

RADIO SERVICE BULLETIN

ISSUED MONTHLY

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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.
- 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. = 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 parenthesis	Service	Hours	Licensee
Atlanta, Ga. ¹	FX	WPDY	2,452 (122.35).....	P	N	City of Atlanta, department of police.
Blythe, Calif. ²	FX	KGUS	2,326 (128.97), 2,344 (127.98), 4,140 (72.46), 6,260 (47.92), 6,275 (47.81).	P	X	Aeronautical Radio (Inc.).

¹ Loc. 84° 22' 30" W., 33° 44' 34" N.; type, A3

² Type, A1.

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 account settled by—
Caroline	WDEC				Eldridge R. Johnson	Owner.
Continental	WCEX	8	PG	X	Manuel S. Labrincha	Do.
Exeter ¹	WCEZ	8	PG	X	Export S. S. Corporation	
Fortitude ²	WCEY				Fishermen (Ltd.)	
Harry B. Williams ³	WCEU		PG	X	Great Lakes Dredge & Dock Co.	R. M. C. A.
Lake Osweya ⁴	KVAA	8	PG	X	Ford Motor Co.	Do.
Mississippi Shipping Co.—general call for any or all vessels.	KDEL				Mississippi Shipping Co.	M. R. T. Co.
Rujeta	WDEB		P	X	Charles W. Taussig	Owner.
Sinaloa ⁵	WCEW		PG	X	Michigan S. S. Co.	R. M. C. A.
Virago (R.C.)	WDEA				Thomas N. McCarter	
Western Enterprise	WDED				Y. Nakasuji	Do.

¹ Type, A1, A2; fy., 375 (800), 400 (750), 425 (705), 463 (640), 500 (600), 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 (13.501).

² Type, B, A1, A2, A3; fy., 375 (800), 410 (730), 500 (600).

³ Type, A2; fy., 375 (800), 410 (730), 425 (705); power, 12/2.5; rates, Great Lakes service, 4 cents per word.

⁴ Type, A2; fy., 143 (2.100), 137 (1,910), 375 (800), 425 (705); 500 (600); power, 17/10.

⁵ Type, A2; fy., 375 (800), 410 (730), 425 (705); power, 22/4; rates, Great Lakes service, 4 cents per word.

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	License
G-10118 (glider)	KHNXC		P	X	Maurice W. Collins, 530 Justin Ave., Glendale, Calif.
NC-153H ¹	KHTAZ	3,184 (94.22), 5,600 (53.57)	P	X	Alaskan Airways (Inc.), Fairbanks, Alaska.
NC-154H ¹	KHTBY	do.	P	X	Do.
NC-174H ¹	KHTCX	do.	P	X	Do.
NC-336H	KHIZA		P	X	Alaska Washington Airways (Inc.) 418 University St., Seattle, Wash.
NC-435H	KHLSH		P	X	Pacific Air Transport (Inc.), 200 West Michigan St., Seattle, Wash.
NC-437H	KHLTG		P	X	Do.
NC-439H	KHLUF		P	X	Do.
NC-539V ¹	KHTDW	3,184 (94.22), 5,600 (53.57)	P	X	Alaskan Airways (Inc.), Fairbanks, Alaska.
NC-658M ¹	KHEOL	333 (900), 414 (725), 500 (600), 2,663 (112.70), 3,070 (97.71), 3,076 (97.8), 5,690 (52.72), 8,650 (34.68)	P	X	Pan American Airways (Inc.)
NC-855M ¹	KHEKP	do.	P	X	Do.
NC-5933N ¹	KHEDV	do.	P	X	Do.
NC-9153 ¹	KHTDW	3,184 (94.22), 5,600 (53.57)	P	X	Alaskan Airways (Inc.), Fairbanks, Alaska.
NC-9190 ¹	KHTFU	do.	P	X	Do.
NC-9193 ¹	KHTGT	do.	P	X	Do.
NC-9653	KHLVE		P	X	Pacific Air Transport (Inc.), 200 West Michigan St., Seattle, Wash.
NC-9655	KHLWD		P	X	Do.
NC-10350 ⁴	KHPIR	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	Varney Air Lines (Inc.)

¹ Type, A1, A2.

² Type, A1, A2, A3.

³ Type, A1, A3.

⁴ Type, A3.

Government land 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	Class	Call signal	Frequency, in kilocycles; meters in parentheses	Service	Hours	Owner
Cleveland, Ohio.....	FX	NOR	-----	0	-----	U. S. Coast Guard.

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

Station	Call signal	Frequency, in kilocycles; meters in parenthesis	Service	Hours	Owner
Ludington ¹ ...	WUAL	153 (1,960), 159 (1,885), 396 (760), 428 (700), 4,255 (70.50), 8,510 (35.25), 12,765 (23.50).	0	N	U. S. Army.
Savannah ¹ ...	WYBD	396 (760), 428 (700).....	0	-----	Do.

¹ Type, A1, A2.

² Type, A1, A2; power, 20.1/6.8; hours, 8 to 12 a. m., 7 to 11 p. m.

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
KDEL	Mississippi Shipping Co.—general call for any or all vessels.....b	KHTDW	NC-539V.....a
KGUS	Blythe, Calif.....fx	KHTEV	NC-9153.....a
KHEDW	NC-5933.....a	KHTFU	NC-9190.....a
KHEKP	NC-855M.....a	KHTGT	NC-9193.....a
KHEOL	NC-658M.....a	KVAA	Lake Oswega.....b
KHIZA	NC-336H.....a	NOR	Cleveland, Ohio.....fx
KHLSH	NC-435H.....a	WCEU	Harry B. Williams.....b
KHLTG	NC-437H.....a	WCEW	Sinaloa.....b
KHLUF	NC-439H.....a	WCEX	Continental.....b
KHLVE	NC-9653.....a	WCEY	Fortitude.....b
KHLWD	NC-9655.....a	WCEZ	Exeter.....b
KHNXC	G-10118 (glider).....a	WDEB	Rujeta.....b
KHPIR	NC-10350.....a	WDEC	Caroline.....b
KHTAZ	NC-153H.....a	WDED	Western Enterprise.....b
KHTBY	NC-154H.....a	WPDY	Atlanta, Ga.....fx
KHTCX	NC-174H.....a	WUAL	Ludington.....b
		WYBD	Savannah.....b

Airway radiobeacon station

[Addition 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 and geographical location	Frequency and type for emission	Power (height of aerial and intensity of current at base)	Characteristic signal	Hours
Burley, Idaho: 113° 45' 00" W., 42° 33' 00" N. (approximate) ¹ .	A2-272 (1,105)	-----	Interlocked N (—•) and A (•—).	N.

¹ Power, 40 (normal radiated-m/amp.): owner, Department of Commerce, Bureau of Lighthouses, Airways Division.

Marine radiobeacon 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 Stations Performing Special Services, published by the Berne bureau]

CAPE CANAVERAL LIGHT STATION, FLA.—Loc., 80° 32' 37" W., 28° 27' 37" N.; transmits every 180 seconds, groups of 2 dashes and 2 dots, for 60 seconds, silent 120 seconds, thus:

— — . .	<u>Silent</u>
60 seconds	120 seconds

Fy., 290 (1,034); hours, continuously during thick or foggy weather and daily in clear weather for the second 15 minutes of each hour.

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)	License and post-office address
District of Columbia: Washington.	W3XX	4,795 (62.56), 8,650 (34.68)	250	United States Daily Publishing Corporation, 2201 M Street NW., Washington, D. C.
Michigan: Detroit.	W8XN	do.	250	Do.
Ohio: Lakewood.	W8XB	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).	20,000	Wired Radio (Inc.), 60 Broadway, New York, N. Y.

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

Call signal	District and station	Call signal	District and station
W3XX	Third district: Washington, D. C.	W8XB W8XN	Eighth district: Lakewood, Ohio. Detroit, Mich.

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]

AKRON, OHIO (WTF).—Loc. (approximate) 81° 30' 00" W., 41° 07' 00" N.

ALBUQUERQUE, N. MEX.—Type, strike out A2, A3.

ALITAK, ALASKA (Kodiak Island).—Read Alitak, Alaska Radio (Kodiak Island); type, strike out B, add A1, A2; fy., strike out 180 (1,665), 429 (700), add 246 (1,220), 268 (1,120), 460 (650); service, strike out P, add PG, PR; rates, 6 cents per word.

BALTIMORE, MD. (Logan Field).—Type, A1, A3; fy., add 4,164 (72.05), 6,320 (47.47).

BALTIMORE, MD., radio (WMH).—Fy., strike out 135 (2,222), add 111 (2,705).

BOISE, IDAHO.—Read Boise, Idaho (municipal airport); loc. (approximate) 116° 12' 00" W., 42° 40' 00" N.; power, 18/6.

BROWNSVILLE, TEX. (municipal airport).—Loc., 97° 28' 58" W., 25° 54' 56" N.; type, strike out A3, add A2.

CANTIAGUE VILLAGE, N. Y. (Oyster Bay).—Loc. changed to Hicksville, N. Y.; fy., strike out 7,340 (40.87), 7,355 (40.79), 7,370 (40.71), 7,820 (38.36), 7,835 (38.29), 15,610 (19.218), 15,640 (19.182), 15,670 (19.145), 15,880 (18.892), add 7,640 (39.27), 7,850 (38.22), 7,925 (37.85), 7,955 (37.72), 15,700 (19.108), 15,850 (18.927).

- CHICAGO, ILL. (WJA).—Fy., strike out 15,760 (19.036), add 4,995 (60.06), 4,735 (63.35), 7,340 (40.87), 7,625 (39.34), 7,820 (38.36), 15,580 (19.255), 15,610 (19.218), 15,640 (19.182), 15,670 (19.145), 15,880 (18.192); service, strike out P, add PR.
- CHICAGO, ILL. (WJC).—Fy., strike out 7,370 (40.71), add 4,745 (63.22), 5,305 (56.55), 6,920 (43.35), 7,625 (39.34), 7,850 (38.22); 15,700 (19.108).
- CHIGNIK, ALASKA (KHC).—Read Chignik, Alaska, radio (KHC); type, strike out B, add A1, A2; fy., strike out 180 (1,665), 186 (1,610), 429 (700), add 246 (1,220), 252 (1,190), 272 (1,105), 460 (650); service, strike out P, add PG; rates, 6 cents per word.
- COLUMBUS, OHIO.—Read Columbus, Ohio (municipal airport), loc (approximate) 82° 52' 40" W., 39° 59' 40" N.; type, strike out A2, A3.
- DEARBORN, MICH. (WQDW).—Loc., 83° 14' 09" W., 42° 18' 20" N.
- DUNDAS, ALASKA.—Type, strike out B, add A1; fy., strike out 176 (1,705), 180 (1,665), 429 (700), add 246 (1,220), 256 (1,170), 425 (705); service, strike out P, add PG, PR; hours, strike out X, add 8 a. m. to 10 p. m. daily.
- EDMONDS, WASH. (KGR).—Type, strike out A1, A3; power, strike out 21.54/2, add 22/1.5.
- FORT WORTH, TEX. (Meacham Field).—Power, 18/3.5.
- FRANKFORT, MICH., radio.—Class, strike out FX; service, strike out P; fy., strike out 174 (1,725).
- HICKSVILLE, N. Y. (WEE).—Fy., strike out 7,370 (40.71), 7,820 (38.36), 15,610 (19.218), 15,640 (19.182), add 6,920 (43.35).
- HONOLULU, HAWAII (KDG).—Fy., strike out all present fys., add 4,715 (63.64), 4,725 (63.49), 4,735 (63.35), 4,745 (63.22), 4,925 (60.91), 4,935 (60.79), 4,945 (60.66), 4,955 (60.54), 4,965 (60.42), 4,975 (60.3), 4,985 (60.18), 4,995 (60.06), 5,285 (56.76), 5,295 (56.66), 5,305 (56.55), 5,315 (56.44), 5,325 (56.338), 5,335 (56.23), 5,345 (56.13), 5,355 (56.022), 7,625 (39.34), 7,640 (39.27), 7,850 (38.22), 7,925 (37.85), 15,580 (19.255), 15,700 (19.108), 15,850 (18.927).
- JUNEAU, ALASKA.—Fy., strike out 278 (1,080); power, 20/1.5.
- KARLUK, ALASKA, radio (Kodiak Island).—Type, strike out A3, add A1, A2; fy., strike out 2,428 (123.55), 3,178 (94.39), add 246 (1,220), 268 (1,120), 460 (650), 500 (600); service, strike out P, add PR; rates, 6 cents per word.
- KOGGIUNG (permanently moored scow in Koggiung River, Alaska).—Type, strike out B, add A1; fy., strike out 180 (1,665), 429 (700), 500 (600), add 274 (1,095); service, strike out P, add PR; rates, 6 cents per word.
- KVICHAK (permanently moored scow in Koggiung River, Alaska).—Type, strike out B, add A1; fy., strike out 180 (1,665), 429 (700), 500 (600), add 274 (1,095); service, strike out P, add PR; rates, 6 cents per word.
- KVICHAK, ALASKA (KHB).—Read Kvichak, Alaska, radio (KHB); class, add FC; type, strike out B, add A1, A2; fy., strike out 180 (1,665), 429 (700), add 246 (1,220), 272 (1,105), 460 (650); service, strike out P, add PG, PR; rates, 6 cents per word.
- LEWISBURG, PA. (near).—Loc., 76° 53' 15" W., 40° 56' 30" N.; power, 20/5.
- LITTLE NECK, N. Y. (WJO).—Loc., changed to Hicksville, N. Y.; fy., strike out 7,340 (40.87), 7,355 (40.79), 7,370 (40.71), 7,820 (38.36), 7,835 (38.29), 15,610 (19.218), 15,640 (19.182), 15,670 (19.145), 15,880 (18.892), add 4,715 (63.64), 4,725 (63.49), 4,735 (63.35), 4,925 (60.91), 4,935 (60.79), 4,945 (60.66), 4,955 (60.54), 4,965 (60.42), 4,975 (60.3), 4,985 (60.18), 4,995 (60.06), 5,285 (56.76), 5,295 (56.66), 5,305 (56.55), 5,315 (56.44), 5,325 (56.338), 5,335 (56.23), 5,345 (56.13), 5,355 (56.022), 7,640 (39.27), 7,850 (38.22), 7,925 (37.85), 15,700 (19.108), 15,850 (18.927).
- LITTLE NECK, N. Y. (WJQ).—Loc., changed to Hicksville, N. Y.; fy., strike out 7,835 (38.29), 15,670 (19.145), add 4,715 (63.64), 4,725 (63.49), 4,735 (63.35), 4,745 (63.22), 4,925 (60.91), 4,935 (60.79), 4,945 (60.66), 4,955 (60.54), 4,965 (60.42), 4,975 (60.3), 4,985 (60.18), 4,995 (60.06), 5,285 (56.76), 5,295 (56.66), 5,305 (56.55), 5,315 (56.44), 5,325 (56.338), 5,335 (56.23), 5,345 (56.13), 5,355 (56.022), 7,640 (39.27), 7,850 (38.22), 7,925 (37.85), 7,955 (37.72), 15,700 (19.108), 15,730 (19.072), 15,760 (19.036), 15,850 (18.927), 15,910 (18.856).
- LITTLE NECK, N. Y. (WJS).—Loc., changed to Hicksville, N. Y.; fy., add 15,730 (19.072), 15,760 (19.036), 7,925 (37.85), 15,850 (18.927), 7,955 (37.72), 15,910 (18.856), 7,640 (39.27), 5,355 (56.022), 4,965 (60.42), 4,725 (63.49).
- LITTLE NECK, N. Y. (WJU).—Loc., changed to Hicksville, N. Y.; fy., strike out 7,340 (40.87), 15,580 (19.255), and 4,715 (63.64), 4,725 (63.49), 4,735 (63.35), 4,925 (60.91), 4,935 (60.79), 4,945 (60.66), 4,955 (60.54), 4,965 (60.42), 4,975 (60.3), 4,985 (60.18), 4,995 (60.06), 5,285 (56.76), 5,295 (56.66), 5,305 (56.55), 5,315 (56.44), 5,325 (56.34), 5,345 (56.13), 5,355 (56.02), 7,640 (39.27), 7,850 (38.22), 7,925 (37.85), 7,955 (37.72), 15,700 (19.11), 15,730 (19.07), 15,760 (19.036), 15,850 (18.927), 15,910 (18.856); service, strike out P, add PR.

- LITTLE NECK, N. Y. (WRDK).—Loc., changed to Hicksville, N. Y.
- LOS ANGELES, CALIF. (KGWE).—Fy., add 4,745 (63.22).
- LOS ANGELES, CALIF. (KOS).—Fy., strike out 15,880 (18.892); add 4,715 (63.64), 4,725 (63.49), 4,735 (63.35), 4,745 (63.22), 4,925 (60.91), 4,935 (60.79), 4,945 (60.66), 4,955 (60.54), 4,965 (60.42), 4,975 (60.3), 4,985 (60.18), 4,995 (60.06), 5,285 (56.76), 5,295 (56.66), 5,305 (56.55), 5,315 (56.44), 5,325 (56.338), 5,335 (56.23), 5,345 (56.13), 5,355 (56.022), 7,340 (40.87), 7,355 (40.79), 7,625 (39.34), 7,640 (39.27), 7,820 (38.36), 7,835 (38.30), 7,850 (38.22), 7,925 (37.85), 7,955 (37.72), 15,580 (19.255), 15,610 (19.218), 15,640 (19.182), 15,670 (19.145), 15,700 (19.108), 15,730 (19.072), 15,760 (19.036), 15,850 (18.927), 15,910 (18.856).
- LOS ANGELES, CALIF. (KPG).—Fy., strike out 7,370 (40.71), add 6,920 (43.35).
- LOUISVILLE, KY.—Fy., add 2,416 (184.17).
- MANITOWOC, WIS., radio.—Class, strike out FX; service, strike out P; fy., strike out 174 (1,725).
- MENOMINEE, MICH., radio.—Class, strike out FX; service, strike out P; fy., strike out 174 (1,725).
- MIAMI, FLA. (WKDL).—Loc., 80° 15' 53" W., 25° 48' 47" N.; type, add A2; fy., 4,164 (72.04), 6,305 (47.58), 6,320 (47.46).
- MOBILE, ALA., radio (WNN).—Fy., strike out 16,575 (18.10), add 147 (2,040), 4,148 (72.32), 11,290 (26.57), 16,580 (18.094), 22,580 (13.286); service, add PR; power, 10/1.5.
- NEEDHAM, MASS.—Type, strike out A2; fy., add 7,340 (40.87), 7,625 (39.34), 15,580 (19.255); service, strike out P, add PR.
- NEWARK, N. J. (WAEF).—Read Newark, N. J. (municipal airport), loc. (approximate) 75° 30' 00" W. 41° 00' 00" N.; fy., strike out 278 (1,080), 393 (900), 2,722 (110.21), 2,734 (109.72), 3,468 (86.5), 4,108 (73.02), 6,365 (47.13), 8,015 (37.43), 12,180 (24.63), add 393 (765), 3,088 (97.15); power, 18/5.
- NEW BRUNSWICK, N. J. (WAB).—Call changed to WQT; fy., strike out 9,490 (31.61), 14,800 (20.27); add 6,942.5 (43.25), 13,885 (21.605).
- NEW BRUNSWICK, N. J. (WAF).—Call changed to WIK; fy., strike out 9,450 (31.75), 16,030 (18.715), add 6,965 (43.07), 13,930 (21.54).
- NUSHAGAK, ALASKA (KNJ).—Type, strike out B, add A1; fy., strike out 180 (1,665), 414 (725), add 256 (1,170), 272 (1,105), 425 (705); service, strike out P, add PG, PR; hours, strike out X, add 8 a. m. to 10 p. m. daily.
- PALO ALTO, CALIF.—Loc., 122° 16' 15" W., 37° 26' 37" N.
- PHILADELPHIA, PA. (WJG).—Fy., strike out all present fys., add 4,715 (63.64), 4,725 (63.49), 4,735 (63.35), 4,925 (60.91), 4,935 (60.79), 4,945 (60.66), 4,965 (60.422), 4,975 (60.3), 4,955 (60.54), 4,985 (60.18), 5,285 (56.76), 5,295 (56.66), 5,305 (56.55), 4,995 (60.06), 5,315 (56.44), 5,325 (56.338), 5,335 (56.23), 5,345 (56.13), 5,355 (56.022), 7,640 (39.27), 7,850 (38.22), 7,925 (37.85), 15,700 (19.108), 15,850 (18.927).
- QUADRA, ALASKA.—Type, strike out B, add A1; fy., strike out 176 (1,705), 180 (1,665), 429 (700), add 256 (1,170), 274 (1,095), 425 (705); service, strike out P, add PG, PR; service, strike out P, add PG, PR; hours, strike out X, add 8 a. m. to 10 p. m. daily.
- RICHMOND, VA.—Class, add FX; fy., add 4,164 (72.04), 6,320 (47.46).
- ROCKY POINT, N. Y. (WJN).—Fy., strike out 6,920 (43.353), add 7,370 (40.71).
- RUBY (permanently moored vessel in Koggiung River, Alaska).—Type, strike out B, add A1; fy., strike out 180 (1,665), 429 (700), 500 (600), add 274 (1,095).
- SAN FRANCISCO, CALIF. (KOP).—Fy., add 4,735 (63.35), 5,335 (56.23), 15,730 (19.072); service, strike out P, add PR.
- SAN FRANCISCO, CALIF. (KOQ).—Type, strike out A2; fy., add 4,955 (60.54), 5,295 (56.66), 7,355 (40.79), 7,820 (38.36), 7,835 (38.30), 7,955 (37.72), 15,610 (19.218), 15,640 (19.182), 15,670 (19.145), 15,760 (19.036), 15,880 (18.892), 15,910 (18.856); service, strike out P, add PR; power, 27/8.
- SEATTLE, WASH. (KGQX).—Type, add A1; power, 30/1.
- SHEBOYGAN, WIS., radio.—Class, strike out FX; service, strike out PR.
- TYEE, ALASKA.—Loc. (approximate) 134° 32' 40" W., 57° 02' 20" N.; type, strike out B, add A1, A3; fy., strike out 180 (1,665), 429 (700), 480 (625), add 262 (1,145), 274 (1,095), 425 (705), 500 (600), 2,428 (123.55); service, strike out P, add PG, PR.
- UPPER NEWTON FALLS, MASS.—Loc., changed to Needham, Mass.
- UYAK, ALASKA, radio (KHA).—Type, strike out A3; fy., strike out 227 (1,320), 2,428 (123.55), 272 (1,105), add 246 (1,220).
- UYAK, ALASKA (KHV).—Class, add FC; type, strike out B, add A1; fy., strike out 180 (1,665), 414 (725), add 256 (1,170), 268 (1,120), 425 (705); service, strike out P, add PG, PR; hours, strike out X, add 8 a. m. to 10 p. m. daily.

WACO, TEX. (municipal airport).—Hours, X.

WASHINGTON, D. C. (WJM).—Fy., strike out 7,370 (40.71), add 4,715 (63.64), 4,725 (63.49), 4,735 (63.35), 4,925 (60.91), 4,935 (60.79), 4,945 (60.66), 4,965 (60.422), 4,975 (60.3), 4,985 (60.18), 4,995 (60.06), 5,295 (56.66), 5,305 (56.55), 5,315 (56.44), 5,325 (56.338), 5,335 (56.23), 5,345 (56.15), 6,920 (43.35), 7,625 (39.34), 7,640 (39.27), 7,850 (38.22), 7,925 (37.85), 15,580 (19.255), 15,700 (19.108), 15,850 (18.927).

Portable

THIRD RADIO ZONE (WFZ).—Read Third Radio Zone No. 28.

THIRD RADIO ZONE (WGB).—Read Third Radio Zone No. 27.

Strike out all particulars of the following-named stations: Avalon, Calif. (Catalina Island); Dallas, Tex. (KGSQ); Douglas, Ariz.; Downers Grove, Ill.; El Centro, Calif.; El Paso, Tex. (KGPF); El Paso, Tex. (K GSM); Flagstaff, Ariz.; Fordson, Mich.; Honolulu, Hawaii (KOX); Midland, Tex.; Montague, Calif.; Oklahoma City, Okla. (KGPH); Phoenix, Ariz.; Portland, Oreg. (KGSW.); Rocky Point, N. Y. (WIK); Rocky Point, N. Y. (WQT); San Diego, Calif. (KGSX); Seattle, Wash. (K GSS); Louisiana and Texas No. 1 (portable); Texas and Louisiana (KOZ) (portable); Texas and Louisiana (KPF) (portable); Texas and Louisiana (KPL) (portable); Texas and Louisiana (KPT) (portable); Texas and Louisiana (KPU) (portable); Texas and Louisiana (KRR) (portable); Texas and Louisiana (KRS) (portable); Texas and Louisiana (KRT) (portable); Texas and Louisiana (KRV) (portable); Texas and Louisiana (KRW) (portable); Texas and Louisiana (KRZ) (portable); Texas and Louisiana (WCS) (portable).

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]

AJAX.—Fy., 375 (800), 425 (705), 468 (640), 500 (600), 8,290 (36.19), 8,450 (35.5), 11,050 (27.15), 11,230 (26.71), 13,240 (22.66).

ALL AMERICA.—Fy., strike out 157 (1,910).

AMOLCO.—Fy., strike out 400 (750), 468 (640); accts., strike out R. M. C. A., add M. R. T. Co.

ARGOSY (WCEO).—Type, A1, A2; fy., 143 (2,100), 151 (1,985), 157 (1,910), 159 (1,885), 160 (1,875), 375 (800), 400 (750), 425 (705), 468 (640), 500 (600); power, 20/11.

BLUEFIN.—Type, A1, A2; fy., 375 (800), 425 (705), 500 (600), 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); power, 12/2.

BOSTON.—Type, strike out B.

BREEZIN THRU.—Fy., add 410 (730).

CALVIN AUSTIN.—Hours, strike out X, add N.

CAMARGO.—Fy., add 5,525 (54.3), 5,555 (54), 8,290 (36.19), 8,450 (35.5), 11,050 (27.15), 11,110 (27), 11,230 (26.71).

CASCO.—Type, A1; fy., 375 (800), 425 (705), 500 (600); power, 15/1.

CHARLES G. BLACK.—Fy., strike out 143 (2,100), 151 (1,985), 157 (1,910), 159 (1,885), 160 (1,875).

CITY OF BIRMINGHAM.—Fy., strike out 143 (2,100), 151 (1,985), 153 (1,960), 160 (1,875).

CONTOY.—Fy., add 143 (2,100), 151 (1,985), 153 (1,960), 157 (1,910), 159 (1,885), 160 (1,875), 400 (750), 468 (640).

CORNORE.—Fy., add 468 (640).

DEFIANCE.—Fy., strike out 410 (730), 454 (660).

DIO.—Fy., add 454 (660).

EUROPA.—Type, A1, A2; fy., 375 (800), 425 (705), 500 (600), 5,525 (54.3), 5,555 (54), 8,330 (36.01).

GEORGE WASHINGTON (WECJ).—Type, strike out B, a arc, add A1, A2; fy., add 160 (1,875), 400 (750), 468 (640).

GOVERNOR DINGLEY.—Fy., strike out 400 (750).

GULFCOAST.—Fy., add 468 (640).

GULFPRINCE.—Fy., add 468 (640).

GULFSTREAM.—Fy., add 468 (640).

GULFWAX.—Fy., add 468 (640).

HALO.—Fy., strike out 153 (1,960), 159 (1,885), add 151 (1,985), 425 (705).

HARRY LUCKENBACH.—Fy., strike out 410 (730).

- ILLINOIS (WCEI).—Type, A2; fy., 375 (800), 400 (750), 425 (705), 468 (640), 500 (600); power, 15/5.
 IRENE (WQBE).—Licensee, American Tug Boat Co.
 LARRY DOHENY.—Fy., strike out 454 (660), add 468 (640).
 LEVIATHAN.—Fy., add 5,555 (54).
 LIEBRE.—Type, strike out B, add A2; fy., add 400 (750), 468 (640).
 LIGONIER.—Fy., add 400 (750), 468 (640).
 MAINE (WCER).—Type, A2; fy., 375 (800), 400 (750), 425 (705), 468 (640), 500 (600).
 MATHEW LUCKENBACH.—Accts., R. M. C. A.
 MUNPLACE.—Hours, strike out X, add N.
 NAKHODA.—Fy., add 410 (730).
 NEW YORK (WECF).—Fy., strike out 143 (2,100), 151 (1,985), 160 (1,875), add 375 (800).
 NORTHERN LIGHT.—Fy., strike out 400 (750), 410 (730), 425 (705), 454 (660), add 5,525 (54.3), 5,555 (54), 8,330 (36.01), 13,240 (22.66), 16,660 (18.007); service, strike out PG, add P; accts., Joyce Borden Balokovic.
 NORTHLAND (WMDG).—Hours, add X.
 PARTHENIA.—Fy., strike out 11,050 (29.85), add 11,050 (27.15).
 POINT GORDA.—Licensee, Swayne & Hoyt (Inc.).
 PONCE.—Hours, N (first class), X (third class).
 PRESIDENT COOLIDGE.—Type, A1, A2; fy., 375 (800), 410 (730), 425 (705), 454 (660), 500 (600), 5,525 (54.3), 5,555 (54), 6,590 (45.52), 8,330 (36.01), 11,050 (27.15), 11,230 (26.71), 16,580 (18.094), 16,660 (18.007), 22,100 (13.575); power, 20/3.
 PRESIDENT HOOVER.—Type, A1, A2; fy., 375 (800), 410 (730), 425 (705), 454 (660), 500 (600), 5,525 (54.3), 5,555 (54), 6,590 (45.52), 8,330 (36.01), 11,050 (27.15), 11,230 (26.71), 16,580 (18.094), 16,660 (18.007), 22,100 (13.575); power, 20/3.
 QUEEN ANNE.—Licensee, Alexander D. Thayer.
 RELIANCE.—Licensee, Reliance Co. (Inc.).
 ROBERT E. LEE.—Type, strike out B, a arc, add A1, A2; fy., strike out 157 (1,910), 159 (1,885), add 151 (1,985), 400 (750), 468 (640).
 SAN SALVADOR.—Type, A1, A2; fy., 5,525 (54.3), 5,555 (54), 8,290 (36.19), 16,580 (18.094), 16,660 (18.007); power, 12.33/2; service, P; hours, X.
 SHELDRAKE.—Fy., strike out 400 (750); power, 15/4.
 SOUTHERN SUN.—Type, A1, A2; fy., 143 (2,100), 151 (1,985), 153 (1,960), 157 (1,910), 159 (1,885), 160 (1,875), 375 (800), 400 (750), 425 (705), 468 (640), 500 (600); power, 22.86/15; accts., R. M. C. A.
 STEEL NAVIGATOR.—Fy., strike out 5,525 (54.3).
 SUSAN V. LUCKENBACH.—Accts., R. M. C. A.
 TAMPA.—Fy., add 500 (600).
 TENNESSEE.—Rates, strike out 8 cents, add 4 cents per word.
 T. J. WILLIAMS.—Fy., add 400 (750).
 W. C. TEAGLE.—Fy., strike out 143 (2,100), 151 (1,985), 153 (1,960), 160 (1,875).
 WEST KEDRON.—Hours, add N.
 WILSCOK.—Fy., strike out 355 (845).
 WM. ROCKEFELLER.—Type, strike out A1; fy., strike out 143 (2,100), 151 (1,985), 157 (1,910), 159 (1,885), 160 (1,875); power, 28/10.

Strike out all particulars of the following-named stations: Bertwill; Hopatcong.

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]

- CUBA.—Service, P; hours, X.
 JUNEAU.—Service, P.
 KETCHIKAN.—Service, P.
 MIAMI (NC-666M).—Read NC-666M.
 NC-107H.—Service, P; hours, X.
 NC-109H.—Service, P; hours, X.
 NC-110H.—Service, P; hours, X.
 NC-132H.—Service, P; hours, X.
 NC-133H.—Service, P; hours, X.
 NC-134H.—Service, P; hours, X.
 NC-215M.—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-584K.—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-585K.—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-666M.—Type, A1; fy., 333 (900), 414 (725), 500 (600), 2,662 (112.70), 3,070 (97.71), 3,076 (97.5), 5,690 (52.72), 8,650 (34.68).
- NC-9683.—Type, A3; fy., 3,106 (96.59), 3,238 (92.64), 5,600 (53.57).
- Strike out all particulars of the following-named stations: F-116 W. A. E.; NC-306N.

GOVERNMENT LAND STATION, ALPHABETICALLY, BY NAME OF STATION

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]

JACKSON, MICH.—Correct call WWAR.

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]

Strike out all particulars of the following-named vessels: Ammen, Burrows, CG-108, CG-111, CG-195, CG-201, CG-239, CG-248, CG-249, CG-294, CG-297, Calumet, Comanche, Fanning, Florida, Henley, Jouett, Kenowis, Manning, Mayflower (NABG), Raritan, S-49, S-50, Trippe.

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

FORT STEVENS, OREG.—Arc of calibration, strike out 180° - 10° , add 185° - 10° .

SOAPSTONE POINT, ALASKA.—Arc of calibration, strike out 245° - 45° , add 255° - 45° .

SOUTH PASS, LA.—Arc of calibration, strike out 81° - 237° , add 70° - 250° .

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]

NANTUCKET SHOALS LIGHTSHIP, MASS.—Fy., changed to 314 (955).

POLLOCK RIP LIGHTSHIP, MASS.—Fy., changed to 314 (955); hours, changed to the second 15 minutes of each hour.

HURON ISLAND LIGHT STATION, MICH.—Fy., changed to 314 (955).

POINT SUR LIGHT STATION, CALIF.—Fy., changed to 304 (987); hours, daily in clear weather from 10 to 15 and from 40 to 45 minutes past each hour and continuously during thick or foggy weather from 10 to 15, 25 to 30, 40 to 45, and 55 to 60 minutes past each hour.

Sound fog signal and radiobeacon synchronized for distance finding purposes about May 1, 1931, at Point Betsie, Mich., Chicago Harbor, Ill., and Manitowoc Breakwater Light Station, Wis., stations. When synchronization is effective as published in the Radio Service Bulletin for last month, these stations will be as follows:

POINT BETSIE LIGHT STATION.—During the 2-minute silent interval of radiobeacon, the regular fog signal characteristic is sounded, thus: Silent 25 sec., blast 1.5 sec., silent 2 sec., blast 1.5 sec. During the operating minute of radiobeacon the fog signal sounds a group of 2 blasts following a 53-second silent interval, thus: Silent 53 sec., blast 5 sec., silent 1 sec., blast 1 sec.

CHICAGO HARBOR LIGHT STATION.—During the 2-minute silent interval of radiobeacon, the regular fog signal characteristic is sounded, thus: Silent 16 sec., blast 1 sec., silent 2 sec., blast 1 sec. During the operating minute of radiobeacon the fog signal sounds a group of 2 blasts following a 53-second silent interval, thus: Silent 53 sec., blast 5 sec., silent 1 sec., blast 1 sec. If diaphone is disabled 1 1/2-inch steam whistle sounds blast 5 sec., silent 25 sec. Steam whistle is not synchronized with radiobeacon.

MANITOWOC BREAKWATER LIGHT STATION.—During the 2-minute silent interval of radiobeacon, the regular fog signal characteristic is sounded, thus: Silent 17 sec., blast 1 sec., silent 1 sec., blast 1 sec. During the operating minute of radiobeacon the fog signal sounds a group of 2 blasts following a 53-second silent interval, thus: Silent 53 sec., blast 5 sec., silent 1 sec., blast 1 sec.

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

KHB, read Kvichak, Alaska, radio; KHC, read Chignik, Alaska, radio; KHKVE, read NC-666M; KRA, read Boise, Idaho (municipal airport); KYL, read Alitak, Alaska, radio (Kodiak Island); WAEB, read Columbus, Ohio (municipal airport); WAEF, read Newark, N. J. (municipal airport); WFZ, read Third Radio Zone No. 28 (portable); WGB, read Third Radio Zone No. 27 (portable); WIK, read New Brunswick, N. J.; WJO, read Hicksville, N. Y.; WJP, read Hicksville, N. Y.; WJQ, read Hicksville, N. Y.; WJS, read Hicksville, N. Y.; WJU, read Hicksville, N. Y.; WQT, read New Brunswick, N. J.; WRDJ, read Needham, Mass.; WRDK, read Hicksville, N. Y.; WWAU (Jackson, Mich.), correct call WWAR; strike out all particulars following the call signals KDKC, KGKE, KGPF, KGPH, KGSK, KGSL, KGSM, KGSQ, KGSS, KGSU, KGSW, KGSX, KGSY, KGTM, KGUN, KGUP, KOX, KOZ, KPF, KPL, KPT, KPU, KRR, KRS, KRT, KRV, KRW, KRZ, KHCQ, KHUF, NABG, NAMB, NIPX, NIPZ, NRCM, NRRG, NRG, NRGF, NRGH, NRGJ, NRGV, NRHK, NRHO, NRKJ, NRKP, NRQA, NRQB, NRQC, NRQD, NRRG, NRRO, NRZS, WAB, WAF, WCEG, WCS, WMD, WOF, WUAK.

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]

KFXJ (Edgewater, Colo.).—Post-office address, studio, and transmitter loc., changed to Hillcrest Manor, Grand Junction, Colo., loc., 108° 35' 03" W., 39° 04' 02" N.; power, 100.
 KGB (San Diego, Calif.).—Power, 500.
 KGCR (Watertown, S. Dak.).—Licensee, The Greater Kampeska Radio Corporation.
 KGFF (Alva, Okla.).—Licensee, KGFF Broadcasting Co. (Inc.).
 KGGF (South Coffeyville, Okla.).—Loc. (approximate), 95° 45' 00" W., 37° 00' 00" N.
 KTBI (Los Angeles, Calif.).—Call changed to KFAC; licensee, Los Angeles Broadcasting Co.
 KTSP (Wescott, Minn.).—Name of town officially changed to Radio Center, Minn.
 WAWZ (New York, N. Y.).—Post-office address, studio, and transmitter loc., changed to Zarepath, N. J., loc. (approximate), 74° 34' 00" W., 40° 32' 00" N.
 WDEL (Wilmington, Del.).—Power, 250 night, 500 day.
 WHDL (Tupper Lake, N. Y.).—Power, 100.
 WKBI (Chicago, Ill.).—Licensee, WKBI (Inc.).
 WLEX (Lexington, Mass.; studio, Boston, Mass.).—Call changed to WAAB.
 WMC (Bartlett, Tenn.).—Licensee, Memphis Commercial Appeal (Inc.).
 WMRJ (Jamaica, N. Y.).—Post-office address changed to 162-14 Jamaica Avenue.
 WOKO (Mount Beacon, N. Y.).—Transmitter loc., changed to Albany, N. Y. (near); studio loc., changed to Hotel Ten Eyck, Albany, N. Y.
 WQDM (St. Albans, Vt.).—Power, 100.
 WRBT (Wilmington, N. C.).—Call changed to WRAM.
 WTFI (Toccoa, Ga.).—Licensee, Toccoa Falls Broadcasting Co.

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: Berkeley (W6XM).—Strike out all particulars.

FLORIDA:

Miami (W4XA).—Strike out all particulars.

Miami (West Thirty-sixth Street Airport-W4XB).—Strike out all particulars.

NEW JERSEY:

Newark (airport-W2XY).—Strike out all particulars.

Weehawken (W2XBK).—Strike out all particulars.

NEW YORK:

Brooklyn (W2XCE).—Strike out all particulars.

Mount Vernon (W2XBF).—Strike out all particulars.

OHIO: West Dover (W8XJ).—Licensee, R. M. C. A.
 OREGON: Portland (W7XAV).—Strike out all particulars.
 PENNSYLVANIA: East Pittsburgh (W8XP).—Now portable.
 PORTO RICO: San Juan (P. A. A. Airport-K4XC).—Strike out all particulars.
 RHODE ISLAND: Providence (W1XAC).—Strike out all particulars.
 TEXAS:
 Brownsville (municipal airport-W5XC).—Strike out all particulars.
 Dallas (W5XN).—Strike out all particulars.

Portable

CALIFORNIA:
 Orange (W6XE).—Strike out all particulars.
 Stanford University (W6XH).—Strike out all particulars.
 HAWAII: Kawaihae (K6XB).—Strike out all particulars.
 NEW JERSEY: Ocean Township (W2XAV).—Fy., add 18,310 (16.384).
 WEST VIRGINIA: Morgantown (W8XAW).—Strike out all particulars.
 FIRST RADIO DISTRICT (W1XAL).—Strike out all particulars.
 SIXTH RADIO DISTRICT (W6XQ).—Strike out all particulars.

Aircraft

NC-9675 (W10XAE).—Strike out all particulars.
 NEEKAH (W10XAI).—Strike out all particulars.
 Unnamed (W10XZ).—Strike out all particulars.

Vessels

METHA NELSON (W6XBA).—Strike out all particulars.
 UTICA (W2XAT).—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, 1930]

ILLINOIS: Downers Grove (W9XF).—Licensee, National Broadcasting Co. (Inc.).
 IOWA: Council Bluffs (W9XU).—Strike out all particulars.

Portable

NEW YORK, N. Y. (W2XBR).—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, 1930, and the International List of Ships Stations published by the Berne bureau:

Name	Call signal	Owner
COMMERCIAL		
Glen White.....	KSIE	Mystic S. S. Co.
Lake Gorin.....	WRIE	Ford Motor Co.
Steel Chemist.....	KFZW	Isthmian S. S. Co.
Steel Electrician.....	KFZX	Do.
Steelmotor.....	KFNO	Do.
Steelvendor.....	KFNW	Do.

BROADCASTING STATION FREQUENCY MEASUREMENTS DURING MARCH

The Radio Division of the Department of Commerce during the month of March measured the frequency (kilocycles-wave lengths) of 337 broadcasting stations located in practically all sections of the United States. The frequencies of these stations were measured for an aggregate of 6,137 times.

In comparison with the measurements made during December of last year and during the months of January and February of this year, a vast improvement was shown in the figures for last month in that there was an increase in the number

of stations deviating under 100 cycles, as indicated in the table hereunder. In addition to listing those stations deviating under 100 and 200 cycles, a list of those under 50 cycles is issued for March.

These measurements were made at standard frequency monitoring stations located in Boston, Mass.; Baltimore, Md.; Atlanta, Ga.; New Orleans, La.; Chicago, Ill.; Detroit, Mich.; Los Angeles, Calif.; San Francisco, Calif.; Portland, Oreg., and at the station in Grand Island, Nebr.

As only 337 stations out of the 612 broadcasting stations in the United States and detached territories were measured, it must be borne in mind that many of those not measured undoubtedly are as efficient as those named hereunder.

The permissible tolerance from an assigned frequency is not more than 500 cycles.

	Number measured	Under 50	Under 100	Under 200	Over 200
December.....	339	-----	35 (13½%).....	66 (16½%).....	238 (70%)..
January.....	363	-----	64 (15%).....	102 (27%).....	207 (58%)..
February.....	367	-----	99 (27%).....	55 (15%).....	213 (58%)..
March.....	337	65 (19½%).....	63 (18½%).....	77 (22½%).....	132 (39½%)..

The percentages given in this table are based on the number of stations measured and not on the total number of broadcasting stations.

A list of those deviating under 50, 100, and 200 cycles is as follows:

UNDER 50 CYCLES

Call signal	Transmitter location, studio location in parentheses	Call signal	Transmitter location, studio location in parentheses
KFDM	Beaumont, Tex.	WHAP	Carlstadt, N. J. (New York, N. Y.).
KFEQ	St. Joseph, Mo.	WHB	Kansas City, Mo.
KFH	Wichita, Kans.	WHO	Des Moines, Iowa.
KFSD	San Diego, Calif.	WIBW	Topeka, Kans.
KFXF	Denver, Colo.	WICC	Easton, Conn. (Bridgeport).
KFYR	Bismarck, N. Dak.	WIP	Philadelphia, Pa.
KGBX	St. Joseph, Mo.	WJAR	Providence, R. I.
KGKY	Scottsbluff, Nebr.	WJAX	Jacksonville, Fla.
KHQ	Spokane, Wash.	WJAY	Cleveland, Ohio.
KMBC	Independence, Mo. (Kansas City).	WKBN	Youngstown, Ohio.
KMO	Tacoma, Wash.	WKRC	Cincinnati, Ohio.
KREG	Santa Ana, Calif.	WLEY	Lexington, Mass.
KWKH	Kennonwood, La. (Shreveport).	WLIT	Philadelphia, Pa.
WAAF	Chicago, Ill.	WMCA	Hoboken, N. J. (New York, N. Y.).
WBBM	Glenview, Ill. (Chicago).	WMSG	New York, N. Y.
WBCM	Hampton Township, Mich. (Bay City).	WMT	Waterloo, Iowa.
WBEN	Martinsville, N. Y. (Buffalo).	WNAX	Yankton, S. Dak.
WCAP	Asbury Park, N. J.	WOC	Davenport, Iowa.
WCBM	Baltimore, Md.	WOQ	Kansas City, Mo.
WDAF	Kansas City, Mo.	WOR	Kearny, N. J. (Newark).
WDBO	Orlando, Fla.	WOW	Omaha, Nebr.
WEAF	Bellmore, N. Y. (New York, N. Y.).	WPTE	Raleigh, N. C.
WEEL	Weymouth, Mass. (Boston).	WRBX	Roanoke, Va.
WENR	Downers Grove, Ill. (Chicago).	WREC	Memphis, Tenn. (Whitehaven).
WFAN	Philadelphia, Pa.	WRNY	Coytesville, N. J. (New York, N. Y.).
WFBR	Baltimore, Md.	WRUF	Gainesville, Fla.
WGBS	Astoria, N. Y. (New York, N. Y.).	WSB	Atlanta, Ga.
WGES	Chicago, Ill.	WSBC	Chicago, Ill.
WGH	Newport News, Va.	WSUI	Iowa City, Iowa.
WGR	Amherst, N. Y. (Buffalo).	WTAG	Worcester, Mass.
WGST	Atlanta, Ga.	WTMJ	Brookfield, Wis. (Milwaukee).
WGY	Schenectady, N. Y.	WWRL	Woodside, N. Y.
		WVVA	Wheeling, W. Va.

UNDER 100 CYCLES

Call signal	Transmitter location, studio location in parentheses	Call signal	Transmitter location, studio location in parentheses
KDKA	East Pittsburgh, Pa.	WCOA	Pensacola, Fla.
KFAB	Lincoln, Nebr.	WCBH	Scarboro, Me. (Portland).
KFEL	Denver, Colo.	WDAE	Tampa, Fla.
KFRC	San Francisco, Calif.	WFIW	Hopkinsville, Ky.
KFVD	Culver City, Calif.	WGAR	Akron, Ohio.
KGFJ	Los Angeles, Calif.	WGN	Elgin, Ill. (Chicago).
KGGF	Picher, Okla.	WHFC	Cicero, Ill.
KGIZ	Grant City, Mo.	WIBO	Desplaines, Ill. (Chicago).
KLZ	Denver, Colo.	WISN	Milwaukee, Wis.
KMA	Shenandoah, Iowa.	WJAS	Pittsburgh, Pa.
KMMJ	Clay Center, Nebr.	WJBK	Highland Park, Mich.
KMOX	St. Louis, Mo.	WLBZ	Bangor, Me.
KOA	Denver, Colo.	WLWL	Kearny, N. J. (New York, N. Y.).
KSCJ	Sioux City, Iowa.	WML	Washington, D. C.
KSD	St. Louis, Mo.	WMAQ	Addison, Ill. (Chicago).
KTAB	Oakland, Calif. (San Francisco).	WMAZ	Macon, Ga.
KTAR	Phoenix, Ariz.	WBMC	Detroit, Mich.
WAAM	Newark, N. J.	WMC	Bartlett, Tenn. (Memphis).
WABC	New York, N. Y.	WMMN	Fairmont, W. Va.
WAIU	Columbus, Ohio.	WOI	Ames, Iowa.
WASH	Grand Rapids, Mich.	WOKO	Mount Beagon, N. Y. (Poughkeepsie).
WAWZ	New York, N. Y.	WOL	Washington, D. C.
WBBC	Brooklyn, N. Y.	WOV	Secaucus, N. J. (New York, N. Y.).
WBBR	Rossville, N. Y. (Brooklyn).	WOWO	Fort Wayne, Ind.
WBSO	Needham, Mass.	WEAX	Philadelphia, Pa.
WBT	Charlotte, N. C.	WRC	Washington, D. C.
WBZ	Millis Township, Mass.	WSBT	South Bend, Ind.
WBZA	Boston, Mass.	WSPD	Toledo, Ohio.
WCAO	Baltimore, Md.	WTAD	Quincy, Ill.
WCA	Allentown, Pa.	WTAM	Brecksville Village, Ohio (Cleveland).
WCCO	Anoka, Minn. (Minneapolis).	WTBO	Cumberland, Md.
WCGU	Brooklyn, N. Y.		

UNDER 200 CYCLES

KDYL	Salt Lake City, Utah.	WDOD	Brainerd, Tenn. (Chattanooga).
KFI	Los Angeles, Calif.	WDSU	Gretna, La. (New Orleans).
KFJR	Portland, Oreg.	WEAN	Providence, R. I.
KFKA	Greeley, Colo.	WEDC	Chicago, Ill.
KFKB	Millford, Kans.	WELK	Philadelphia, Pa.
KFNF	Shenandoah, Iowa.	WFAA	Grapevine, Tex. (Dallas).
KFOR	Lincoln, Nebr.	WFBM	Indianapolis, Ind.
KFOX	Long Beach, Calif.	WFI	Philadelphia, Pa.
KFWD	San Francisco, Calif.	WFOX	Brooklyn, N. Y.
KFXM	San Bernardino, Calif.	WGBF	Evansville, Ind.
KGER	Long Beach, Calif.	WHAM	Victor Township, N. Y. (Rochester).
KGFW	Ravenna, Nebr.	WHDH	Gloucester, Mass. (Boston).
KGIR	Butte, Mont.	WHK	Village of Seven Hills, Ohio (Cleveland).
KGO	Oakland, Calif. (San Francisco).		
KGW	Portland, Oreg.	WHP	Lemoyne, Pa. (Harrisburg).
KHJ	Los Angeles, Calif.	WIBA	Madison, Wis.
KLS	Oakland, Calif.	WJDX	Jackson, Miss.
KMJ	Fresno, Calif.	WJKS	Gary, Ind.
KMPC	Beverly Hills, Calif.	WJR	Sylvan Lake Village, Mich. (Detroit).
KPCB	Seattle, Wash.	WJSV	Mount Vernon Hills, Va. (Alexandria).
KPO	San Francisco, Calif.	WJZ	Bound Brook, N. J. (New York, N. Y.).
KROW	Richmond, Calif. (Oakland).		
KRSC	Seattle, Wash.	WKBH	La Crosse, Wis.
KSO	Clarinda, Iowa.	WKBI	Chicago, Ill.
KSTP	Westcott, Minn. (St. Paul).	WKY	Oklahoma City, Okla.
KTBR	Portland, Oreg.	WLBW	Oil City, Pa.
KTHS	Hot Springs, Ark.	WLEX	Lexington, Mass.
KTM	Santa Monica, Calif. (Los Angeles).	WLS	Downers Grove, Ill. (Chicago).
KTRH	Houston, Tex.	WLTH	Brooklyn, N. Y.
KXL	Portland, Oreg.	WLW	Mason, Ohio (Cincinnati).
WAAW	Omaha, Nebr.	WNAC	Quincy, Mass. (Boston).
WAPI	Birmingham, Ala.	WNBH	Fairhaven, Mass. (New Bedford).
WBAL	Glen Morris, Md. (Baltimore).	WOAI	Selma, Tex. (San Antonio).
WCAM	Camden, N. J.	WODX	Springhill, Ala. (Mobile).
WCAU	Byberry, Pa. (Philadelphia).	WOS	Jefferson City, Mo.
WCBD	Zion, Ill.	WRVA	Mechanicsville, Va. (Richmond).
WCHI	Batavia, Ill. (Chicago).	WSM	Nashville, Tenn.
WCKY	Crescent Springs, Ky. (Covington).	WTIC	Avon, Conn. (Hartford).
WCRW	Chicago, Ill.	WWJ	Detroit, Mich.
WDBJ	Roanoke, Va.		

GENERAL ORDERS OF THE FEDERAL RADIO COMMISSION

Frequency assignments for broadcasting stations—General Order No. 87 repealed, General Order No. 107, March 24, 1931.—It is ordered: That General Order No. 87, as amended, be and the same is hereby, repealed. This order shall be effective on the date above mentioned.

Regulations governing the power of broadcasting stations, General Order No. 108, March 26, 1931.—It is ordered: That General Order No. 97 adopted and promulgated by the Federal Radio Commission on October 6, 1930, be and said General Order is hereby amended so as to read as follows: Section I, Section II, Section V (a), change date from January 31, 1931, to April 30, 1931.

Repeal of General Order No. 103, broadcasting station licenses extended with exceptions until April 30, 1931—General Order No. 109, March 26, 1931.—It is ordered: That General Order No. 103, adopted by the Federal Radio Commission on January 20, 1931, and General Order No. 103 as amended and promulgated by the Federal Radio Commission on January 30, 1931, be, and they are hereby, rescinded and repealed.

Repeal of General Order No. 101, Alaska station licenses extended—General Order No. 110, March 27, 1931.—It is ordered: That General Order No. 101, as amended, be, and the same is hereby, repealed. This order shall be effective at 3 a. m., eastern standard time, April 1, 1931.

Regulations governing the power of broadcasting stations, General Order No. 111, April 20, 1931.—It is ordered: That General Order No. 108 be, and same is hereby, repealed;

That General Order No. 97 adopted and promulgated by the Federal Radio Commission October 6, 1930, be, and it is hereby, amended so as to read as follows:

SECTION I. That no radio broadcasting station will be licensed by the Federal Radio Commission to operate after April 30, 1931, with a greater power than can be satisfactorily delivered and maintained by the licensed transmitter with a percentage of modulation of over seventy-five per cent (75%) on peaks with not over ten per cent (10%) 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 April 30, 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 positions; (2) one line for one hundred per cent (100%) negative modulation; and (3) one line for one hundred per cent (100%) positive modulation. These lines shall be one-half ($\frac{1}{2}$) inch or more part. Such oscillograms may be taken with time delay relays so that one-third of the oscillograms 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 twenty-five per cent (25%) 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 April 30, 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.

LOST COMMERCIAL RADIO OPERATORS' LICENSES

Hereunder is a list of radio operators' licenses which have been reported to this office as having been lost. Should any of them be found they should be returned to this office for cancellation. Supervisors and others concerned should see that lost licenses are not being used by unauthorized persons.

Name	Class	No.	Date issued	Where issued
George Robert Berry.....	First	2572	Sept. 6, 1929	Seattle.
E. C. Broussard.....	do	1582	Apr. 11, 1929	New Orleans.
Ora Jennings Cain.....	do	1445	Oct. 13, 1928	Norfolk.
Henry R. Cheetham.....	do	103	Apr. 12, 1929	Boston.
John L. Cole, jr.....	Second	8197	Jan. 7, 1931	New Orleans.
William B. Dawson.....	First	75	Dec. 17, 1928	Washington, D. C.
George P. Dotzler.....	Second	4770	Nov. 26, 1930	Los Angeles.
Ralph W. DuBose.....	do	8314	Jan. 20, 1931	New Orleans.
Ludwig Engler.....	First	1844	Dec. 13, 1929	Do.
Henry Garsombke.....	Second	3440	July 16, 1929	Philadelphia.
Clifford L. Jennings.....	do	2424	Dec. 14, 1929	Los Angeles.
Ralph L. Priest.....	do	8531	Oct. 17, 1930	Portland.
John P. Razor.....	do	2495	June 19, 1930	Los Angeles.
Heath Rearwin.....	do	4280	June 18, 1930	Detroit.
John Edward Ruiz.....	do	1821	Nov. 7, 1929	New Orleans.
Ray Seale.....	do	1871	Dec. 11, 1929	Do.
Billy Ehrman Seches.....	do	2060	Aug. 7, 1929	San Francisco.
Raymond Still.....	do	3975	Aug. 21, 1929	Los Angeles.
William Julian Thomason.....	First	2156	Nov. 18, 1929	San Francisco.
George A. Urlin.....	Second	2593	June 6, 1929	Seattle.
John Harold Wasson.....	First	4741	June 5, 1930	New Orleans.

DULUTH RADIO INSPECTOR'S OFFICE OPENED

The branch office of the ninth radio district located in the Federal Building has been opened for the season of navigation on the Great Lakes.

TABLE OF AIR-LINE DISTANCES

Such a table showing the air-line distance in statute miles between 50 of the larger cities of the United States may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 5 cents per copy. Do not send remittances to the Radio Division.

AMATEUR RADIO OPERATOR'S LICENSE SUSPENDED

The department recently suspended the operator's license of an amateur for illegally operating a broadcasting station. While the full penalty under the law was not meted out in this case warning is hereby served that in future violations offenders may not expect to be dealt with leniently.

RATIFICATIONS OF THE INTERNATIONAL RADIO CONVENTION

The Cuban ambassador at Washington deposited with the Department of State the instruments of ratification by the Government of Cuba of the general regulations and the supplementary regulations annexed to the International Radio Convention.

The charge d'affaires of the Grand Duchy of Luxemburg to the United States has notified the Government of the United States that the Grand Ducal Government has adhered to the convention, the general regulations, and the supplementary regulations in conformity with article 19 of the convention and in execution of the Luxemburg law of February 13, 1931.

CHANGE IN FREQUENCY FOR TRANSMITTING METEOROLOGICAL BULLETINS BY JULIANEHAAB, GREENLAND

Until further notice the frequency of 157.9 kilocycles (1,900 meters) will be used for this purpose.

DISTRIBUTION OF WEATHER INFORMATION ON THE GREAT LAKES

The Weather Bureau of the United States Department of Agriculture has issued Circular No. 15, Radio (revised), April 1, 1931, showing a list of radio stations which transmit weather information, forecasts, and warnings for the benefit of navigation on the Great Lakes. The circular gives the frequency, hours, etc. Copies may be obtained upon application to any Weather Bureau office at Great Lakes ports or to the office in Washington, D. C.