXC	Do.	P	X	Do.

<sup>1</sup> Type, 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, 1931, 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
Cairo, Ill.	FX	WYDP	396 (760)	O	X	U. S. Army.
Helena, Ark.	FX	WYDQ	do.	O	X	Do.
Vicksburg, Miss.	FX	WYDO	do.	O	X	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, 1931, 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
Control	WYDN	396 (760)	O	X	U. S. Army.
C. W. Howell	WYDM	do.	O	X	Do.
General James F. McIndoe	WYDK	do.	O	X	Do.
Mamie E. Barrett	WYDL	do.	O	X	Do.
McGregor	WYDR	do.	O	X	Do.

*Marine radiobeacon stations*

[Addition to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1931, and to the International List of Stations Performing Special Services, published by the Berne bureau]

*Charleston Lightship, S. C.*—Loc., 79° 42' 53" W., 32° 40' 40" N.; transmits every 180 seconds, groups of 1 dash and 2 dots for 60 seconds, silent 120 seconds, thus:

$$\begin{array}{cc} \text{---} & \text{Silent} \\ \text{---} & \text{---} \\ \text{60 seconds} & \text{120 seconds} \end{array}$$

Fy., 310 (968); hours, operates continuously during thick or foggy weather and daily in clear weather for the third 15 minutes of each hour.

*Five Finger Light Station, Alaska.*—Loc., 133° 37' 21" W., 57° 16' 05" N.; transmits every 180 seconds, groups of 1 dash and 2 dots for 60 seconds, silent 120 seconds, thus:

$$\begin{array}{cc} \text{---} & \text{Silent} \\ \text{---} & \text{---} \\ \text{60 seconds} & \text{120 seconds} \end{array}$$

Fy., 300 (1,000); hours, operates continuously during thick or foggy weather and daily in clear weather from 4 to 4.30 and 10 to 10.30 a. m. and p. m. (One hundred and thirty-fifth meridian time).

*Commercial and Government land, ship, aircraft, radiobeacon, and direction-finding stations, alphabetically by call signals*

Call signal	Name of station	Call signal	Name of station
KDKC	Harpoon.....b	WFEV	Mayflower.....b
KHMMN	NC-966Y.....a	WFEW	Holiday.....b
KHMNM	NC-985Y.....a	WFEX	Little Viking.....b
KHMOL	NC-986Y.....a	WQCT	Frieda.....b
KHMPK	NC-992Y.....a	WRB	Bangor, Me. (Godfrey Field).....fa, fx
KHMQJ	NC-993Y.....a	WRK	Calais, Me.....fa, fx
KHMRI	NC-994Y.....a	WSDM	Albany, N. Y.....fa, fx
KHSWD	NC-10351.....a	WSDO	Buffalo, N. Y. (municipal airport).....fa, fx
KHSXC	NC-10352.....a	WSDQ	Berea, Ohio (Cleveland municipal airport).....fa, fx
KHVFU	NC-69E.....a	WYDK	General James F. McIndoe.....b
KOSV	Kenowis.....b	WYDL	Mamie S. Barrett.....b
KZAD	Rizal.....b	WYDM	C. W. Howell.....b
KZAP	Mayon.....b	WYDN	Control.....b
KZAW	Kanlaon.....b	WYDO	Vicksburg, Miss.....fx
KZBP	Princessa.....b	WYDP	Cairo, Ill.....fx
KZBR	Trabajador.....b	WYDQ	Helena, Ark.....fx
WBO	Scarboro, Me.....fa, fx	WYDR	McGregor.....b
WFES	Colombus.....b		
WFET	Buocaneer.....b		
WFEU	San Lucas.....b		

*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, 1931]

Station	Call signal	Frequency in kilocycles, meters in parentheses	Power (watts)	License and post-office address
Massachusetts: Boston	W1XD	1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57).	.15	Submarine Signal Co., 247 Atlantic Avenue.
New York: New York.....	W2XK	41,000 (7.32), 51,400 (5.83), 60,000 (5) to 400,000 (.75), 401,000 (.74).	2.5	National Broadcasting Co. (Inc.).
Do.....	W2XL	23,100 (12.987), 25,700 (11.673), 26,000 (11.538), 27,100 (11.070), 34,600 (8.67), 41,000 (7.32), 51,400 (5.83), 60,000 (5) to 400,000 (.75), 401,000 (.74) to 3,000,000 (.1).	1,000	Bell Telephone Laboratories (Inc.).
West Virginia: Morgantown.	W8XAW	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), 23,100 (12.987), 25,700 (11.673), 26,000 (11.538), 27,100 (11.070), 34,600 (8.67), 41,000 (7.32), 51,400 (5.83), 60,000 (5) to 400,000 (.75), and above 401,000 (.74).	200	West Virginia University, Physics Department.

*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, 1931]

Station	Call signal	Frequency in kilocycles, meters in parentheses	Power (watts)	Owner
New York: New York...	W2XF	43,000 (6.97) to 46,000 (6.52), 48,500 (3.186) to 50,300 (5.964), 60,000 (5) to 80,000 (3.75).	5,000	National Broadcasting Co. (Inc.).

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

Call signal	District and station	Call signal	District and station
W1XD	First district: Boston, Mass.		Second district—Continued.
W2XF	Second district:	W2XL	New York, N. Y.
W2XK	New York, N. Y. Do.	W8XAW	Eighth district: Morgantown, W. Va.

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, 1931, and to the International List of Fixed and Land Stations, published by the Berne bureau]

- ALBUQUERQUE, N. MEX.—Fy., strike out 12,180 (24.63).
- ANGOLA, IND.—Loc., changed to Toledo, Ohio, (approximate) 83° 31' 24" W., 41° 41' 50" N.; type, add A2.
- BECHAROF, ALASKA, RADIO.—Power, 22.9/6; service, strike out P, add PR.
- CARLSTADT, N. J., WRH.—Read Carlstadt, N. J. radio; loc. (approximate) 74° 05' 00" W., 40° 45' 10" N.; class, strike out FX, add FC; service, strike out P, add PG.
- CHICAGO, ILL. (MUNICIPAL AIRPORT).—Fy., strike out 5,630 (53.28), add 3,238 (92.64), 3,244 (92.47), 4,915 (61.03).
- CHICAGO, ILL., RADIO, WGO.—Power, 30/2.
- CLARKS POINT, ALASKA, RADIO.—Power, 24/8; service, strike out P, add PR.
- DEARBORN, MICH., WQDW.—Fy., strike out 393 (765), add 389 (770).
- DIXON, CALIF.—Fy., strike out 6,755 (44.41), 9,170 (32.72), 9,870 (30.4), 14,590 (20.56), 19,820 (15.136), add 7,565 (39.655), 7,610 (39.42), 10,840 (27.68), 15,355 (19.536), 15,415 (19.461).
- KOGGIUNG (permanently moored scow in Koggiung River).—Power, 6/3.
- KVICHAK (permanently moored scow in Koggiung River, Alaska).—Power, 6/3.
- LANSING, ILL., WCQ.—Fy., strike out 414 (725), add 389 (770).
- LATOUCHE, ALASKA, RADIO.—Fy., strike out 187 (1,605).
- LIBBYVILLE, ALASKA, RADIO.—Fy., add 256 (1,170), 3,184 (94.22).
- LITCHFIELD, OHIO.—Loc., changed to Cleveland, Ohio, (approximate) 81° 50' 45" W., 41° 24' 50" N.
- LOS ANGELES, CALIF. (KGVW).—Power, 10/2.3.
- LOUISVILLE, KY., WSDF.—Fy., add 3,238 (92.64), 3,244 (92.47), 5,600 (53.57).
- NEW ORLEANS, LA., WJF.—Fy., strike out 7,370 (40.71), 7,820 (38.36), 7,955 (37.72), 15,910 (18.856), add 4,945 (60.66), 8,810 (34.05).
- OCEAN GATE, N. J., RADIOTELEPHONE.—Fy., strike out 8,630 (34.76), add 8,560 (35.05).
- PLAINFIELD, N. J. (near).—Loc., changed to Newark, N. J., (approximate) 74° 09' 34" W., 40° 42' 40" N.; type, add A3; fy., 3,166 (94.75), 3,172 (94.57), 3,178 (94.39), 5,570 (53.86), 5,660 (53).
- ROBERTSON, MO. (St. Louis), KGUT.—Fy., strike out 5,600 (53.57), 5,630 (53.28), add 2,326 (128.97), 3,244 (92.47), 4,915 (61.03), 6,260 (47.92), 6,275 (47.8).
- RUBY (permanently moored vessel in Koggiung River, Alaska).—Power, 6/3.
- SAND POINT, ALASKA (permanently moored vessel "International").—Power, 22/1.5.
- SHREVEPORT, LA.—Class, add FX; fy., add 2,326 (128.97), 2,344 (127.98), 3,238 (92.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 3,468 (86.5), 4,140 (72.46), 5,600 (53.57), 6,260 (47.92), 6,275 (47.8).
- TUCKERTON, N. J., RADIO WSC.—Fy., strike out 13,210 (22.71), add 11,185 (26.82).
- TYEE, ALASKA, RADIO.—Fy., add 222 (1,350); power, 28/4.
- Strike out all particulars of the following named stations: Norfolk, Va.; Wichita Falls, Tex., KGSV.

## PHILIPPINE ISLANDS

- ALABAT RADIO (TAYABAS).—Loc. (approximate), 122° 01' 00'' E., 14° 06' 00'' N.  
 APARRI RADIO (CAGAYAN).—Loc., 121° 36' 09'' E., 15° 21' 36'' N.  
 BACUIT RADIO (PALAWAN).—Type, strike out A1, add A2.  
 BAGANGA.—Read Baganga radio; class, strike out FA, add FX; service, add PR; hours, 8 to 12 a. m., 2 to 5 p. m. daily; 9 to 11 a. m. Sundays and holidays.  
 BALANGIGA RADIO (SAMAR).—Loc., 125° 23' 06'' E., 11° 06' 32'' N.  
 BALEB RADIO (TAYABAS).—Type, strike out A1, add A2.  
 BATANGAS RADIO (BATANGAS).—Loc., 121° 03' 20'' E., 13° 45' 54'' N.  
 CAGAYAN DE SULU RADIO.—Fy., add 500 (600).  
 CAGAYAN (MISAMIS) KUX.—Loc., 124° 38' 42'' E., 08° 27' 44'' N.; type, A2; fy., strike out 5,165 (58.09), add 5,125 (58.54); hours, 7 a. m. to 7 p. m., Sundays and holidays.  
 CAJIDIOCAN.—Read Cajidiocan radio; loc., 122° 40' 40'' E., 12° 22' 12'' N.; class, strike out FA, add FX; fy., add 500 (600); service, add PR; hours, 8 to 12 a. m., 2 to 5 p. m.; strike out 2 to 3.30 p. m.  
 CALAPAN RADIO (MINDORO).—Fy., add 750 (400).  
 CARAMOAN RADIO (CAMARINES SUR).—Loc. (approximate), 123° 56' 30'' E., 13° 47' 00'' N.; fy., strike out 255 (1,175), add 256 (1,172).  
 CATANAUAN RADIO (TAYABAS).—Loc. (approximate), 122° 19' 30'' E., 13° 35' 00'' N.  
 CEBU (CEBU) KZGG.—Class, FX; service, PR.  
 CEBU RADIO KPI.—Power, add 66/15.  
 CULION RADIO (PALAWAN).—Loc., 120° 01' 06'' E., 11° 53' 46'' N.; power, 40/6.  
 CUYO RADIO (PALAWAN).—Fy., 267.9 (111.98) read 267.9 (1,120).  
 DAPA RADIO (SURIGAO).—Power, 15/0.6.  
 DAPITAN RADIO (ZAMBOANGA).—Type, strike out A arc, add A1, A2.  
 DAVAO RADIO (MINDANAO) KIF.—Type, strike out A1, add A2 and B.  
 ILOILO (ILOILO) KZGH.—Class, FX; service, PR.  
 ILOILO RADIO KPM.—Loc. (approximate), 122° 34' 36'' E., 10° 43' 00'' N.; power, add 66/24; 21/25.  
 INFANTA RADIO (TAYABAS).—Type, strike out A arc, add A1, A2; fy., strike out 143 (2,100).  
 JOLO RADIO (JOLO).—Loc., 121° 00' 40'' E., 06° 02' 37'' N.; ship schedule 40th to 50th minutes of each hour.  
 KABASALAN (ZAMBOANGA).—Loc. (approximate), 122° 47' 00'' E., 07° 47' 00'' N.  
 LARENA RADIO.—Loc. (approximate), 121° 20' 03'' E., 09° 14' 00'' N.; type, strike out A1; fy., 214 (1,400), read 214 (1,140), 263.2 (1,140) read 263.2 (1,400).  
 LEGASPI RADIO (ALBAY) KAL.—Type, strike out A1; hours, strike out 7 a. m. to 7 p. m. daily, add 7 a. m. to 10 p. m. daily.  
 MAMBAJAO RADIO (ORIENTAL MISAMIS).—Fy., add 500 (600).  
 MANILA KAY.—Loc. (approximate), 121° 06' 15'' E., 14° 37' 15'' N.  
 MANILA RADIOTELEPHONE.—Class, FX; service, PR.  
 PANDAN RADIO (ALBAY).—Fy., add 500 (600).  
 PEREZ RADIO (TAYABAS).—Class, add FX; service, add PR.  
 SIASI RADIO (SULU).—Loc., 120° 48' 55'' E., 05° 32' 37'' N.  
 SIPACO (CAMARINES SUR).—Loc. (approximate), 123° 29' 30'' E., 13° 54' 00'' N.  
 SUMAGI (MINDORO).—Class, strike out FC, add FX.  
 SURIGAO RADIO (SURIGAO).—Fy., add 4,775 (62,825).  
 TILIK RADIO (MINDORO).—Fy., 494.2 (605) read 494.2 (610), add 500 (600).  
 TOLONG (ORIENTAL NEGROS).—Loc. 122° 48' 50'' E., 09° 22' 15'' N.  
 ZAMBOANGA (ZAMBOANGA).—Fy., 8,950 (33.52) read 8,950 (31.84).  
 Strike out all particulars of the following named stations: Camiguin Island, Hook Bay radio (Polillo).

## 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, 1931, and to the International List of Ship Stations, published by the Berne bureau]

- AJAX.—Fy., add 400 (750).  
 AZTEC.—Fy., strike out 153 (1,960).  
 ARGUS.—Call changed to KZUS.  
 BARBARA C.—Power, 45/15.  
 BRILLIANT.—Type, add A1; fy., add 143 (2,100), 151 (1,985), 153 (1,960), 157 (1,910), 160 (1,875).  
 C. A. CANFIELD.—Fy., strike out 468 (640).

- CARLTON.—Accts., R. M. C. A. (U. S. L.).
- CAROLINE WDEC.—Type, A1, A2; fy., 143 (2,100), 151 (1,985), 155 (1,935), 160 (1,875), 375 (800), 400 (750), 410 (730), 425 (705), 468 (640), 500 (600), 8,290 (36.19), 8,330 (36.01), 8,450 (35.5), 11,050 (27.15), 11,110 (27), 11,230 (26.71), 13,240 (22.66); 16,580 (18.094), 16,660 (18.007), 16,860 (17.794); service, PG; hours, X; rates, 8 cents per word; accts., R. M. C. A.
- CITY OF CLEVELAND III.—Type, strike out B.
- CITY OF DALHART.—Fy., strike out 155 (1,935), add 151 (1,985), 153 (1,960).
- CITY OF HAMBURG.—Type, add A1, A2; fy., add 400 (750), 468 (640), 5,525 (54.3), 5,555 (54), 6,590 (45.52), 8,290 (36.19), 8,450 (35.5), 11,050 (27.15), 11,110 (27), 13,240 (22.66), 16,580 (18.094), 16,660 (18.007), 22,100 (13.575), 22,220 (13.5); accts., M. R. T. Co.
- CITY OF NORFOLK.—Fy., strike out 22,200 (13.514), add 22,220 (13.501); power, 25/5; accts., M. R. T. Co.
- COTABATO.—Owner, Compania Naviera Cebuana (Inc.).
- DOS HERMANOS.—Call changed to KZDH.
- EASTERN STATES.—Type, strike out B.
- ELDA WVAU.—Fy., strike out 468 (640).
- EXCAMBION.—Fy., strike out 22,220 (13.514), add 22,220 (13.501); power, 25/5; accts., M. R. T. Co.
- FORTUNA KZDV.—Call changed to KZDF.
- GREATER BUFFALO.—Type, strike out B.
- GREATER DETROIT.—Type, strike out B.
- GULF OF MEXICO.—Type, strike out A arc, A1; fy., strike out 143 (2,100), 151 (1,985), 159 (1,885), 160 (1,875).
- GULFSTATE.—Fy., add 400 (750), 468 (640).
- GULFTRADE.—Type, strike out A1; fy., add 468 (640).
- HAROLD WALKER.—Type, strike out A1.
- JOSEPH H. FRANTZ.—Type, strike out A1.
- JUNIATA WADM.—Type, strike out A1 and B.
- K. R. KINGSBURY.—Type, strike out A1; fy., strike out 143 (2,100), 151 (1,985), 153 (1,960), 157 (1,910), 159 (1,885), 160 (1,875), 454 (660).
- LAKE GILTEDGE.—Owner, Victor B. Bendix.
- M. & J. TRACY.—Power, 20/5.
- MEMORY III.—Power, 12/7.
- METON.—Fy., add 151 (1,985), 155 (1,935), 157 (1,910), 159 (1,885).
- MILLINOCKET.—Power, 15.1/8.5.
- MOUNT HOPE.—Service, strike out PG, add P.
- MUNSOMO.—Power, 25/4.
- OCTORARA.—Type, strike out A1 and B.
- O. T. WARING.—Fy., strike out 454 (660).
- PACO.—Name changed to Camor; owner, Procter & Gamble Transportation Co.
- PAN AMERICA.—Accts., M. R. T. Co.
- POMPEY.—Name changed to Samal; owner, Compania Maritima.
- RAWLEIGH WARNER.—Fy., add 400 (750), 468 (640).
- ROYAL ARROW.—Fy., strike out 155 (1,935).
- RUTH L.—Type, A1; fy., 5,525 (54.3), 5,555 (54), 5,615 (53.42), 8,330 (36.01); power, 4/5.
- SALVAGER.—Fy., add 8,330 (36.01).
- SAMONA II.—Fy., strike out 468 (640), add 454 (660); accts., R. M. C. A.
- SANTO DOMINGO.—Owner, Cesar Barrios Shipping Co.
- SANTA MARGARITA.—Type, A1, A2; power, 14.7/1.5.
- SANTA TERESA.—Power, 22/12.
- SAWOKLA.—Fy., add 151 (1,985).
- SEAPINE.—Type, A1, A2; fy., 143 (2,100), 151 (1,985), 153 (1,960), 157 (1,910), 160 (1,875), 375 (800), 400 (750), 425 (705), 468 (640), 500 (600); power, 15/9; rates, 8 cents per word.
- SEQUOIA.—Type, A1; fy., 5,525 (54.3), 5,555 (54), 8,290 (36.19), 8,330 (36.01), 16,580 (18.094), 16,660 (18.007); power, 30.5/2.
- SIXAOLA.—Fy., add 155 (1,935), 5,525 (54.3), 6,620 (45.32), 8,330 (36.01), 11,050 (27.15), 11,110 (27), 13,240 (22.66), 16,580 (18.094).
- SORSOGON.—Call changed to KZSG.
- SYROS.—Accts., R. M. C. A. (U. S. L.).
- TIONESTA.—Type, strike out A1 and B.
- VAGABONDIA.—Fy., add 410 (730), 454 (660).
- WASHINGTON KDCB.—Fy., add 454 (660).
- WESTERN WORLD.—Power, 28/14; accts., M. R. T. Co.

WILLIAM J. O'BRIEN.—Fy., strike out 400 (750), 468 (640):

Strike out all particulars of the following named stations: Esperanza, Neshira, Salvador.

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, 1931, and to the International List of Aircraft Stations, published by the Berne bureau]

NC-424H (NAT 101).—Type, A3; fy., 3,106 (96.59), 3,160 (94.9), 3,166 (94.75), 3,172 (94.57), 3,178 (94.39), 5,570 (53.86), 5,660 (53).

NC-652E.—Fy., add 3,238 (96.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 3,468 (86.5), 4,915 (61.03), 5,630 (53.29).

NC-660M (Cuba).—Fy., strike out 375 (800), 393 (765), 457 (655), 3,106 (96.59), 5,525 (54.3), 8,290 (36.19), 11,050 (27.15), add 2,662 (112.7), 3,076 (97.5), 8,650 (34.68).

NC-663M (Trinidad).—Fy., strike out 375 (800), 393 (765), 3,106 (96.59), add 414 (725), 2,662 (112.7), 3,076 (97.5), 8,650 (34.68).

NC-707Y.—Type, A3; fy., 3,106 (96.59), 3,238 (92.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 3,468 (86.5), 3,484 (86.1), 4,915 (61.03), 5,600 (53.57), 5,630 (53.29).

NC-708Y.—Type, A3; fy., 3,106 (96.59), 3,238 (92.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 3,468 (86.5), 3,484 (86.1), 4,915 (61.03), 5,600 (53.57), 5,630 (53.29).

NC-709Y.—Type, A3; fy., 3,106 (96.59), 3,238 (92.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 3,468 (86.5), 3,484 (86.1), 4,915 (61.03), 5,600 (53.57), 5,630 (53.29).

NC-710Y.—Type, A3; fy., 3,106 (96.59), 3,238 (92.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 3,468 (86.5), 3,484 (86.1), 4,915 (61.03), 5,600 (53.57), 5,630 (53.29).

NC-711Y.—Type, A3; fy., 3,106 (96.59), 3,238 (92.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 3,468 (86.5), 3,484 (86.1), 4,915 (61.03), 5,600 (53.57), 5,630 (53.29).

NC-712Y.—Correct call is KHRTG; type, A3; fy., 3,106 (96.59), 3,238 (92.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 3,468 (86.5), 3,484 (86.1), 4,915 (61.03), 5,600 (53.57), 5,630 (53.29).

NC-713Y.—Type, A3; fy., 3,106 (96.59), 3,238 (92.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 3,468 (86.5), 3,484 (86.1), 4,915 (61.03), 5,600 (53.57), 5,630 (53.29).

NC-714Y.—Type, A3; fy., 3,106 (96.59), 3,238 (92.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 3,468 (86.5), 3,484 (86.1), 4,915 (61.03), 5,600 (53.57), 5,630 (53.29).

NC-726K.—Type, add A1, A2; fy., strike out all frequencies, add 3,070 (97.71), 3,076 (97.5), 5,690 (52.72); licensee, Eastern Airport Transport (Inc.).

NC-784Y.—Type, A1; fy., 333 (900), 500 (600), 3,070 (97.71), 5,690 (52.72), 8,650 (34.68).

NC-804E.—Fy., add 3,238 (96.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 3,468 (86.5), 4,915 (61.03), 5,630 (53.29).

NC-943M (Haiti).—Fy., strike out 375 (800), 393 (765), 3,106 (96.59), add 414 (725), 2,662 (112.7), 3,070 (97.71), 3,076 (97.5), 5,690 (52.72), 8,650 (34.68).

NC-944 (San Juan).—Fy., strike out 375 (800), 393 (765), 457 (655), 3,106 (96.59), add 2,662 (112.7), 3,076 (97.5), 5,690 (52.72), 8,650 (34.68).

NC-946M (Port of Spain).—Fy., strike out 375 (800), 393 (765), 3,106 (96.58), add 414 (725), 2,662 (112.7), 3,070 (97.71), 3,076 (97.5), 5,690 (52.72), 8,650 (34.68).

NC-968V.—Type, A3; fy., 3,106 (96.59), 3,238 (92.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 3,468 (86.5), 3,484 (86.1), 4,915 (61.03), 5,600 (53.57), 5,630 (53.29).

NC-997V.—Type, A3; fy., 3,106 (96.59), 3,238 (92.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 3,468 (86.5), 3,484 (86.1), 4,915 (61.03), 5,600 (53.57), 5,630 (53.29).

NC-9671.—Type, A3; fy., 3,106 (96.59), 3,238 (92.64), 3,244 (92.47), 3,452 (86.9), 3,460 (86.7), 3,468 (86.5), 3,484 (86.1), 4,915 (61.03), 5,600 (53.57), 5,630 (53.29).

NC-10355.—Type, A3; fy., 3,106 (96.59), 3,160 (94.9), 3,166 (94.75), 3,172 (94.57), 3,178 (94.39), 5,570 (53.86), 5,660 (53).

Strike out all particulars of the following named stations: F-101, NC-580K, NC-5933N.



## 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, 1931, and to the International List of Fixed and Land Stations, published by the Berne bureau]

Ketchikan, Alaska radio.—Loc. (approximate) 132° 25' 00" W., 55° 30' 00" N. Strike out all particulars of the following named stations; Fort Des Moines, Iowa (Des Moines); Fort Snelling, Minn. (St. Paul); Fort Wayne, Mich. (Detroit); Jefferson Barracks, Mo. (St. Louis).

## 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, 1931, and to the International List of Ship Stations, published by the Berne bureau]

PROCYON.—Name changed to Empire State; accts., settled by New York State, Albany, N. Y.

## AIRWAY 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, 1931, and to the International List of Stations Performing Special Services, published by the Berne bureau]

DEARBORN, MICH.—Fy., strike out 290 (1,034), add 389 (770).

## 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, 1931, and to the International List of Stations Performing Special Services, published by the Berne bureau]

VINEYARD SOUND LIGHTSHIP, MASS.—Hours, operates second 15 minutes of each hour.

WOLF TRAP LIGHTHOUSE, VA.—Hours, operates from 3 to 3.30 and 9 to 9.30 a. m. and p. m. daily.

SAVANNAH LIGHTSHIP, GA.—Hours, operates continuously during thick or foggy weather and daily in clear weather third 15 minutes of each hour. Radio operator stands watch the first 15 minutes of each hour from 8 a. m. to 9.15 p. m. in clear weather.

KEWAUNEE PIERHEAD LIGHTHOUSE, WIS.—Fy., strike out 286 (1,049), add 294 (1,020).

LA POINTE LIGHTHOUSE, WIS.—New method of distance finding: Whenever both the radiobeacon and the sound fog signal are in operation at this station, the radiobeacon will transmit a long distinctive dash (3 seconds) the termination of which is coincident with the beginning of a long blast (5 seconds) of the sound signal. This long blast is followed by a 1-second silence and a 1-second blast to indicate definitely to the observer the particular long blast which is sounded at the termination of the long dash. The number of seconds elapsing between hearing the termination of the long radio dash and the beginning of this long blast of the sound signal divided by 5 will give the approximate distance of the observer from the light station in statute miles. The distance thus derived should be correct within a limit of error of 10 per cent. During the operating minute of the radiobeacon the sound signal characteristic will be as follows: Silent 53 seconds, blast 5 seconds, silent 1 second, blast 1 second. During the two minutes between operating minutes of the radiobeacon the regular station characteristic of the sound fog signal will be maintained, except that the silent period will in each case precede the blast. Hearing the long dash in the radiobeacon code of the station will indicate to the mariner the presence of fog conditions at that station.

PASSAGE ISLAND LIGHTHOUSE, MICH.—New method of distance finding: Same as given above for La Pointe Lighthouse, Wis.

EAGLE HARBOR LIGHTHOUSE, MICH.—Fy., strike out 302 (993), add 314 (955).

LOS ANGELES HARBOR LIGHTHOUSE, CALIF.—Characteristic should be one dot, two dashes; thus . — — for 5 minutes.

POINT SUR LIGHTHOUSE, CALIF.—Fy., strike out 300 (1,000), add 304 (987).

SCOTCH CAP LIGHTHOUSE, ALASKA.—Loc. 164° 45' 00" W., 54° 24' 00" N.

KILAUEA POINT LIGHTHOUSE, HAWAII.—Hours, operates second 15 minutes of each hour.

COMMERCIAL AND GOVERNMENT LAND, SHIP, AIRCRAFT, RADIOBEACON, AND RADIO-COMPASS STATIONS, ALPHABETICALLY BY CALL SIGNALS

KBB, *read* Baganga, P. I., radio; KBU, *read* Cajidiocan, P. I., radio; KDEW, *read* Camor; KHRIG, *read* KHRTG; KZBF, *read* Samal; KZCB, *read* KZSG; KZCG, *read* KZUS; KZDD, *read* KZDH; KZDV, *read* KZDF; NURF, *read* Empire State; WNAJ, *read* Toledo, Ohio; WNAK, *read* Cleveland, Ohio; WNAO, *read* Newark, N. J.; WRH, *read* Carlstadt, N. J., radio; strike out all particulars following the call signals KGSV, KHAJQ, KHEDW, KHHCW, KZBJ, KZBK, KZFJ, KZGB, WQDI, WRDN, WTD, WVV, WZS, WZT.

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, 1931, and the International List of Broadcasting Stations, published by the Berne bureau]

KUSD (Vermillion, S. Dak.).—Power, 500.  
 WCSC (Charleston, S. C.).—Licensee, Lewis Burk.  
 WEHC (Emory, Va.).—Fy., 1,350 (222.2); power, 500.  
 WGAR (Akron, Ohio).—Loc., transmitter changed to Cuyahoga Heights, Ohio, 81° 40' 48" W., 41° 26' 52" N.; loc., studio changed to Statler Hotel, Cleveland, Ohio.  
 WHK (Seven Hills-Cleveland, Ohio).—Studio changed to New Higbee Building.  
 WOBT (Jackson, Tenn.).—Call changed to WTJS.  
 WQDX (Thomasville, Ga.).—Power, 100.  
 WRAM (Wilmington, N. C.).—Loc., transmitter and post-office address changed to R. F. D. No. 1, Princess Street Road, Wilmington, N. C.; (approximate) 77° 55' 25" W., 34° 14' 30" N.; studio changed to Cape Fear Hotel.  
 WRBL (Columbus, Ga.).—Licensee, WRBL Radio Station (Inc.).  
 WSPA (Spartanburg, S. C.).—Loc., transmitter and studio changed to Avant and Ravenel Streets.

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, 1931]

New Jersey:

Ocean Township (W2XDG).—Fy., strike out 8,630 (34.76), add 8,560 (35.05).

Ocean Township (W2XDJ).—Fy., strike out 8,630 (34.76), add 8,560 (35.05).

Ohio: Cleveland (W8XAA).—Strike out all particulars.

Wisconsin: Milwaukee (W9XD).—Fy., 44,000 (6.81) *read* 46,000 (6.52).

Portable

Maine: Houlton (W1XR).—Strike out all particulars.

New Jersey:

New Jersey (W2XDH).—Fy., strike out 8,630 (34.76), add 8,560 (35.05).

Ocean Township (W2XDI).—Fy., strike out 8,630 (34.76), add 8,560 (35.05):

Texas: Bexar County (W5XB).—Strike out all particulars.

RELAY BROADCASTING 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, 1931]

California: Westminster (near) (W6XAL).—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, 1931]

New Jersey: Allwood (W2XCP).—Strike out all particulars.

MISCELLANEOUS

CHANGES IN THE LIST OF VESSELS EQUIPPED WITH A RADIO COMPASS

The following named vessels are additions to the lists published in Commercial and Government Radio Stations of the United States, edition June 30, 1931, and the International List of Ships Stations published by the Berne bureau.

These changes have been made in the 1931 edition of the list first named.

Name	Call signal	Owner
<b>COMMERCIAL</b>		
Caroline.....	WDEC	Eldridge R. Johnson.
City of Hamburg.....	KEGF	Baltimore Mall S. S. Co. (Inc.).
City of Norfolk.....	WJIO	Do.
Excambion.....	WEEY	Export S. S. Corporation.
Pan Bolivar.....	WDEK	Pan American Petroleum & Transport Co. (Inc.).
Seapine.....	WBBE	Frank H. Goodyear.

The radio compass has been removed from the following named vessel: Commercial—Velero II.

BROADCASTING STATION FREQUENCY MEASUREMENTS DURING JULY

Of the 294 stations measured during this month, 94 at no time deviated more than 50 cycles above or below their assigned frequency, 70 deviated over 50 but under 100 cycles, and 60 went over 100 but under 200 one or more times during that month. The remaining 70 went over the 200 mark.

All of the 613 stations were not measured, for different reasons, principally due to their power output being insufficient to reach the frequency monitoring measurement stations.

The following table offers a comparison of measurements made during the past recent months beginning with December, 1930:

Month	Number measured	Under 50	Under 100	Under 200	Over 200
December.....	339	85 (13.8%)	66 (16.5%)	238 (70%)	
January.....	363	64 (16%)	102 (27%)	207 (58%)	
February.....	367	99 (27%)	55 (15%)	213 (58%)	
March.....	337	65 (19.3%)	63 (18.8%)	77 (22.8%)	132 (39.1%)
April.....	314	72 (22.9%)	64 (17.2%)	92 (29.3%)	96 (30.6%)
May.....	328	78 (23.9%)	89 (27.3%)	68 (20.9%)	91 (27.9%)
June.....	330	97 (29.4%)	71 (21.5%)	69 (20.9%)	93 (28.2%)
July.....	294	94 (32%)	70 (23.8%)	60 (20.4%)	70 (23.8%)

UNDER 50 CYCLES

Call signal	Transmitter location, studio location in parentheses	Call signal	Transmitter location, studio location in parentheses
KDKA	Saxonburg, Pa. (Pittsburgh).	KPPO	Pasadena, Calif.
KFDM	Beaumont, Tex.	KSAC	Manhattan, Kans.
KFEL	Denver, Colo.	KSD	St. Louis, Mo.
KFEQ	St. Joseph, Mo.	KSTP	Radio Center, Minn. (St. Paul).
KFJR	Portland, Oreg.	KTFAR	Phoenix, Ariz.
KFSD	San Diego, Calif.	KTBR	Portland, Oreg.
KFSG	Los Angeles, Calif.	KWJJ	Portland, Oreg.
KFVD	Culver City, Calif.	KYA	San Francisco, Calif.
KFWB	Hollywood, Calif.	KYW-KFKX	Bloomington Township Ill. (Chicago).
KFXM	San Bernardino, Calif.	WAAB	Lexington, Mass. (Boston).
KGW	Portland, Oreg.	WABC	New York, N. Y.
KHQ	Spokane, Wash.	WADC	Tallmadge, Ohio (Akron).
KLZ	Denver, Colo.	WBBR	Rossville, N. Y. (Brooklyn).
KMBC	Independence, Mo. (Kansas City, Mo.).	WBEN	Martinsville, N. Y. (Buffalo).
KMO	Tacoma, Wash.	WBOS	Needham, Mass.
KMOX	St. Louis, Mo.	WBT	Charlotte, N. C.
KMPO	Beverly Hills, Calif.	WCAO	Baltimore, Md.
KOIL	Council Bluffs, Iowa.	WCBA	Allentown, Pa.
KOMO	Harbor Island, Wash. (Seattle).	WCDA	Cliffside Park, N. J. (New York City).
KPO	San Francisco, Calif.		

## UNDER 50 CYCLES—Continued

Call signal	Transmitter location, studio location in parentheses	Call signal	Transmitter location, studio location in parentheses
WCFL	Chicago, Ill.	WKA V	Laconia, N. H.
WCSH	Scarboro, Me. (Portland).	WKBN	Youngstown, Ohio.
WDAF	Kansas City, Mo.	WKRC	Cincinnati, Ohio.
WDGY	Minneapolis, Minn.	WL BZ	Bangor, Me.
WEAN	Providence, R. I.	WLIT	Philadelphia, Pa.
WEBO	Superior, Wis.	WMAL	Washington, D. C.
WEEL	Weymouth, Mass. (Boston).	WMAQ	Addison, Ill. (Chicago).
WFBL	Collamer, N. Y. (Syracuse).	WMBC	Detroit, Mich.
WFI	Philadelphia, Pa.	WMSG	New York, N. Y.
WFIW	Hopkinsville, Ky.	WMT	Waterloo, Iowa.
WGAR	Akron, Ohio.	WNBH	Fair Haven, Mass. (New Bedford).
WGES	Chicago, Ill.		
WGN	Elgin, Ill. (Chicago).	WOAI	Selma, Tex. (San Antonio).
WGST	Atlanta, Ga.	WOO	Davenport, Iowa.
WGY	Schenectady, N. Y.	WOI	Ames, Iowa.
WHAD	Milwaukee, Wis.	WOL	Washington, D. C.
WHAM	Rochester, N. Y.	WOR	Kearny, N. J. (Newark).
WHAS	Louisville, Ky.	WOW	Omaha, Nebr.
WHO	Des Moines, Iowa.	WOWO	Ft. Wayne, Ind.
WHP	Lemoyne, Pa. (Harrisburg).	WPG	Atlantic City, N. J.
WIP-WFAN	Philadelphia, Pa.	WPOR	Norfolk, Va.
WISN	Milwaukee, Wis.	WPTA	
WJAZ	Mt. Prospect, Ill. (Chicago).	WPTF	Raleigh, N. C.
WJKS	Gary, Ind.	WRAX	Philadelphia, Pa.
WJR	Sylvan Lake Village, Mich. (Detroit).	WRVA	Mechanicville, Va. (Richmond).
		WSB	Atlanta, Ga.
WJSV	Mt. Vernon Hills, Va. (Alexandria).	WSBO	Chicago, Ill.
		WSUI	Iowa City, Iowa.
WJZ	Bound Brook, N. J. (New York City).	WTMJ	Brookfield, Wis. (Milwaukee).
		WXYZ	Detroit, Mich.

## UNDER 100 CYCLES

KELW	Burbank, Calif.	WDRC	Bloomfield, Conn. (Hartford).
KFAB	Lincoln, Nebr.	WEAF	Belmore, N. Y. (New York City)
KFAO	Los Angeles, Calif.	WENR	Downers Grove, Ill. (Chicago).
KFBB	Great Falls, Mont.	WEXL	Royal Oak, Mich.
KFH	Wichita, Kans.	WFAA	Grapevine, Tex. (Dallas).
KFI	Los Angeles, Calif.	WFLA-WSUN	Clearwater, Fla.
KFII	Astoria, Oreg.	WGCM	Mississippi City, Miss. (Gulfport)
KFQU	Alma (Holy City), Calif.	WGR	Amherst, N. Y. (Buffalo).
KFRO	San Francisco, Calif.	WHB	Kansas City, Mo.
KGA	Spokane, Wash.	WHDH	Gloucester, Mass. (Boston).
KGBZ	York, Nebr.	WIBA	Madison, Wis.
KGGF	Coffeyville, Okla.	WIBW	Topeka, Kans.
KGNF	North Platte, Nebr.	WIOD	Miami Beach, Fla.
KGO	Oakland, Calif. (San Francisco).	WJAC	Johnstown, Pa.
KHJ	Los Angeles, Calif.	WJAR	Providence, R. I.
KLS	Oakland, Calif.	WJAY	Cleveland, Ohio.
KMA	Shenandoah, Iowa.	WJBO	New Orleans, La.
KMCS	Inglewood, Calif.	WJTL	Oglethorpe University, Ga.
KMJ	Fresno, Calif.	WKAR	Lansing, Mich.
KMTR	Los Angeles, Calif.	WLOE	Chelsea, Mass. (Boston).
KOIN	Portland, Oreg.	WLW	Mason, Ohio (Cincinnati).
KOL	Seattle, Wash.	WMAK	Grand Island, N. Y. (Buffalo).
KRLD	Dallas, Tex.	WMBI	Addison, Ill. (Chicago).
KROW	Richmond, Calif. (Oakland).	WMC	Bartlett, Tenn. (Memphis).
KTAB	Oakland, Calif. (San Francisco).	WNAX	Yankton, S. Dak.
KTAT	Birdville, Tex. (Fort Worth).	WOS	Jefferson City, Mo.
KVOO	Tulsa, Okla.	WRHM	Fridley, Minn. (Minneapolis).
KXO	El Centro, Calif.	WRUF	Gainesville, Fla.
WBAK	Harrisburg, Pa.	WSM	Nashville, Tenn.
WBAP	Grapevine, Tex. (Fort Worth).	WSMB	New Orleans, La.
WBBM	Glenview, Ill. (Chicago).	WTAG	Worcester, Mass.
WBZ-WBZA	Millis Township, Mass. (Boston).	WTAM	Brecksville Village, Ohio (Cleveland).
WCOAM	Camden, N. J.		
WCCO	Anoka, Minn. (Minneapolis).	WTIC	Mt. Avon, Conn. (Hartford).
WCHI	Deerfield, Ill. (Chicago).	WVVA	Wheeling, W. Va.
WOKY	Crescent Springs, Ky. (Covington).		

## UNDER 200 CYCLES

Call signal	Transmitter location, studio location in parentheses	Call signal	Transmitter location, studio location in parentheses
KDB	Santa Barbara, Calif.	WAIU	Columbus, Ohio.
KDYL	Salt Lake City, Utah.	WAPI	Birmingham, Ala.
KEX	Portland, Oreg.	WBAL	Glen Morris, Md. (Baltimore).
KFNF	Shenandoah, Iowa.	WCAH	Columbus, Ohio.
KFOR	Lincoln, Nebr.	WCRW	Chicago, Ill.
KFOX	Long Beach, Calif.	WDEL	Wilmington, Del.
KFPY	Spokane, Wash.	WDSU	Gretna, La. (New Orleans).
KFFX	Denver, Colo.	WEAO	Columbus, Ohio.
KGB	San Diego, Calif.	WFBR	Baltimore, Md.
KGBX	St. Joseph, Mo.	WHAT	Philadelphia, Pa.
KGDM	Stockton, Calif.	WIBO	Desplaines, Ill. (Chicago).
KGEF	Los Angeles, Calif.	WILM	Carrcroft-Edge Moor, Del. (Wilmington)
KGER	Long Beach, Calif.	WJAS	Pittsburgh, Pa.
KICK	Red Oak, Iowa.	WJBW	New Orleans, La.
KIDO	Boise, Idaho	WJJB	Mooseheart, Ill.
KMLB	Monroe, La.	WKBO	Jersey City, N. J.
KMMJ	Clay Center, Nebr.	WKBW	Amherst, N. Y. (Buffalo).
KOA	Denver, Colo.	WKJC	Lancaster, Pa.
KPCB	Seattle, Wash.	WLAC	Nashville, Tenn.
KREG	Santa Ana, Calif.	WLS	Downers Grove, Ill. (Chicago).
KRMD	Shreveport, La.	WLTH	Brooklyn, N. Y.
KRSC	Seattle, Wash.	WOW	Secaucus, N. J. (New York City).
KSCJ	Sioux City, Iowa.	WPAW	Fawtucket, R. I.
KTHS	Hot Springs, Ark.	WPEN	Philadelphia, Pa.
KTM	Santa Monica, Calif. (Los Angeles).	WRC	Washington, D. C.
KTRH	Houston, Tex.	WREN	Lawrence, Kans.
KWG	Stockton, Calif.	WSAR	Fall River, Mass.
KWK	Kirkwood, Mo. (St. Louis).	WSPD	Toledo, Ohio.
WAAM	Newark, N. J.	WWJ	Detroit, Mich.
WABZ	New Orleans, La.	WWL	New Orleans, La.

## RADIO ACTIVITIES OF THE DEPARTMENT OF COMMERCE

The Radio Division has just promulgated a pamphlet entitled "Radio Activities of the Department of Commerce," which contains a résumé of the work of the division, the Bureau of Standards, and the Bureau of Lighthouses. It particularly deals with the frequency monitoring station at Grand Island, Nebr., and it is illustrated. A brief history (important events in radio) from the year 1927 to 1930 is also included. Copies of the pamphlet, comprised of 40 pages, may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 10 cents a copy, payable in advance, preferably by postal money order. Do not send remittances to the Department of Commerce, Radio Division.

## RADIO OPERATORS CAUTIONED NOT TO VIOLATE ARTICLE 17, INTERNATIONAL RADIOTELEGRAPH CONVENTION

It has come to the attention of this office that a number of radio operators have infringed the requirements of this article, especially paragraph 2, subparagraph 1, which reads as follows:

In order to increase safety of life at sea (ships) and over the sea (aircraft), all stations in the mobile maritime service must, during their hours of service, take the necessary measures to assure the watch on the distress wave (500 kc/s-600 m.) for three minutes twice per hour, beginning at the fifteenth minute and at the forty-fifth minute after each hour Greenwich mean time.

Operators should have a reliable clock or watch in the radio room which should be checked and regulated constantly. Reliable time signals are transmitted by the naval stations at Arlington and Annapolis in addition to many other stations throughout the world.

## NEW DIRECTION-FINDING STATIONS ESTABLISHED IN JAPAN

New stations have been opened at the lighthouses, Shiriya Zaki (lat. 41° 26' N., long. 141° 28' E., approximately), JLD; Todo Zaki (lat. 39° 33' N., long. 142° 04' E., approximately), JLE; Yesan Zaki (lat. 41° 49' N., long. 141° 11' E., approximately), JLF.

These three stations transmit on 375 kc/s. (800 m.) and receive on 500 kc/s. (600 m.). The power is rated at 350 watts, type A1 (range, 270 miles), type A2

(range, 160 miles). JLE and JLF are experimental. The hours of service are from sunrise to 2200, local time; however, operations may be carried on beyond these hours.

Vessels furnished with bearings are requested to report the results thereof to the Japanese lighthouse officials.

#### PENALTY IMPOSED FOR OPERATION OF UNLICENSED RADIO STATION

An unlicensed radio station detected by the radio inspector at Boston, Mass., was seized by that Federal agent on April 17, 1931, the operator of which pleaded guilty and was fined \$2,000. In addition he was given a suspended sentence of three years in the Federal prison at Atlanta, Ga. The suspension stipulates that the operator shall not engage in any radio activity which has to do with the transmission of radio communications.

The owner of the property on which the station was located pleaded not guilty to the charge of aiding and abetting in the operation of the unlicensed station. He was subsequently called to trial, found guilty, and fined \$2,000, and in addition received a jail sentence of one year and a day.

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<b>Alaska:</b>				
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<b>Chain programs—</b>				
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Do.....	63	May 15, 1929	May.....	1929
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Frequency band not to be extended; 1,500-2,000 kilo- cycles should be held open for experiments in broad- casting and visual broadcasting.	4	Apr. 5, 1927	April.....	1927
One-half kilocycle deviation allowed; announcement of frequency by authority of Federal Radio Commission.	7	Apr. 28, 1927	.....do.....	1927
Allocation of channels to the different zones, a separation of 10 kilocycles to be mentioned.	40	Aug. 30, 1928	August.....	1928
Stations permitted to make tests in changing frequency under allocations effective Nov. 11, 1928.	45	Sept. 24, 1928	September..	1928
Hearings for certain stations which have not satisfied the Federal Radio Commission—list of 162 stations.	32	May 25, 1928	May.....	1928
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Stations may file affidavits certifying interference is being caused to its signals.	15	June 7, 1927	June.....	1927
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Designating bands to be cleared of heterodynes—pro- cedure for clearing heterodyning channels.	22	Jan. 16, 1928	.....do.....	1928
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Regulations governing applications for facilities in over- quota, underquota, underunit, and quota allocations.	102	Jan. 8, 1931	.....do.....	1931
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Amendment to General Order 106.....	106	Feb. 27, 1931	.....do.....	1931
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Regulations governing power, General Order No. 97 amended.	108	Mar. 26, 1931	.....do.....	1931
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<b>Chain programs:</b>				
Allowed for only 1 hour unless stations are 300 miles apart.	43	Sept. 8, 1928	September..	1928
Postponement of General Order 43.....	46	Oct. 5, 1928	October.....	1928
Postponement of General Order 43.....	57	Jan. 18, 1929	January.....	1929
Postponement of General Order 43.....	59	Feb. 16, 1929	February.....	1929
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Of a limited-time broadcasting station.....	48	Oct. 22, 1928	October.....	1928
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Of marine relay service.....	100	Nov. 10, 1930	November..	1930
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<b>Distress signals: Rules and regulations requiring broadcast- ing stations to give absolute priority to distress communi- cations or signals.</b>	66	June 10, 1929	June.....	1929
<b>Experimental stations: Regulations governing issuance of relay broadcasting, visual broadcasting, general experi- mental, and aircraft experimental station licenses.</b>	64	May 20, 1929	do.....	1929
<b>Frequencies:</b>				
Broadcasting frequency band not to be extended; 1,500- 2,000 kilocycles should be held open for experiments in broadcasting and visual broadcasting.	4	Apr. 5, 1927	April.....	1927
One-half kilocycle deviation allowed, announcement of frequency by authority of Federal Radio Commission.	7	Apr. 28, 1927	do.....	1927
Allocation of channels in the broadcasting band to the different zones, a separation of 10 kilocycles to be men- tioned.	40	Aug. 30, 1928	August.....	1928
Broadcasting stations permitted to make tests in chang- ing frequency under allocations effective Nov. 11, 1928.	45	Sept. 24, 1928	September..	1928
Allocation of between 1,500 and 6,000 kilocycles.....	55	Dec. 22, 1928	December..	1928
Picture and television transmissions restricted in use of frequencies in the broadcasting band.	56	Jan. 14, 1929	January.....	1929
Relay broadcasting frequencies, Feb. 18, 1929.....			March.....	1929
Visual broadcasting frequencies, Feb. 18, 1929.....			do.....	1929
Visual, telephone, and relay broadcasting channels defined.	62	Apr. 5, 1929	April.....	1929
Allocation of frequencies between 1,500 and 6,000 kilo- cycles, General Order 55 amended.	74	Oct. 11, 1929	October.....	1929
Additional amateur frequency band opened and tele- phone bands specified.	76	Nov. 6, 1929	November..	1929
Allocated for amateur stations.....	84	Apr. 4, 1930	April.....	1930
Allocated for police stations.....	85	Apr. 8, 1930	do.....	1930
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Allocated for broadcasting stations—Canadian shared.....	87	Apr. 7, 1930	May.....	1930
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Allocation for motion pictures, General Order 74 amended.	74	Oct. 11, 1929	November....	1930
Assignments for broadcasting stations, General Order No. 87 repealed.	107	Mar. 24, 1931	April.....	1931
Additional allocations to aeronautical and aircraft services.	112	May 4, 1931	May.....	1931
Broadcasting stations required to operate within 50 cycles of assigned frequency.	116	June 22, 1931	June.....	1931
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Change in allocation to aeronautical services.....	118	.....do.....	.....do.....	1931
Frequencies for Alaska.....	79	Dec. 20, 1929	December....	1929
<b>Hearings:</b>				
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Designating bands to be cleared of heterodynes; procedure for clearing heterodyning channels.	19	Nov. 14, 1927	.....do.....	1928
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Hearings for certain broadcasting stations which have not satisfied the Federal Radio Commission—list of 162 stations.	32	May 25, 1928	May.....	1928
Regulations governing hearings on application for construction permit, renewal of license, etc.	37	Aug. 22, 1928	August.....	1928
<b>Hours of operation:</b> Regulations governing the hours of operation of broadcasting stations affected by daylight saving time.	6	Mar. 23, 1929	March.....	1929
<b>Interference:</b>				
Broadcasting stations may file affidavits certifying interference is being caused to its signals.	15	June 7, 1927	June.....	1927
Hearings on reducing in broadcasting band.....	2	Mar. 15, 1927	March.....	1928
Designating bands to be cleared of heterodynes; procedure for clearing heterodyning channels.	19	Nov. 14, 1927	.....do.....	1928
Broadcasting stations restricted as to power used after sunset; operation during daytime not to cause greater heterodyning than exists during evening, General Order 10 repealed.	53	Nov. 26, 1928	November..	1928
Picture and television transmissions restricted in use of frequencies in the broadcasting band.	56	Jan. 14, 1929	January....	1929
Regulations deemed necessary to prevent interference by amateur stations.	84	Apr. 4, 1930	April.....	1930
Installation of automatic frequency control apparatus must be authorized by Federal Radio Commission.	77	Nov. 8, 1929	November..	1929
Rules and regulations requiring broadcast stations to give absolute priority to distress communications or signals.	66	June 10, 1929	June.....	1929
One-half kilocycle deviation allowed.....	7	Apr. 28, 1927	April.....	1927
Stations required to operate within 50 cycles of assigned frequency.	116	June 22, 1931	June.....	1931
Broadcasting stations permitted to make tests in changing frequency under allocations effective Nov. 11, 1928.	45	Sept. 24, 1928	September..	1928
Procedure to be followed in reply to notifications of violations of radio laws, regulations, and orders.	75	Oct. 30, 1929	November..	1929
<b>Licenses (station and operator):</b>				
Extension of amateur and ship station licenses issued by the Department of Commerce until further orders.	1	Mar. 15, 1927	March.....	1927
Extension of coastal point-to-point, technical and training, and experimental station licenses in force on Feb. 22, 1927, until further orders.	3	Mar. 27, 1927	.....do.....	1927
Extension of broadcasting station licenses issued under Department of Commerce ended; permit must be obtained.	5	Apr. 5, 1927	April.....	1927
Permits for broadcasting stations discontinued; licenses to be issued for 60 days.	11	May 21, 1927	May.....	1927
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Do .....	27	Apr. 20, 1928	April .....	1928
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Extension of portable broadcasting station licenses .....	34	do .....	do .....	1928
Extension of broadcasting station licenses not subject to General Order No. 32.	35	July 25, 1928	July .....	1928
Extension of broadcasting station licenses subject to General Order No. 33.	36	July 26, 1928	do .....	1928
Regulations governing hearings on application for con- struction permit, renewal of station license, etc.	37	Aug. 22, 1928	August .....	1928
Extension of broadcasting station licenses not subject to General Order No. 32.	38	do .....	do .....	1928
Extension of coastal, point-to-point, technical and train- ing, experimental, ship, and amateur station licenses previously extended by General Orders 1, 3, and 26.	39	do .....	do .....	1928
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Extension of coastal, point-to-point, technical and train- ing, experimental, and ship station licenses until Dec. 31, 1928.	47	Oct. 23, 1928	October .....	1928
Extension of coastal, point-to-point, experimental, and ship station licenses until Jan. 31, 1929.	54	Dec. 22, 1928	December ..	1928
Extension of coastal, point-to-point, experimental, and ship station licenses until Mar. 16, 1929.	58	Jan. 28, 1929	January .....	1929
Extension of coastal, point-to-point, and experimental station licenses until June 1, 1929.	60	Mar. 9, 1929	March .....	1929
Extension of broadcasting station licenses until Oct. 31, 1929, and other classes of station licenses and con- struction permits until Oct. 1, 1929.	69	June 20, 1929	June .....	1929
Alaskan station licenses extended .....	72	Sept. 29, 1929	September ..	1929
Do .....	73	Oct. 10, 1929	October .....	1929
Alaskan station licenses extended until Jan. 25, 1931.	83	Jan. 25, 1930	January .....	1930
Regulations governing issuance of license for police sta- tions.	85	Apr. 8, 1930	April .....	1930
Application for renewal must be filed 30 days prior to date of expiration—station must cease operating pro- vided no action is taken upon renewal.	89	Apr. 21, 1930	do .....	1930
Operators' and station licenses required to be posted .....	90	May 19, 1930	May .....	1930
Additional data required in application for consent to assignment of construction permit or station license.	95	Sept. 29, 1930	September ..	1930
Regulations governing the issuance of "marine relay service" licenses.	100	Nov. 10, 1930	November ..	1930
Station licenses extended .....	101	Nov. 14, 1930	do .....	1930
Broadcasting station licenses, with exceptions, extended until Apr. 30, 1931.	103	Jan. 30, 1931	January .....	1931
General Order 103 repealed; extension of broadcasting stations.	109	Mar. 26, 1931	April .....	1931
General Order 104 repealed; extension of Alaskan station licenses.	110	Mar. 27, 1931	do .....	1931
Application for renewal of a station license must be filed 60 days prior to expiration.	114	May 15, 1931	May .....	1931
<b>Log:</b>				
Marine stations required to keep a log .....	104	Feb. 2, 1931	February ..	1931
Broadcasting stations required to keep a program and operating log.	106	Feb. 16, 1931	do .....	1931
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<b>Marine service:</b>				
Definition of marine relay service .....	100	Nov. 10, 1930	November ..	1930
Stations required to keep a log .....	104	Feb. 2, 1931	February ..	1931
<b>Mechanical reproduction:</b>				
Nature of, must be announced .....	16	Aug. 9, 1927	August .....	1928
Character must be announced .....	49	Oct. 26, 1928	October .....	1928
Character ordered to be announced, General Order 49 modified.	52	Nov. 26, 1928	November ..	1928
No. 52 repealed—character ordered to be announced .....	78	Dec. 5, 1929	December ..	1929
Motion pictures: Temporary service .....	74	Oct. 11, 1929	November ..	1930
<b>Operators:</b>				
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License required to be posted .....	90	May 19, 1930	May .....	1930
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Regulations governing issuance of construction permit for station (definition, frequencies, power, etc.)	85	Apr. 8, 1930	April.....	1930
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Portable stations:				
Licenses only issued broadcasting stations for 120 days, 100 watts, 1,470-1,490 kilocycles	6	Apr. 26, 1927	do	1927
Broadcasting stations no longer licensed	30	May 10, 1928	May	1928
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Power:				
Applications for increase between 6 a. m. and 6 p. m. for educational, religious, civic, and market news stations	10	May 18, 1927	do	1927
Broadcasting stations not allowed power in excess of 25 kilowatts except for experiments and daytime programs	42	Sept. 7, 1928	September..	1928
Broadcasting stations restricted after sunset, operation during daytime not to cause greater heterodyning than exists during evening, General Order 10 repealed	53	Nov. 26, 1928	November..	1928
Amount allowed power company stations	86	Apr. 8, 1930	April	1930
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Power of new broadcasting installation limited	91	May 23, 1930	May	1930
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Regulations governing a broadcasting station	97	Oct. 6, 1930	October	1930
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Power companies: Regulations governing the operation by	86	Apr. 8, 1930	April	1930
Records—mechanical reproductions:				
Nature of, must be announced	16	Aug. 9, 1927	August	1927
Character must be announced	49	Oct. 26, 1928	October	1928
Character ordered to be announced, General Order 49 modified	52	Nov. 26, 1928	do	1928
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Rules and regulations governing, Feb. 18, 1929			March	1929
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Rules and regulations governing issuance of construction permit and license for	68	June 10, 1929	June	1929
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Studios: Permission to move required	28	Apr. 20, 1928	April	1928
Subpoenas: Regulations governing issuance	67	June 10, 1929	June	1929
Telephone:				
Channels defined	62	Apr. 5, 1929	April	1929
Channels restricted to certain widths	88	Apr. 14, 1930	do	1930
General Orders 88 and 88 as amended canceled	117	June 24, 1931	June	1931
Tests: Broadcasting stations permitted to make tests in changing frequency under allocations effective Nov. 11, 1928	45	Sept. 24, 1928	September..	1928
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Travel: Authorization for members and employees of Federal Radio Commission to travel for purpose of holding and assisting at hearings and investigations	65	May 27, 1929	June	1929
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Visual broadcasting:				
Regulations governing	50	Oct. 31, 1928	do	1928
Transmission restricted in use of frequencies in the broadcasting band	56	Jan. 14, 1929	January	1929
Rules and regulations governing, Feb. 18, 1929			March	1929
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General Order 88 and 88 as amended canceled	117	June 24, 1931	June	1931

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Hours of watch for vessels.....	do.....	1920
Rates increased.....	November.....	1921
<b>Ships: Stations may operate pending action upon application for license.</b>	May.....	1920
<b>Statistics:</b>		
Number of operators and stations—years 1913-1923.....	February.....	1923
Do.....	do.....	1931
<b>Time: Relation between Greenwich mean time and standard times in use in the United States.</b>	September.....	1928
<b>Visual broadcasting: Class of operators' licenses required.</b>	July.....	1929
<b>War-time restrictions removed:</b>		
United States amateurs removed Oct. 1, 1919.....	October.....	1919
Canadian removed July 24, 1919.....	do.....	1919
British in Mediterranean removed.....	do.....	1919
All commercial stations taken by United States Navy under Executive orders Apr. 16 and 30, 1917, returned to owners.	March.....	1920
Executive Order No. 3228, Feb. 13, 1920, returning stations to owners.....	do.....	1920
List of land stations reopened.....	do.....	1920
Do.....	April.....	1920
<b>Weather reports:</b>		
Radiographic code, United States Weather Bureau.....	May.....	1921
Penalty for counterfeit weather forecasts.....	January.....	1923
Regulations pertaining to broadcasting of weather, crop, and market information.	April.....	1922
From Swan Island, Caribbean Sea.....	October.....	1922
<b>Wave length. (See Frequencies.)</b>		

**SOME ELECTRICAL PROPERTIES OF FOREIGN AND DOMESTIC MICAS AND THE EFFECT OF ELEVATED TEMPERATURES ON MICA**

In a paper of the above title, by A. B. Lewis, E. L. Hall, and F. R. Caldwell, Research Paper 347, Bureau of Standards Journal of Research, August, 1931, a number of samples of mica, fairly representative of the major sources of the world's supply of mica, have been tested for dielectric constant and power factor at radio frequencies and dielectric strength and ability to withstand elevated temperatures. Results of these tests are given. In none of these tests was it possible to make any distinction between the various micas based solely on the geographical origin of the samples.

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.

**A SIMULTANEOUS RADIOTELEPHONE AND VISUAL RANGE BEACON FOR THE AIRWAYS**

In a paper of the above title, by F. G. Kear and G. H. Wintermute, Research Paper No. 341, Bureau of Standards Journal of Research, August, 1931, a transmitting system has been developed which provides simultaneous transmission of visual range-beacon and radiotelephone signals. This system is designed to employ existing equipment as far as possible. By combining two transmitting sets into one the cost of buildings and antenna equipment is reduced. The equipment on the airplane to receive this service is changed only by the addition of a small filter unit which keeps the low-frequency reed voltages from reaching the head telephones and the voice frequencies from the reed indicator. The distance range of the transmitting system is the same as that provided by the present visual range-beacon service.

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.

**RADIO TRANSMISSIONS OF STANDARD FREQUENCY, OCTOBER, NOVEMBER, DECEMBER, 1931**

The Bureau of Standards announces a new schedule of radio transmissions of standard frequencies. This service may be used by transmitting stations in adjusting their transmitters to exact frequency and by the public in calibrating frequency standards and transmitting and receiving apparatus. The signals are transmitted from the bureau's station WWV, Washington, D. C., every Tuesday afternoon and evening. They can be heard and utilized by stations equipped for continuous-wave reception throughout the United States, although not with certainty in some places. The time schedules are different from those of previously announced transmissions. The only frequency utilized is 5,000 kilocycles. The accuracy of the frequency is at all times much better than a part in a million.

The transmissions are by continuous-wave telegraphy at 5,000 kilocycles. They are given continuously from 2 to 4 p. m. and from 8 to 10 p. m., eastern standard time, every Tuesday throughout October, November, and December (except December 29). The dates are October 6, 13, 20, 27; November 3, 10, 17, 24; and December 1, 8, 15, 22.

The transmissions consist mainly of continuous, unkeyed carrier frequency, giving a continuous whistle in the receiving phones. The first 5 minutes of the transmission consist of the general call (CQ de WWV) and announcement of the frequency. The frequency and the call letters of the station (WWV) are given every 10 minutes thereafter.

Information on how to receive and utilize the signals is given in Bureau of Standards Letter Circular No. 280, which may be obtained by addressing a request to the Bureau of Standards, Washington, D. C. From the 5,000 kilocycles any apparatus may be given as complete a frequency calibration as desired by the method of harmonics.

Since the start of the 5,000-kilocycle transmissions at the beginning of this year the Bureau of Standards has been receiving reports regarding the reception of these transmissions and their use for frequency standardization from nearly all parts of the United States, including the Pacific coast and Alaska. The bureau is desirous of receiving more reports on these transmissions, especially because radio transmission phenomena change with the season of the year.

The data desired are approximate field intensity, fading, and the suitability of the transmissions for frequency measurements. It is suggested that in reporting upon field intensities for these transmissions the following designations be used where field intensity measurement apparatus is not at hand: (1) Hardly perceptible, unreadable; (2) weak, readable now and then; (3) fairly good, readable with difficulty; (4) good, readable; and (5) very good, perfectly readable. A statement as to whether fading is present or not is desired, and if so, its characteristics, such as whether slow or rapid and time between peaks of signal intensity. Statements as to type of receiving set used in reporting on the transmissions and the type of antenna used are likewise desired. The bureau would also appreciate reports on the use of the transmissions for purposes of frequency measurement or control.

The bureau would also appreciate comment from all users of the service on the times of day when the transmissions are most useful. During July, August, and September the evening transmissions were two hours later than in the schedule announced herein.

All reports and letters regarding the transmissions should be addressed Bureau of Standards, Washington, D. C.