

# 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. o. 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
Carlstadt, N. J. <sup>1</sup> -----	FX	WRH	5,645 (53.14), 6,545 (45.84), 8,280 (36.36), 11,260 (26.64), 16,500 (18.182).	P	X	American Radio News Corporation.
Charlotte, N. C. <sup>2</sup> -----	FX	WPDV	2,458 (122.05)-----	P	N	City of Charlotte, N. C., police department.
Davenport, Iowa <sup>3</sup> -----	FX	KGPN	2,470 (121.5)-----	P	N	City of Davenport.
Detroit, Mich. (Belle Isle) <sup>4</sup> -----	FX	WPDX	2,410 (124.5)-----	P	N	Detroit police department.
Greensboro, N. C. <sup>5</sup> -----	FA	WEEG	3,070 (97.71), 3,076 (97.52), 5,690 (52.72).	P	X	Aeronautical Radio (Inc.).
Kansas City, Mo. <sup>6</sup> -----	FX	KGPE	2,422 (123.86)-----	P	N	City of Kansas City, Mo., metropolitan police department.
Nyac, Alaska <sup>7</sup> -----	FX	KGUV	274 (1,095), 3,160 (94.9)-----	P	X	New York-Alaska Gold Dredging Corporation.
Richmond, Va. <sup>8</sup> -----	FA	WEER	3,070 (97.71), 3,076 (97.5), 5,690 (52.72).	P	X	Aeronautical Radio (Inc.).
San Jose, Calif. <sup>9</sup> -----	FX	KGPM	2,410 (124.5)-----	P	N	City of San Jose.
Spartanburg, S. C. <sup>10</sup> -----	FA	WEFF	3,070 (97.71), 3,076 (97.52), 5,690 (52.72).	P	X	Aeronautical Radio (Inc.).
<i>Portable</i>						
No. 3 <sup>11</sup> -----	FX	KGVQ	1,600 (187.5), 1,652 (181.6), 1,664 (180.29), 1,680 (178.6), 1,704 (176.06).	P	X	Continental Oil Co. (Inc.).
No. 4 <sup>11</sup> -----	FX	KGVR	-----do-----	P	X	Do.
No. 5 <sup>11</sup> -----	FX	KGVS	-----do-----	P	X	Do.
No. 6 <sup>11</sup> -----	FX	KGVT	-----do-----	P	X	Do.

<sup>1</sup> Loc. 74° 08' 00" W., 42° 45' 05" N.; type, A1, A2.

<sup>2</sup> Loc. (approximate) 80° 51' 00" W.; 35° 00' 00" N.; type, A3.

<sup>3</sup> Loc. (approximate) 90° 38' 00" W.; 41° 30' 00" N.; type, A3.

<sup>4</sup> Loc. (approximate) 82° 59' 00" W.; 42° 20' 00" N.; type, A3.

<sup>5</sup> Loc. (approximate) 79° 5' 00" W.; 33° 05' 00" N.; type, A1, A3.

<sup>6</sup> Loc. 94° 33' 25" W., 39° 05' 16" N.; type, A3.

<sup>7</sup> Loc. (approximate) 159° 50' 00" W.; 61° 00' 00" N.; type, A1.

<sup>8</sup> Loc. 77° 20' 00" W., 37° 29' 53" N.; type, A3.

<sup>9</sup> Loc. 121° 53' 23" W., 37° 19' 51" N.; type, A3.

<sup>10</sup> Loc. 81° 56' 35" W., 34° 57' 00" N.; type, A1, A3.

<sup>11</sup> Type, A2, A3.

## Commercial ship stations, alphabetically, by names of vessels

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

Name of vessel	Call signal	Rates, all services (cents)	Service	Hours	Owner	Message accounts settled by--
Ajax (RC)-----	WCEJ	8	PG	X	Julius F. Holmes-----	Owner.
Argosy-----	WCEO	8	PG	X	Charles A. Stone-----	R. M. C. A.
Bertwill-----	WCEG	-----	-----	-----	Mrs. W. T. Lee-----	-----
Bluefin-----	WCEK	-----	P	X	State of California, Division of Fish and Game.	Owner.
Casco <sup>1</sup> -----	WPBR	-----	P	X	Richard W. Seabury-----	Do.
Europa-----	WCEL	-----	-----	-----	Mario Crivello-----	-----
Fish Hawk <sup>1</sup> -----	WCEF	-----	P	X	Sebastian-Stuart Fish Co.-----	Do.
Glenn Mayne <sup>1</sup> -----	WCED	8	PG	X	Otto Paulson-----	R. M. C. A.
Gloria Dalton <sup>1</sup> -----	WCEE	-----	P	X	Victor E. Dalton-----	Owner.

<sup>1</sup> Power, 15/1.

<sup>2</sup> Type, A3; fy., 2,428 (123.55); power, 10/1.5.

<sup>3</sup> Type, A1, A2; fy., 5,525 (54.8), 5,555 (54), 8,290 (36.19), 8,330 (36.01), 8,450 (35.50), 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), power, 24.6/1.5.

<sup>4</sup> Type, A3; fy., 2,320 (129.3).

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

Name of vessels	Call signal	Rates, all services (cents)	Service	Hours	Owners	Message accounts settled by—
Hussar	WCEQ	8	PG	X	Edward F. Hutton	R. M. C. A.
Illinois	WCEI	8	PG	X	Red Diamond Trawling Corp.	Do.
Maine	WCEB	8	PG	X	do.	Do.
Nautilus (RC) †	WSEA		P	X	U. S. Shipping Board	Trans-Arctic Submarine Expedition (Inc.)
President Coolidge	KDMX	8	PG	N	Dollar S. S. Lines (Inc.)	Owner.
President Hoover	KDMW	8	PG	N	do.	Do.
Ramah	WCEN				Alexander Forbes	Do.
Reliance	WCEM				Paul Verney	
San Salvador	WCEE				Manuel M. Medina	Do.
Savarona	WCEP	8	PG	X	Savarona Ship Corp.	R. M. C. A.
Southern Sun	WCES	8	PG	X	Motor Tankship Corp.	

† Type, A1, A2; fy., 375 (800), 400 (750), 410 (730), 468 (640), 500 (600), 5, 525 (54.3), 5, 555 (54), 6, 620 (45.32), 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).

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
NC-48K †	KHNUF	3,106 (96.59)	P	X	Milo Burchman.
NC-215M	KHLPK		P	X	Pacific Air Transport (Inc.)
NC-417H †	KHNWD	3,106 (96.59)	P	X	Bell Telephone Laboratories (Inc.)
NC-431H †	KHLNM	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	Pacific Air Transport (Inc.)
NC-584K	KHLQJ		P	X	Do.
NC-585K	KHLRI		P	X	Do.
NC-952V †	KHNVE	3,106 (96.59)	P	X	Bell Telephone Laboratories (Inc.)
NC-9683	KHRAZ		P	X	American Airways (Inc.)
NC-10348 †	KHLOL	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	Pacific Air Transport (Inc.)
NC-10349 †	KHPHS	do.	P	X	Varney Air Lines.

† 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, 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
Jackson, Mich.	FA, FX	WWAU	218 (1,375), 326 (920), 3,350 (89.6), 3,370 (89), 5,940 (50.51), 5,960 (50.34).	O	N	Department of Commerce, Bureau of Lighthouses.
Kodiak, Alaska, radio. <sup>1</sup>	FC, FX	WZA	192 (1,565), 447 (670), 500 (600).	PG, PR		U. S. Army.

<sup>1</sup> Loc. 152° 24' 30'' W., 57° 46' 46'' N.; type, A1; hours, 8 a. m. to 9 p. m., rates, 6¢ per word.

## Marine radiobeacon stations

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

MANISTIQUE LIGHT STATION, MICH.—Transmits every 180 seconds, groups dot, dash, dot, dash for 60 seconds, silent 120 seconds thus:

· - · - · - · - · - · -  
 60 seconds

Silent  
 120 seconds

Fy., 294 (1,020); hours, continuously during thick or foggy weather and daily in clear weather the last 15 minutes of each hour.

ST. MARTIN ISLAND LIGHT STATION, MICH.—Transmits every 180 seconds, groups dash, dot, dash, dot, for 60 seconds, silent 120 seconds, thus:

- · - · - · - · - · -  
 60 seconds

Silent  
 120 seconds

Fy., 294 (1,020); hours, continuously during thick or foggy weather and daily in clear weather the last 15 minutes of each hour.

## Government ship station, alphabetically, by name of station

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

Station	Call signal	Frequency in kilocycles, meters in parenthesis	Service	Hours	Owner
Hydrographer <sup>1</sup>	NEDC	375 (800), 500 (800), 4,135 (72.55), 8,270 (36.28).	0	X	Department of Commerce, Coast and Geodetic Survey.

<sup>1</sup> Type, A1, A2.

## 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
KDMW	President Hoover..... b	WCEG	Bertwill..... b
KDMX	President Coolidge..... b	WCEH	San Salvador..... b
KGPE	Kansas City, Mo..... fx	WCEI	Illinois..... b
KGPM	San Jose, Calif..... fx	WCEJ	Ajax..... b
KGPN	Davenport, Iowa..... fx	WCEK	Bluefin..... b
KGVQ	No. 3 (portable)..... fx	WCEL	Europa..... b
KGVR	No. 4 (portable)..... fx	WCEN	Reliance..... b
KGVS	No. 5 (portable)..... fx	WCER	Ramah..... b
KGVT	No. 6 (portable)..... fx	WCEP	Argosy..... b
KGVU	Nyac, Alaska..... fx	WCEQ	Savaronia..... b
KHLNM	NC-431H..... a	WCEW	Hussar..... b
KHLOL	NC-1034S..... a	WCEX	Maine..... b
KHLPK	NC-215M..... a	WCEY	Southern Sun..... b
KHLQJ	NC-584K..... a	WEEF	Spartanburg, S. C..... fa
KHLRI	NC-885K..... a	WEEG	Greensboro, N. C..... fa
KHNUF	NC-48K..... a	WEEH	Richmond, Va..... fa
KHNWD	NC-417H..... a	WEPB	Casco..... b
KHNVE	NC-952V..... a	WPDV	Charlotte, N. C..... fx
KHPHS	NC-10349..... a	WPDX	Detroit, Mich. (Belle Isle)..... fx
KHRAZ	NC-9683..... a	WRH	Carlstadt, N. J..... fx
WOED	Glenn Mayne..... b	WSEA	Nautilus..... b
WCEE	Gloria Dalton..... b	WBAU	Jackson, Mich..... fa, fx
WOEF	Fish Hawk..... b	WZA	Kodiak, Alaska radio..... fc, fx

*Experimental stations, alphabetically, by names of stations*

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

Station	Call signal	Frequency in kilocycles, meters in parentheses	Power (watts)	License and post-office address
Maryland: Silver Spring..	W3XJ	1,604 (187.03)	500	Jenkins Laboratories (Inc.).
New York:				
New York.....	W2XDM	2,398 (125.1), 3,256 (92.13), 4,795 (62.56), 6,425 (46.69), 8,651 (34.69), 12,850 (23.35), 17,300 (17.341).	10,000	H. Curab (Inc.), 1476 Broadway.
Do.....	W2XDN	do	10,000	Do.
<i>Portable</i>				
Pennsylvania: Delaware County.	W3XAA	1,170 (256.4)	50	Universal Broadcasting Co., 1321 Arch Street, Philadelphia, Pa.
Sixth and seventh radio districts.	W10XAS	1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57).	50	Pacific Telephone & Tele- graph Co., 140 New Montgomery Street, San Francisco, Calif.
United States (through- out).	W10XAR	278 (1,030)	10	Western Electric Co.
Do.....	W10XAT	1,604 (187.03), 2,398 (125.1)	500	De Forest Radio Co., Man- hattan and Factory Streets, Passaic, N. J.

*Relay broadcasting stations, alphabetically, by names of stations*

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

Station	Call signal	Frequency in kilocycles, meters in parentheses	Power (watts)	Owner
<i>Vessel</i>				
Nautilus.....	K7XI	6,100 (49.18), 9,530 (31.48), 11,710 (25.62), 15,160 (19.789), 17,780 (16.873).	200	Trans-Arctic Submarine Expedition (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
W2XDM W2XDN	Second district: New York, N. Y. Do.	K7XI	Nautilus. <i>Vessel</i> <i>Portable</i>
W3XJ W3XAA	Third district: Silver Spring, Md. Delaware County, Pa.	W10XAR W10XAS W10XAT	United States (throughout). Sixth and seventh radio districts. United States (throughout).

**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]

- ABELINE, TEX.—Class, FA only; fy., strike out 278 (1,080); power, 18/5.
- ABERDEEN, WASH.—Power, 21/4.
- ALAMEDA, CALIF.—Fy., strike out 5,510 (54.44), add 5,540 (54.15).
- ALBUQUERQUE, N. MEX.—Fy., strike out 5,510 (54.44), add 4,108 (73.02), 5,540 (54.15), 8,015 (37.43).

- BACHAROF, ALASKA.**—Read Bacharof, Alaska radio; class, add FC; type, A1, A2; fy., strike out 180 (1,665), 429 (700), add 246 (1,220), 272 (1,105), 460 (650); service, add PG.
- BEAUMONT, TEX. (WOD).**—Read Beaumont, Tex., radio; class, strike out FX, add FC; service, PG only.
- BIG SPRINGS, TEX. (municipal airport).**—Class, add FA; fy., add 3,484 (86.10), 5,630 (53.28).
- BIRMINGHAM, ALA. (WPM).**—Fy., strike out 274 (1,095), add 229 (1,310).
- BROWNSVILLE, TEX. (municipal airport).**—Fy., add 5,405 (55.5).
- BUFFALO, N. Y., radio (WBL).**—Licensee, R. M. C. A.
- CEBU, P. I., radio.**—Fy., change 125 (2,000) to 125 (2,400).
- CHICAGO, ILL., radio (WGO).**—Licensee, R. M. C. A.
- CHIGNIK, ALASKA, radio (KNP).**—Service, strike out P.
- CLARKS POINT, ALASKA.**—Read Clarks Point, Alaska Radio; class, add FC; type, A1, A2; fy., strike out 180 (1,665), 429 (700), add 272 (1,105), 246 (1,220), 460 (650); service, add PG; hours, X.
- DULUTH, MINN., radio (WRL).**—Licensee, R. M. C. A.
- EGEGIK, ALASKA, radio.**—Type, strike out A1, add A3; fy., strike out 256 (1,170), 272 (1,105), 460 (650), 500 (600), add 3,184 (94.22).
- EKUK, ALASKA.**—Read Ekuk, Alaska Radio; class, add FC; type, strike out A1, add A3; fy., strike out 256 (1,170), 272 (1,105), add 3,184 (94.22); service, add PG; rates, 6 cents per word.
- FORT WORTH, TEX. (Meacham Field).**—Class, add FA; loc. (approximate) 97° 21' 00" W., 32° 49' 00" N.; type, add A3; fy., add 5,630 (53.29).
- HARRISBURG, PA. (WAED).**—Class, add FX; fy., add 2,734 (109.72), 2,722 (110.21), 4,108 (73.02).
- HICKSVILLE, N. Y.**—Call changed to WEE.
- JUNEAU, ALASKA.**—Fy., strike out 3,106 (96.6), add 2,650 (113.2).
- KENAI, ALASKA (KLD).**—Read Kenai, Alaska Radio; class, add FC; fy., strike out 180 (1,665), 414 (725), add 219 (1,370), 256 (1,170), 425 (705); service, add PG.
- KINGMAN, ARIZ. (KGTL).**—Fy., strike out 5,510 (54.45), add 5,540 (54.15).
- KOGGIUNG, ALASKA, radio.**—Type, strike out A1, add A3; fy., strike out 256 (1,170), 272 (1,105), 460 (650), 500 (600), add 3,184 (94.22); rates, 6 cents per word.
- LANSING, MICH. (WPDL).**—Power, 32/5.
- LAOG, P. I.**—Correct orthography Laoag, P. I.
- LAS VEGAS, NEV.**—Fy., strike out 5,510 (54.44), add 5,540 (54.15).
- LIBBYVILLE, ALASKA, radio.**—Class, strike out FA; type, A3 only; fy., strike out 125 (2,400), 143 (2,100), 158 (1,900), 167 (1,800), 179 (1,680), 180 (1,665), 219 (1,370), 256 (1,170), 272 (1,105), 333 (900), 425 (705), 500 (600); add 3,184 (94.22).
- LITCHFIELD, OHIO.**—Power, 75/5.
- LOCKANOK, ALASKA.**—Read Lockanok, Alaska radio; class, add FC; type, strike out A1, add A3; fy., strike out 256 (1,170), 272 (1,105), add 3,184 (94.22); service, add PG; rates, 6 cents per word.
- LOS ANGELES, CALIF. (KOS).**—Fy., strike out 7,625 (39.34), add 15,880 (18.892).
- MANILA, P. I. (KZFG).**—Correct call KZFQ.
- MEMPHIS, TENN. (WPI).**—Fy., strike out 274 (1,095), add 229 (1,310).
- MINNEAPOLIS, MINN. (KQP).**—Fy., strike out 274 (1,095), add 229 (1,310).
- MOBILE, ALA. (WPP).**—Fy., strike out 274 (1,095), add 229 (1,310).
- NAGA, P. I. (Camarines Sur).**—Correct call KBQ; loc., 123° 10' 40" E., 13° 37' 20" N.; fy., strike out 4,735 (63.36), add 5,930 (50.59).
- NEEDHAM, MASS.**—Fy., add 4,715 (63.63), 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 (60.30), 4,985 (60.18), 4,995 (60.06), 5,285 (56.76), 5,295 (56.65), 5,305 (56.55), 5,315 (56.44), 5,325 (56.33), 5,335 (56.23), 5,345 (56.12), 5,355 (56.02); hours, strike out X, add N.
- NEW YORK, N. Y., radio (Borough of Brooklyn—WNY).**—Power, 45.76/10.
- NUSHAGAK, ALASKA, radio (KNO).**—Class, add FC; type, strike out A1, add A3; fy., strike out 256 (1,170), 272 (1,105), 460 (650), 500 (600), add 3,184 (94.22).
- PALM BEACH, FLA., radio.**—Fy., add 125 (2,400).
- PHILADELPHIA, PA., radio (WNW).**—Fy., add 143 (2,100), 163 (1,840), 4,116 (72.886), 5,525 (54.3), 6,515 (46.05), 8,630 (34.76), 11,050 (27.15), 11,140 (26.93), 16,580 (18.094), 16,900 (17.751), 22,100 (13.575), 22,160 (13.538).
- PILOT POINT, ALASKA.**—Read Pilot Point, Alaska radio; class, add FC; type, add A1, A2; fy., strike out 180 (1,665), 429 (700), add 246 (1,220), 272 (1,105), 460 (650); service, add PG.

- PLAINFIELD, N. J. (near).—Power, 18/5.  
 ROCKLAND, ME. (near).—Loc., 69° 13' 05'' W., 44° 09' 26'' N.  
 ROCKY POINT, N. Y. (WEE).—Call changed to WJN.  
 SACRAMENTO, CALIF. (KWO).—Loc., changed to Dixon, Calif. (approximate)  
 121° 47' 00'' W., 38° 25' 00'' N.  
 SAN FRANCISCO, CALIF. (KGPD).—Notice of change in Bulletin for last month  
 incorrectly gave call as KGPE.  
 SAN FRANCISCO, CALIF. (KOP).—Loc., 122° 28' 01'' W., 37° 47' 00'' N.; fy., add  
 7,340 (40.87), 15,730 (19.072).  
 SANTA MARIA, CALIF. (KGKD).—Type, add A2, A3; fy., strike out 333 (900).  
 SEATTLE, WASH. (KGPA).—Fy., strike out 2,452 (122.34), add 2,416 (124.7).  
 SEATTLE, WASH. (KGQX).—Fy., strike out 3,106 (96.6), add 2,650 (113.2).  
 SUPERIOR, MICH.—Call signal changed to WAO.  
 TUCKERTON, N. J., radio (WSC).—Fy., add 170 (1,765), 6,485 (46.26).  
 TULSA, OKLA. (KSY).—Fy., add 3,076 (97.52), 3,082 (97.33), 3,088 (97.15), 5,540  
 (54.15).  
 WEST DOVER, OHIO, radio (Cleveland).—Fy., add 6,440 (46.58); power, 55/10;  
 licensee, R. M. C. A. *Portable*.  
 CALIFORNIA (KGWV).—Power 20/2.  
 Strike out all particulars of the following-named stations: Allentown, Pa.;  
 Chichagof, Alaska radio; Chicago, Ill. (Cicero Air Mail Field—WBQ); Kansas  
 City, Mo. (KGPE); Manila, P. I. (KUA); Panabutan, P. I.; Saltchuck,  
 Alaska (Kasaan Bay).

## 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]

- ABRON.—Owner, Swayne & Hoyt (Inc.).  
 ADMIRAL ROGERS.—Hours, add X.  
 AMERICAN TRADER.—Power, 31/14.  
 ANSONIA.—Fy., strike out 2,320 (129.3), add 3,112 (96.40).  
 ARLYN.—Accts., A. H. Bull S. S. Co. (Inc.).  
 BARBARA.—Accts., A. H. Bull S. S. Co. (Inc.).  
 BATON ROUGE.—Fy., strike out 274 (1,095), add 229 (1,310).  
 BEACON OIL.—Type, A1, A2 only.  
 BEATRICE.—Accts., A. H. Bull S. S. Co. (Inc.).  
 BILLOW.—Power, 15/8.  
 BIRMINGHAM.—Fy., strike out 274 (1,095), add 229 (1,310).  
 CAIRO.—Fy., strike out 274 (1,095), add 229 (1,310).  
 CALIFORNIAN.—Power, 23/12.  
 CAPT. JOHN W. MCKIE.—Fy., strike out 274 (1,095), add 229 (1,310).  
 CATHERINE.—Accts., A. H. Bull S. S. Co. (Inc.).  
 C. C. WEBBER.—Fy., strike out 274 (1,095), add 229 (1,310).  
 CELILO.—Fy., add 410 (730); power, 20/3; hours, strike out X, add N; owner,  
 Albert E. Gillespie.  
 CHICKEN OF THE SEA.—Fy., strike out 375 (800), 400 (750), 425 (705), 468 (640),  
 500 (600), add 5,525 (54.3), 5,555 (54), 8,290 (36.19), 8,450 (35.5), 11,050  
 (27.16), 11,230 (26.71), 13,240 (22.66), 16,580 (18.094), 16,660 (18.007).  
 CHILOIL.—Fy., add 454 (660).  
 CHIRIKOF.—Fy., strike out 400 (750), 468 (640).  
 CITY OF CHATTANOOGA.—Fy., strike out 143 (2,100), 151 (1,985), 153 (1,960),  
 160 (1,875).  
 CITY OF DAHLART.—Fy., strike out 153 (1,960), add 155 (1,935).  
 CITY OF ELWOOD.—Hours, add X.  
 CITY OF HOUSTON.—Power, 27/8.  
 CLARE.—Fy., add 400 (750), 468 (640); hours, strike out N, add X; accts.,  
 A. H. Bull S. S. Co.  
 COMMERCIAL MARINER.—Name changed to Commercial Alabaman.  
 CONNEAUT.—Service, strike out P, add PG; rates, Great Lakes service 4 cents  
 per word.  
 CONSTANCE CHANDLER.—Power, 15/18.  
 CORDOVA.—(KFMF).—Fy., strike out 274 (1,095), add 229 (1,310).  
 CORNELIA.—Fy., strike out 410 (730), 454 (660); accts., A. H. Bull S. S. Co.  
 CORNELL.—Power, 15/4.  
 DAVID B.—Fy., strike out 1,540 (194.8), add 3,184 (94.22).  
 DELAROF.—Fy., strike out 454 (660).

- DELFINA.**—Accts., Baltimore Insular Line.  
**DELISLE.**—Accts., Baltimore Insular Line.  
**DEMOPOLIS.**—Fy., strike out 274 (1,095), add 229 (1,310).  
**DIO.**—Owner, Swayne & Hoyt (Inc.).  
**DOROTHY.**—Owner, A. H. Bull S. S. Co. (Inc.).  
**DWIGHT F. DAVIS.**—Fy., strike out 274 (1,095), add 229 (1,310).  
**EDITH.**—Accts., A. H. Bull S. S. Co. (Inc.).  
**ELIZABETH.**—Accts., A. H. Bull S. S. Co. (Inc.).  
**EMILIA.**—Power, 24/17; accts., A. H. Bull S. S. Co. (Inc.).  
**EVELYN.**—Accts., A. H. Bull S. S. Co. (Inc.).  
**EXCHANGE.**—Fy., add 5,555 (54).  
**EXIRIA.**—Hours, strike out N.  
**EXPRESS.**—Hours, strike out N.  
**F. C. LATROBE.**—Power, 18/2.75; service, strike out PG, add P.  
**FISHERMAN II.**—Type, A1, A2; fy., 375 (800), 400 (750), 410 (730), 425 (705), 454 (660), 468 (640), 500 (600), 5,525 (54.3), 5,555 (54), 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.  
**GENERAL ASHBURN.**—Fy., strike out 274 (1,095), add 229 (1,310).  
**GOVERNOR JOHN LIND.**—Accts., Baltimore Insular Line.  
**GULFKING.**—Fy., add 468 (640).  
**GULFOIL.**—Fy., add 468 (640).  
**GULFPORT.**—Fy., strike out 274 (1,095), add 229 (1,310).  
**HAPPY DAYS.**—Fy., add 16,580 (18.094).  
**HARRY F. SINCLAIR, JR.**—Type, A2; fy., 375 (800), 400 (750), 425 (705), 468 (640), 500 (600); power, 25/10; service, PG; hours, X; rates, 8 cents per word; accts., R. M. C. A.  
**HELEN.**—Accts., A. H. Bull S. S. Co. (Inc.).  
**HERMOSA.**—Fy., 5,525 (54.3), 5,555 (54), 8,290 (36.19), 8,450 (35.5), 11,050 (27.15), 11,230 (26.71), 13,240 (22.66), 16,580 (18.094), 16,660 (18.007).  
**HILTON.**—Accts., A. H. Bull S. S. Co. (Inc.).  
**HOWARD P. EELLS, JR.**—Accts., R. M. C. A.  
**ILLINOIS (KFMC).**—Fy., strike out 274 (1,095), add 229 (1,310).  
**ILLINOIS (KUQM).**—Fy., add 410 (730).  
**INTERNATIONAL.**—Power, 24/13; hours, add N.  
**IOWA (KFLT).**—Fy., strike out 274 (1,095), add 229 (1,310).  
**IRENE (KOKT).**—Accts., A. H. Bull S. S. Co. (Inc.).  
**IRENE L.**—Fy., strike out 2,320 (129.3), add 3,112 (96.40).  
**ISAAC T. MANN.**—Power, 30/14.  
**JAMES W. GOOD.**—Fy., strike out 274 (1,095), add 229 (1,310).  
**J. A. MOFFETT, JR.**—Fy., strike out 143 (2,100), 151 (1,985), 157 (1,910), 159 (1,885), 160 (1,875).  
**JANELEW.**—Fy., strike out 400 (750); power, 23/8.  
**JEAN.**—Accts., A. H. Bull S. S. Co. (Inc.).  
**JEZEBEL.**—Fy., add 153 (1,960); power, 18/10.  
**JOHN W. WEEKS.**—Fy., strike out 274 (1,095), add 229 (1,310).  
**K-22813.**—Fy., strike out 425 (705); power, 6/1.5.  
**LAKE ARLINE.**—Name changed to J. Floyd Massey, jr.; owner, Steel Products Transp. Corporation.  
**LA PERLA.**—Type, strike out B; fy., add 5,525 (54.3), 6,635 (45.21), 8,330 (36.01), 11,050 (27.15), 11,230 (26.71), 13,240 (22.66), 16,580 (18.094), 16,860 (17.794).  
 These frequencies are effective until October 1, 1931.  
**LIBERTY (WBEZ).**—Type, A3; fy., 2,536 (118.29); power, 13/2.  
**LIEUT. COL. ROBERT G. GILDART.**—Fy., strike out 274 (1,095), add 229 (1,310).  
**LILLIAN.**—Accts., A. H. Bull S. S. Co. (Inc.).  
**LUSITANIA.**—Power, 10/1.5; service, P; hours, X.  
**MAJOR WHEELER.**—Accts., Baltimore Insular Line.  
**MANHATTAN ISLAND.**—Owner, Swayne & Hoyt (Inc.).  
**MARJORY WEEMS.**—Owner, A. H. Bull S. S. Co. (Inc.).  
**MARY.**—Accts., A. H. Bull S. S. Co. (Inc.).  
**MAZAMA.**—Fy., strike out 454 (660).  
**MELVILLE DOLLAR.**—Type, add A arc; fy., add 143 (2,100), 151 (1,985), 153 (1,960), 155 (1,935), 157 (1,910), 159 (1,885), 160 (1,875); power, 18/15.  
**MEMPHIS.**—Fy., strike out 274 (1,095), add 229 (1,310).  
**MEXICAN.**—Fy., strike out 454 (660).  
**MILLINOCKET.**—Accts., A. H. Bull S. S. Co. (Inc.).



- MINNESOTA.—Fy., strike out 274 (1,095), add 229 (1,310).  
 MISSOURI (WFDT).—Fy., strike out 274 (1,095), add 229 (1,310).  
 MOBILE.—Fy., strike out 274 (1,095), add 229 (1,310).  
 MOHAWK (KFYU).—Fy., strike out 157 (1,910), 159 (1,885).  
 MONTGOMERY.—Fy., strike out 274 (1,095), add 229 (1,310).  
 MUNERIC.—Accts., R. M. C. A.  
 MUSKETEER.—Fy., add 8,290 (36.19), 8,450 (35.5), 11,230 (26.71), 13,240 (22.66), 16,860 (17.794); accts., R. M. C. A.  
 NABESNA.—Power, 20/8.  
 NATCHEZ.—Fy., strike out 274 (1,095), add 229 (1,310).  
 NEW JERSEY.—Fy., strike out 400 (750), add 468 (640).  
 NIZINA.—Power, 15.5/5.  
 NORTHERN LIGHT.—Owner, Joyce Borden Balokovic.  
 NORTHERN 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, 22.9/15; accts., R. M. C. A.  
 NORTH KING.—Hours, add X.  
 OLEAN.—Power, 31/7.  
 ONTARIO.—Owner, Tugboat Ontario (Inc.).  
 ORIENTE.—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), 410 (730), 425 (705), 454 (660), 468 (640), 500 (600); hours, N.  
 OSPREY.—Power, 15/5.  
 OSSINING.—Accts., R. M. C. A. (U. S. L.).  
 O. T. WARING.—Fy., strike out 155 (1,935), add 410 (730), 454 (660); power, 31/10.  
 PAN AMERICA.—Fy., strike out 157 (1,910), 159 (1,885), add 151 (1,985).  
 PATRICK J. HURLEY.—Fy., strike out 274 (1,095), add 229 (1,310).  
 PILOT.—Type, A3; fy., 2,536 (118.29); power, 13/2.  
 POINT ARENA.—Owner, Swayne & Hoyt (Inc.).  
 POINT REYES.—Owner, Swayne & Hoyt (Inc.).  
 POINT SAN PABLO.—Owner, McCormick S. S. Co. (Inc.).  
 POINT SAN PEDRO.—Owner, McCormick S. S. Co. (Inc.).  
 POINT SUR.—Owner, Swayne & Hoyt (Inc.).  
 POTTER.—Power, 23/8; hours, add X.  
 PRESIDENT HARDING.—Fy., strike out 153 (1,960), 159 (1,885).  
 PRESIDENT MCKINLEY.—Type, add A1, A2; fy., add 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).  
 PRESIDENT ROOSEVELT.—Fy., strike out 153 (1,960), add 151 (1,985).  
 PRINCETON (WOCY).—Power, 22/8.  
 REPUBLIC LIFEBOAT No. 2.—Read Republic Lifeboat No. 17.  
 RUSTLER.—Power, 12.3/3.  
 SAGADAHOC.—Fy., strike out 454 (660).  
 ST. LOUIS.—Fy., strike out 274 (1,095), add 229 (1,310).  
 ST. VERONICA.—Type, A1, A2; fy., 375 (800), 425 (705), 500 (600), 5,525 (54.3), 5,555 (54), 8,330 (36.01); service, PG; hours, X; rates, 8 cents per word; accts., John G. Cardosa.  
 SAN CLEMENTE.—Power, 25/15.  
 SAN DOMINGO.—Power, 25.8/18.  
 SAN FELIPE.—Power, 21/14.  
 SAN GABRIEL.—Power, 29/8.  
 SAN LUCAS.—Power, 31.8/10.  
 SAN PEDRO (KIDZ).—Power, 26.8/17.  
 SAN VINCENTE.—Power, 29/10.  
 SAYONARA (KGQM).—Type, A2; fy., 375 (800), 425 (705), 500 (600); power, 22.8/4; service, PG; hours, X; accts., Anthony J. Drexel.  
 SEAFORTH.—Owner, H. W. Falk.  
 SEMINOLE (WNCX).—Fy., strike out 153 (1,910).  
 SHASTA (KFKF).—Power, 25/3.  
 SIERRA (WBDR).—Type, A1, A2; fy., strike out 6,590 (45.52), add 8,290 (36.19), 8,450 (35.5), 11,230 (26.71), 16,860 (17.794), 22,100 (13.575), 22,220 (13.501), 22,460 (13.357).  
 S. S. THORPE.—Fy., strike out 274 (1,095), add 229 (1,310).  
 STANLEY DOLLAR.—Hours, add N.  
 STEEL NAVIGATOR.—Owner, Isthmian S. S. Co.  
 TATOOSH.—Type, A1, A2, A3; fy., 2,560 (117.2); power, 75/3.

- TEMPRESS.—Type, A1; fy., 375 (800), 425 (705), 500 (600), 5,525 (54.3), 5,555 (54), 8,450 (35.5); service, P; hours, X; accts., Dr. A. C. Strong.
- TEXADA.—Power, 21.54/6; accts., Kingsley Navigation Co. of California.
- THEODORE ROOSEVELT.—Accts., R. M. C. A.
- TOMALVA.—Hours, add N.
- TRINIDADIAN.—Fy., add 468 (640).
- TUSCALOOSA.—Fy., strike out 274 (1,095), add 229 (1,310).
- ULYSSES.—Type, strike out B, add A2; fy., add 375 (800), 400 (750), 425 (705), 468 (640); power, 10/15; hours, strike out N, add X; accts., R. M. C. A.
- VICKSBURG.—Fy., strike out 274 (1,095), add 229 (1,310).
- WAPAMA.—Power, 20/3.
- WARD.—Hours, add X.
- WASHINGTON (KGMR).—Fy., add 375 (800).
- WEST IMBODEN.—Fy., strike out 410 (730), add 425 (705).
- WEST KEBAR.—Hours, add N.
- WICHITA FALLS.—Power, 24/6.
- W. S. FARISH.—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, 28/10.
- WYNOKA.—Fy., strike out 274 (1,095), add 229 (1,310).
- YALZA.—Power, 24/8.

#### 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]

- No. 1426.—Type, A3; fy., 3,106 (96.58), 3,160 (94.9), 3,166 (94.75), 3,172 (94.57), 3,178 (94.39), 5,570 (53.86), 5,660 (53).

#### GOVERNMENT LAND STATIONS, ALPHABETICALLY, BY NAMES OF STATIONS

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

- GREAT LAKES, ILL.—Type, add A1.
- WASHINGTON, D. C. (Arlington, Va.—NAA).—Fy., add 4,435 (67.64); effective on and after April 1, marine weather will be transmitted at 0300 G. C. T. on 4,435 (67.64 m.) and 8,870 kilocycles (33.82 m.) in addition to the present frequencies.
- Strike out all particulars of the following-named stations: Bryan, Ohio; Grundler, Alaska; Kodiak, Alaska radio; St. Croix, Virgin Islands; St. John, Virgin Islands; Sitka, Alaska radio (NPB).

#### 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: Denver; H-4; H-5; H-6; H-7; H-8; H-9; S-2.

#### 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]

- SAVANNAH LIGHTSHIP, GA.—Hours, operates continuously during thick or foggy weather and daily in clear weather for the third 15 minutes of each hour.
- ST. JOHNS LIGHTSHIP, FLA.—Hours, operates continuously during thick or foggy weather and daily in clear weather for the second 15 minutes of each hour.
- JUPITER INLET LIGHT STATION, FLA.—Hours, operates continuously during thick or foggy weather and daily in clear weather for the second 15 minutes of each hour.
- MAKAPUU POINT LIGHT STATION, HAWAII (Oahu Island).—Hours, daily in clear weather from 10.30 to 11 a. m., 3.30 to 4 p. m., and third 15 minutes of each hour from 7.30 to 6.45 a. m.
- Changes in method now used in synchronizing these signals for distance-finding purposes to be made.

At or near the opening of navigation for 1931, the method of synchronizing will be changed slightly for certain radiobeacons on the Great Lakes. The system which will not be in effect continues the use of the long (3-second) radio dash superimposed on the radiobeacon code during its minute of operation and so timed that the end of this long dash coincides with the instant the first sound fog signal blast during that minute is transmitted from the station. In each case during the minute of radiobeacon operation a distinctive group of two blasts, a long followed by a short, is used instead of the regular sound fog signal characteristic. The beginning of the first of these blasts or of the long blast, is synchronized with the end of the long dash on the radiobeacon code. Distance off is computed by noting the time interval in seconds which elapses between hearing the end of the long radiobeacon dash and the start of the long sound fog signal blast, dividing the interval in seconds by five to determine distance off in statute miles. The short fog signal blast which immediately follows the long blast, is for identification purposes so that the masters need never be in doubt as to whether or not they are taking time on the proper blast of the fog signal.

These signals at all stations listed below will be synchronized for distance-finding purposes by the method above explained, the sound fog signal characteristics to be henceforth as follows:

### Lake Huron

**DETOUR LIGHT STATION.**—During the 2-minute interval between operating minutes of radiobeacon: When foggy in lake, but clear inside river, sounds group of 3 blasts every 60 seconds, thus: Silent 50 seconds, blast 2 sec., silent 2 sec., blast 2 sec., silent 2 sec., blast 2 sec. When foggy in both lake and river: Silent 54 sec., blast 6 sec. During operating minute of radiobeacon, a group of two blasts following a 53-second silent interval is sounded as follows: Silent 53 sec., blast 5 sec., silent 1 sec., blast 1 sec.

### Lake Superior

**WHITEFISH POINT LIGHT STATION.**—During the 2-minute interval between operating minutes of radiobeacon, sounds a group of three blasts every 60 seconds, thus: Silent 52 sec., blast 1 sec., silent 1 sec., blast 1 sec., silent 1 sec., blast 4 sec. During operating minute of radiobeacon, 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.

**HURON ISLAND LIGHT STATION.**—During the 2-minute interval between operating minutes of radiobeacon, sounds a group of 3 blasts every 60 seconds, thus: Silent 50 sec., blast 2 sec., silent 2 sec., blast 2 sec., silent 2 sec., blast 2 sec. During operating minute of radiobeacon, sounds a group of 2 blasts following a 53 seconds silent interval, thus: Silent 53 sec., blast 5 sec., silent 1 sec., blast 1 sec.

**MANITOU ISLAND LIGHT STATION.**—During the 2-minute interval between operating minutes of radiobeacon, sounds a group of 2 blasts every 30 seconds, thus: Silent 24 sec., blast 2 sec., silent 2 sec., blast 2 sec. During operating minute of radiobeacon, 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.

**EAGLE HARBOR LIGHT STATION.**—During the 2-minute interval between operating minutes of radiobeacon, sounds a group of 2 blasts every 60 seconds, thus: Silent 51 sec., blast 3 sec., silent 3 sec., blast 3 sec. During operating minute of radiobeacon, 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.

**DEVILS ISLAND LIGHT STATION.**—During the 2-minute interval between operating minutes of radiobeacon, sounds a group of 3 blasts every 60 seconds, thus: Silent 50 sec., blast 2 sec., silent 2 sec., blast 2 sec., silent 2 sec., blast 2 sec. During operating minute of radiobeacon, 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.

**DULUTH RANGE LIGHT STATION.**—During the 2-minute interval between operating minutes of radiobeacon, silent 55 seconds, blast 5 sec. During operating minute of radiobeacon, 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

**KBQ**, read Naga, P. I. (Camarines Sur); **KGPE**, read San Francisco, Calif.; **KGWO**, read J. Floyd Massey, jr.; **KHG**, read Clarks Point, Alaska, radio; **KLD**, read Kenai, Alaska, radio; **KMG**, read Ekuak, Alaska, radio; **KML**, read Lockanok, Alaska, radio; **KSNB**, read Republic Lifeboat No. 17; **KTE**, read Laoag, P. I.; **KUD**, read Bacharof, Alaska, radio; **KUDS**, read Commercial Alabaman; **KUL**, read Pilot Point, Alaska, radio; **KWO**, read Dixon, Calif.; **KZFQ**, read Manila, P. I.; **WEE**, read Hicksville, N. Y.; **WJN**, read Rocky Point, N. Y.; **WOD**, read Beaumont, Tex., radio; **WRH**, read Superior, Mich.; strike out all particulars following the call signals: **KGPE**, **KRL**, **KRX**, **KUA**, **KUC**, **KWQ**, **NAJV**, **NBO**, **NBR**, **NEBV**, **NEFC**, **NELN**, **NEQM**, **NESJ**, **NETG**, **NIMJ**, **NPB**, **NPS**, **WBQ**, **WHC**, **WZA**.

### 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 Berns bureau]

**KFKB** (Milford, Kans.)—Call changed to **KFBI**, effective May 1, 1931.  
**KFUM** (Colorado Springs, Colo.)—Licensee, The Reynolds Radio Co. (Inc.).  
**WBCN** (Downers Grove, Ill.)—Licensee, National Broadcasting Co. (Inc.).

- WBZ (E. Springfield, Mass.).—Transmitter location changed to Millis Township, Mass., 71° 20' 00" W., 42° 11' 15" N. Approx.; studio, Boston, Mass.  
 WDRG (Bloomfield, Conn.).—Licensee, WDRG (Inc.).  
 WENR (Downers Grove, Ill.).—Licensee, National Broadcasting Co. (Inc.).  
 WIAS (Ottumwa, Iowa).—Post-office address, 902 Register and Tribune Building, Des Moines, Iowa.  
 WJBW (New Orleans, La.).—Power, 100.  
 WLEX (Lexington, Mass.).—Loc., studio changed to Boston, Mass.  
 WLS (Crete, Ill.).—Loc., changed to Downers Grove, Ill., 88° 00' 30" W., 41° 44' 35" N.; power, 25,000 normally, 50,000 experimentally.  
 WOOD (Furnwood, Mich.).—Licensee, Kunsky-Trendle Broadcasting Corp.  
 WRBI (Tifton, Ga.).—Licensee, Oglethorpe University.  
 WTEL (Wissinoming, Pa.).—Power, 100.

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: San Francisco (W6XU).—Fy., strike out 13,270 (22.61), add 12,490 (24.02), 13,240 (22.66), 16,580 (18.094).

ILLINOIS: Chicago (W9XO).—Licensee, Teletype Corporation.

MASSACHUSETTS: Chicopee Falls (W1XAK).—Fy., add 990 (305).

NEW JERSEY:

Deal (W2XDJ).—Read Ocean Township, N. J.; fy., add 3,422.5 (87.65), 19,820 (15.136).

Linden (W2XCY).—Fy., strike out 25,100 (11.95), 30,100 (9.97), 40,100 (7.48), 50,100 (5.98), add 25,700 (11.673), 34,600 (8.67), 41,000 (7.32), 51,400 (5.837).

Mendham (W3XR).—Fy., add 6,200 (48.39), 6,600 (45.45), 7,000 (42.86), 7,400 (40.54), 7,700 (38.96).

Ocean (W2XG).—Read Ocean Township, N. J.

Ocean Township (W2XDG).—Fy., add 3,422.5 (87.65), 19,820 (15.136).

Whippany (W3XP).—Strike out all particulars.

NEW YORK:

Brooklyn (W2XBB).—Read New York, N. Y.

Garden City (W2XBW).—Fy., strike out 1,604 (187.03), 3,256 (92.5), 6,425 (46.7), 8,650 (34.68), 12,850 (23.35).

Rocky Point (W2XBJ).—Fy., strike out 8,950 (33.52), 15,040 (19.947), 16,000 (18.75), 16,030 (18.715), 20,100 (14.925), 21,300 (14.085), add 8,930 (33.59), 9,490 (31.61), 13,900 (21.58), 14,815 (20.25), 17,880 (16.779), 18,980 (15.015).

PENNSYLVANIA: Philadelphia (W3XM).—Licensee, Durham Radio Corp.

Portable

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

NEW JERSEY:

New Jersey (W2XDE).—Fy., add 1,672 (179.43).

Ocean Township (W2XDI).—Fy., add 3,422.5 (87.65), 19,820 (15.136).

NEW YORK:

New York (W2XDH).—Read New Jersey (portable); fy., add 3,422.5 (87.65), 19,820 (15.136).

Riverhead (W2XDC).—Fy., strike out 51,400 (5.83), add 1,604 (187.03), 2,398 (125.1), 3,256 (92.5), 4,795 (62.57), 6,425 (46.7), 8,650 (34.68), 51,900 (5.78).

PENNSYLVANIA: Philadelphia (W3XB).—Strike out all particulars.

Aircraft: NC-417H (W10XAA).—Fy., add 6,200 (48.39), 6,600 (45.45), 7,000 (42.86), 7,400 (40.54), 7,700 (38.96).

Railroad train: Unnamed (W10XAF).—Read Kentucky (portable).

VISUAL BROADCASTING STATIONS BY NAMES OF STATIONS

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

NEW JERSEY:

Camden (W3XAD).—Fy., strike out 35,300 (8.5) to 36,200 (8.29), 39,650 (7.56) to 40,650 (7.38), 60,000 (5) to 400,000 (.75), add 2,100 (142.9) to 2,200 (136.4), 60,000 (5) to 80,000 (3.75).

Jersey City (W2XCR).—Loc., changed to New York, N. Y.

## 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
<b>COMMERCIAL</b>		
Cities Service Koolmotor.....	WGAO	Cities Service Refining Transport Co.
Eastern Temple.....	KDEZ	High Seas Transportation (Inc.)
Golden Cross.....	KEBQ	Oceanic & Oriental Navigation Co.
Oriente.....	KGOX	Agwi Navigation Co.
President Fillmore.....	WCCN	Dollar S. S. Lines (Inc.)
W. S. Farish.....	KGWI	Standard Shipping Co.

NOTE.—The radio compass has been removed from the vessel: Commercial—Vesta.

## GULF OF ST. LAWRENCE ICE PATROL

An ice patrol will be maintained in the Gulf of St. Lawrence (Quebec) from Cape Ray to Bird Rocks, Bird Rocks to vicinity of Heath Point and Heath Point to Cape Ray from the opening of navigation in the spring until the route is clear of ice.

The radio call signal VCQP has been allotted for the ice patrol vessel. This is a special call and will be used by whatever vessel is engaged in the service.

A regular message embodying ice conditions, from Cape Race to Quebec and recommendations as to route to be followed, will be made up by the ice patrol every four hours, commencing as from midnight eastern standard time (seventy-fifth meridian) and kept on file for immediate transmission by radio to ships, upon request.

This information will also be broadcast four times daily by the ice patrol VCQP, as follows: At 8 a. m. and p. m. (E. S. T.) on 500 kc/s. (600 m.) i. c. w. and at 8.30 a. m. and p. m. (E. S. T.) on 185 kc/s. (1,621 m.).

The coast radio stations at Chebucto Head (VAV), North Sydney (VCO), and Grindstone (VCN) will be prepared to pass copy of this message to ships requesting it.

In addition, Louisburg, VAS, operating at 11 a. m. and p. m. (E. S. T.) following weather forecasts on 107 kc/s. (2,804 m.) c. w., and Cape Race, VAZ, operating at 9.15 a. m. and p. m. on 500 kc/s. (600 m.) spark, will broadcast a brief summary of the above-mentioned message.

Ships requiring the latest information on the gulf route should communicate directly with the ice patrol vessel VCQP on 500 kc/s. (600 m.).

The work of the patrol will be greatly facilitated if incoming ships will cooperate in supplying information regarding ice in their vicinity.

Vessels requiring information regarding ice conditions in the North Atlantic lane routes should get in touch with the international ice patrol vessel, radio call signal NIDK on 500 kc/s. (600 m.). For further information regarding this patrol, see Radio Service Bulletin No. 166, January, 1931.

## BROADCASTING STATION FREQUENCY MEASUREMENTS DURING JANUARY AND FEBRUARY, 1931

The Radio Division of the Department of Commerce during the month of January measured at different localities throughout the country the frequency (kilocycles-wave lengths) of 365 United States broadcasting stations. The frequencies of these stations were measured for an aggregate of 7,934 times. The measurements were taken at various times during day and night and it was ascertained that 54 stations at no time deviated 100 cycles (one-tenth of a kilocycle) or over and 102 deviated less than 200 cycles (two-tenths of a kilocycle). It will be seen that the remaining 207 stations out of the 365 measured, consequently, deviated more than 200 cycles.

In comparison with the measurements made during December, the figures for January show quite a decided improvement. During December 10½ per cent of the stations measured deviated less than 100 cycles, whereas in January 15 per cent deviated under this mark. Those deviating under 200 cycles in December amounted to 19½ per cent against 28½ per cent during January. The percentage of those deviating over 200 cycles for December was 70 per cent while January showed a decrease to 56½ per cent.

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

A list of those deviating under 100 and 200 cycles, showing the transmitter location with the location of the main studio given in parentheses, during January follows:

## UNDER 100 CYCLES

Call signal	Transmitter location, studio location in parentheses	Call signal	Transmitter location, studio location in parentheses
KBPS	Portland, Oreg.	WJBK	Highland Park, Mich.
KELW	Burbank, Calif.	WKAR	East Lansing, Mich.
KFDM	Beaumont, Tex.	WJR	Sylvan Lake Village, Mich. (Detroit).
KFEQ	St. Joseph, Mo.	WKBI	Chicago, Ill.
KFKA	Greeley, Colo.	WKBN	Youngstown, Ohio.
KOMO	Seattle, Wash.	WKJC	Lancaster, Pa.
WAIU	Columbus, Ohio.	WLEY	Lexington, Mass.
WBCM	Hampton Township, Mich. (Bay City).	WMAQ	Addison, Ill. (Chicago).
WBSO	Needham, Mass.	WMC	Bartlett, Tenn. (Memphis).
WCAO	Baltimore, Md.	WMMN	Fairmont, W. Va.
WDAF	Kansas City, Mo.	WMT	Waterloo, Iowa.
WDAG	Amarillo, Tex.	WOI	Ames, Iowa.
WDBJ	Roanoke, Va.	WOKO	Mt. Beacon, N. Y. (Poughkeepsie).
WEAF	Bellmore, N. Y. (New York City).	WOL	Washington, D. C.
WEAN	Providence, R. I.	WOR	Kearny, N. J. (Newark).
WENR	Downers Grove, Ill. (Chicago).	WRC	Washington, D. C.
WEXL	Royal Oak, Mich.	WRDW	Augusta, Ga.
WFBN	Indianapolis, Ind.	WREC	Memphr, Tenn. (Whitehaven).
WGBS	Astoria, N. Y. (New York City).	WRUF	Gainesville, Fla.
WGBB	Freeport, N. Y.	WSAZ	Huntington, W. Va.
WGN	Elgin, Ill. (Chicago).	WSB	Atlanta, Ga.
WGR	Amherst, N. Y. (Buffalo).	WSBO	Chicago, Ill.
WGY	Schenectady, N. Y.	WSM	Nashville, Tenn.
WHAD	Milwaukee, Wis.	WSSH	Boston, Mass.
WIBW	Topeka, Kans.	WSUI	Iowa City, Iowa.
WIBX	Utica, N. Y.	WTAG	Worcester, Mass.
WICC	Easton, Conn. (Bridgeport).	WTAR	Norfolk, Va.

## UNDER 200 CYCLES

KFI	Los Angeles, Calif.	WCAL	Northfield, Minn.
KFJF	Oklahoma City, Okla.	WCAU	Byberry, Pa. (Philadelphia).
KFKB	Milford, Kans.	WCAZ	Carthage, Ill.
KFMX	Northfield, Minn.	WCBA	Allentown, Pa.
KFNF	Shenandoah, Iowa.	WCGU	Brooklyn, N. Y.
KFPL	Dublin, Tex.	WCSH	Scarboro, Me. (Portland).
KFQW	Seattle, Wash.	WDGY	Minneapolis, Minn.
KFRG	San Francisco, Calif.	WDSU	Gretna, La. (New Orleans).
KFSD	San Diego, Calif.	WEAI	Ithaca, N. Y.
KFUO	Clayton, Mo.	WEAO	Columbus, Ohio.
KFYR	Bismarck, N. Dak.	WEDC	Chicago, Ill.
KGOR	Watertown, S. Dak.	WEVD	Forest Hills, N. Y. (New York City).
KGKO	Wichita Falls, Tex.	WFAA	Grapevine, Tex. (Dallas).
KGO	Oakland, Calif. (San Francisco).	WFBR	Baltimore, Md.
KHI	Los Angeles, Calif.	WFI	Philadelphia, Pa.
KHQ	Spokane, Wash.	WFIW	Hopkinsville, Ky.
KLRA	Little Rock, Ark.	WGBF	Evansville, Ind.
KMBC	Independence, Mo. (Kansas City).	WGBI	Scranton, Pa.
KMCS	Inglewood, Calif.	WGCM	Mississippi City, Miss. (Gulfport).
KMMJ	Clay Center, Nebr.	WGES	Chicago, Ill.
KMO	Tacoma, Wash.	WHAP	Carlstadt, N. J. (New York City).
KOIL	Council Bluffs, Iowa.	WHDH	Gloucester, Mass. (Boston).
KPCB	Seattle, Wash.	WHN	New York, N. Y.
KPO	San Francisco, Calif.	WHO	Des Moines, Iowa.
KPOF	Belleview College, Colo. (Denver).	WIBA	Madison, Wis.
KQV	Pittsburgh, Pa.	WIBO	Desplaines, Ill. (Chicago).
KROW	Richmond, Calif. (Oakland).	WJAR	Providence, R. I.
KSD	St. Louis, Mo.	WJAS	Pittsburgh, Pa.
KSO	Clarinda, Iowa.	WJAX	Jacksonville, Fla.
KTAR	Phoenix, Ariz.	WJAY	Cleveland, Ohio.
KUOA	Fayetteville, Ark.	WJZ	Bound Brook, N. J. (New York City).
KWJJ	Portland, Oreg.	WKRC	Cincinnati, Ohio.
KXL	Do.	WKZO	Berrien Springs, Mich.
WAAF	Chicago, Ill.	WLBZ	Bangor, Me.
WAAW	Omaha, Nebr.	WLIT	Philadelphia, Pa.
WABC	New York, N. Y.	WLW	Mason, Ohio (Cincinnati).
WABZ	New Orleans, La.	WLWL	Kearny, N. J. (New York City).
WASH	Grand Rapids, Mich.	WMAK	Grand Island, N. Y. (Buffalo).
WBAK	Harrisburg, Pa.	WMAL	Washington, D. C.
WBAL	Glen Morris, Md. (Baltimore).	WMCA	Hoboken, N. J. (New York City).
WBBC	Brooklyn, N. Y.	WNAX	Yankton, S. Dak.
WBEN	Martinsville, N. Y. (Buffalo).	WNBK	Binghamton, N. Y.
WBMS	Hackensack, N. J.	WNBH	Fairhaven, Mass. (New Bedford).
WBT	Charlotte, N. C.	WNYC	New York, N. Y.
WBZA	Boston, Mass.	WOAI	Selma, Tex. (San Antonio).

UNDER 200 CYCLES

Call signal	Transmitter location, studio location in parentheses	Call signal	Transmitter location, studio location in parentheses
WOAX WODX WOQ WOS WPAP WQAO WPTF	Trenton, N. J. Springhill, Ala. (Mobile). Kansas City, Mo. Jefferson City, Mo. } Cliffside, N. J. (New York City). Raleigh, N. O.	WRJN WRNY WRVA WSMB WTAD WWJ	Racine, Wis. Coytesville, N. J. (New York City). Mechanicsville, Va. (Richmond). New Orleans, La. Quincy, Ill. Detroit, Mich.

The list for February is as follows:

UNDER 100 CYCLES

Call signal	Transmitter location, studio location in parentheses	Call signal	Transmitter location, studio location in parentheses
KDKA KEX KFEQ KPH KFI KGFV KGO KLZ KMA KMMJ KOA KOB KPO KSCJ KSD KTAR KTAT KYW- KFKX WAAM WABC WAU WAPI WBB WBBM WBCM WBEN WBT WBTM WCAH WCAO WCAU WCBM WCGU WCRW WDAE WDAF WDBJ WDBO WDOD WEAF WEAI WEAN WEBR WEEI WEHS WENR WFIW WGBI WGN	East Pittsburgh, Pa. Portland, Oreg. St. Joseph, Mo. Wichita, Kans. Los Angeles, Calif. Ravenna, Nebr. Oakland, Calif. (San Francisco). Denver, Colo. Shenandoah, Iowa. Clay Center, Nebr. Denver, Colo. State College, N. Mex. San Francisco, Calif. Sioux City, Iowa. St. Louis, Mo. Phoenix, Ariz. Birdville, Tex. (Fort Worth). } Bloomingdale Township, Ill. (Chicago). Newark, N. J. New York, N. Y. Columbus, Ohio. Birmingham, Ala. Brooklyn, N. Y. Glenview, Ill. (Chicago). Hampton Township, Mich. (Bay City). Martinsville, N. Y. (Buffalo). Charlotte, N. C. Danville, Va. Columbus, Ohio. Baltimore, Md. Byberry, Pa. (Philadelphia). Baltimore, Md. Brooklyn, N. Y. Chicago, Ill. Tampa, Fla. Kansas City, Mo. Roanoke, Va. Orlando, Fla. Brainerd, Tenn. (Chattanooga). Bellmore, N. Y. (New York). Ithaca, N. Y. Providence, R. I. Buffalo, N. Y. Weymouth, Mass. (Boston). Cicero, Ill. Downers Grove, Ill. (Chicago). Hopkinsville, Ky. Scranton, Pa. Elgin, Ill. (Chicago).	WGR WGY WHAP WHB WHFC WHO WHP WIBA WIBO WIBW WICC WJAS WJBK WJR WKBI WKRC WLBZ WLEY WMA WMAQ WMBC WMCA WMMN WMT WNAD WNAX WOC WOI WOL WOQ WOR WOW WOWO WPTF WQAM WRAX WRC WRHM WRUF WRVA WSB WSBC WSM WSUI WTAG WTAM WTBO WTIC WTMJ WVVA	Amherst, N. Y. (Buffalo). Schenectady, N. Y. Carlstadt, N. J. (New York, N. Y.). Kansas City, Mo. Cicero, Ill. Des Moines, Iowa. Lemoyne, Pa. (Harrisburg). Madison, Wis. Des Plains, Ill. (Chicago). Topeka, Kans. Easton, Conn. (Bridgeport). Pittsburgh, Pa. Highland Park, Mich. Sylvan Lake Village, Mich. (Detroit). Chicago, Ill. Cincinnati, Ohio. Bangor, Me. Lexington, Mass. Washington, D. C. Addison, Ill. (Chicago). Detroit, Mich. Hoboken, N. J. (New York, N. Y.). Fairmount, W. Va. Waterloo, Iowa. Norman, Okla. Yankton, S. Dak. Davenport, Iowa. Ames, Iowa. Washington, D. C. Kansas City, Mo. Kearney, N. J. (Newark). Omaha, Nebr. Fort Wayne, Ind. Raleigh, N. C. Miami, Fla. Philadelphia, Pa. Washington, D. C. Fridley, Minn. (Minneapolis). Gainesville, Fla. Mechanicsville, Va. (Richmond). Atlanta, Ga. Chicago, Ill. Nashville, Tenn. Iowa City, Iowa. Worcester, Mass. Brecksville Village, Ohio (Cleveland). Cumberland, Md. Avon, Conn. (Hartford). Brookfield, Wis. (Milwaukee). Wheeling, W. Va.

UNDER 200 CYCLES

KFKB KFKF KFOR KFRU KMBC KNX KOIL KTNT KTRH KVOO	Millford, Kans. Shenandoah, Iowa. Lincoln, Nebr. Columbia, Mo. Independence, Mo. (Kansas City). Los Angeles, Calif. (Hollywood). Council Bluffs, Iowa. Muscatine, Iowa. Houston, Tex. Tulsa, Okla.	KWKH WAAF WASH WBAA WBAL WCAM WCCO WCHI WCKY WCSH	Kenonwood, La. (Shreveport). Chicago, Ill. Grand Rapids, Mich. West Lafayette, Ind. Glen Morris, Md. (Baltimore). Camden, N. J. Anoka, Minn. (Minneapolis). Batavia, Ill. (Chicago). Crescent Springs, Ky. (Covington). Scarboro, Me. (Portland).
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## UNDER 200 CYCLES

Call signal	Transmitter location, studio location in parentheses	Call signal	Transmitter location, studio location in parentheses
WEDC	Chicago, Ill.	WKY	Oklahoma City, Okla.
WELK	Philadelphia, Pa.	WLAC	Nashville, Tenn.
WEXL	Royal Oak, Mich.	WLIT	Philadelphia, Pa.
WFAA	Grapevine, Tex. (Dallas).	WLTH	Brooklyn, N. Y.
WFBL	Collamer, N. Y. (Syracuse).	WLW	Mason, Ohio (Cincinnati).
WFBR	Baltimore, Md.	WMBD	Peoria Heights, Ill.
WFI	Philadelphia, Pa.	WMBI	Addison, Ill. (Chicago).
WGAR	Akron, Ohio.	WMC	Bartlett, Tenn. (Memphis).
WGES	Chicago, Ill.	WNAC	Quincy, Mass. (Boston).
WHAM	Victor Township, N. Y. (Rochester).	WNBH	Fairhaven, Mass. (New Bedford).
WHAS	Jeffersontown, Ky. (Louisville).	WNJ	Newark, N. J.
WHDH	Gloucester, Mass. (Boston).	WPG	Atlantic City, N. J.
WIOD	Miami Beach, Fla.	WRBX	Roanoke, Va.
WJAG	Norfolk, Nebr.	WREN	Lawrence, Kans.
WJAR	Providence, R. I.	WSBT	South Bend, Ind.
WJAX	Jacksonville, Fla.	WTAD	Quincy, Ill.
WJDX	Jackson, Miss.	WWJ	Detroit, Mich.
WJKS	Gary, Ind.		

During February 99 (27 per cent) deviated under 100 cycles, 55 (15 per cent) under 200, and 213 (58 per cent) over 200 cycles. These figures show a decided improvement over the previous two months in that more stations went into the class deviating under 100 cycles. The number of measurements made totaled 5,328.

As during January and February only 365 and 367, respectively, out of the 612 broadcasting stations in the United States and possessions were measured, it must be borne in mind that many of those not measured undoubtedly are as efficient as those named above.

These measurements were made at standard frequency monitoring stations located in Boston, Mass.; Baltimore, Md.; Atlanta, Ga.; New Orleans, La.; Chicago, Ill.; Detroit, Mich.; and Grand Island, Nebr.

Since March 1, standards have been installed at Los Angeles, Calif; San Francisco, Calif.; and Portland, Oreg. Measurements made at these places during March will be taken in consideration in the compilations for that month.

## LIST OF CUBAN BROADCASTING STATIONS, 100 WATTS OR OVER IN ORDER, OF FREQUENCIES

Frequency in kilocycles, meters in parentheses	Power, watts	Call signal	Location	Owner and address
1,405 (213.4)-----	100	CMBY	Habana-----	Lino E. Cosculluela, Animas número 134.
1,327 (226)-----	250	CMKH	Santiago de Cuba.	Alberto Revelo, J. A. Saco s/n.
1,249 (240)-----	250	CMKE	do-----	Edmundo Recamier, E. Palma, baja 72.
1,225 (244.7)-----	150	CMCA	Habana-----	Manuel Cruz, Amistad y San José.
	250	CMCN	Marianao-----	Antonio Ginard, Reina y Av. B. Retiro.
1,154 (260)-----	200	CMHA	Cienfuegos-----	Fox Bros Co., Gacell núm. 48, altos.
1,150 (260.7)-----	250	CMQ	Habana-----	José Fernández, 25 número 445, Vedado.
	600	CMCQ	do-----	Andrés Martínez, Vista Alegre 80, Vibora.
1,070 (280.2)-----	150	CMBT	do-----	Emilio Perera, Finlay número 84.
	150	CMBG	do-----	Francisco Garrigó, Dragones número 16.
	150	CMCB	do-----	M. D. Austrán, Neptuno número 141.
1,034 (290)-----	150	CMKC	Santiago de Cuba.	M. P. Martínez, Lacret y San Pedro.
	150	CMBZ	Habana-----	Manuel y G. Salas, San Rafael número 14.
1,010 (296.8)-----	150	CMBW	Marianao-----	Modesto Alvarez, A entre 6 y 8, La Sierra.
	250	CMCX	do-----	"El Mundo," Agulla número 60.
955 (313.8)-----	150	CMBD	Habana-----	Luis Pérez García, Enmorados y Flores.
	150	CMBC	do-----	Domingo Fernández, Máximo Gómez número 139.
920 (325)-----	250	CMHD	Calbarién-----	Manuel A. Alvarez, M. Escobar número 17.
900 (333.1)-----	500	CMX	Habana-----	Francisco Lavín, San Lázaro número 99.
	250	CMCF	do-----	Raoul Karman, Rayo número 67.
845 (354.8)-----	500	CMC	do-----	Cuban Telephone Co., Agulla número 161.
834 (360)-----	100	CMGA	Colon-----	Leopoldo V. Figueroa, Martí número 19.
790 (379.5)-----	150	CMBS	Habana-----	Enrique Artalejo, Calzada y H. Vedado.
	500	CMHC	Tuinucú-----	Frank H. Jones, Central Tuinucú.
730 (410.8)-----	3,000	CMK	Habana-----	Cia. Cubana de Radiodifusión Hotel Plaza.
660 (454.3)-----	225	CMCO	Marianao-----	John L. Stowers, Almendares número 58.
588 (510.0)-----	700	CMW	Habana-----	Columbus Com. and Radio Co., Paseo de Martí número 103.
550 (545.1)-----	250	CMCJ	do-----	Rafael Rodríguez, Estévez número 4.



## NEW LIST OF STATIONS OF THE WORLD IN ORDER OF FREQUENCIES

The International Bureau of the Telegraph Union, Radiotelegraph Service, Berne, Switzerland, now has available for distribution to the public, such a new list, dated January, 1931. This document contains 445 pages and may be brought up to date by recapitulative monthly supplements. The price of the list and supplements which will be issued until November of the current year is 25 Swiss francs (\$4.83), postage included. All remittances should be made direct to the Berne Bureau by international money order.

Other international lists of radio stations of the world distributed by the Berne Bureau and their selling price including supplements and postage until the issuance of a new edition are as follows: Fixed and Land (edition March, 1930), \$1.85; Ship (edition March, 1930), \$2.90; Land and Ship, alphabetically by call signals (edition November, 1930), ordinary copy without index, \$1.41, on heavy paper with cardboard cover and index, \$1.93; Broadcasting (edition June, 1930) \$1.36; performing special services—radiocompass, radiobeacon, and stations transmitting weather reports, time signals, etc. (edition May, 1930), \$2.13; Aircraft (edition June, 1930), \$1.16.

## AMATEUR STATIONS CAUSING INTERFERENCE

It has been observed during the past few months that a considerable number of operators of amateur radio stations are failing to operate within the band of frequencies allocated for their operation. Serious interference is therefore being caused to commercial and government communications in this country. There is also the possibility of causing interference with foreign stations.

It is incumbent upon amateurs as well as other stations to operate in accordance with the terms of their licenses and the requirements of the radio laws and regulations.

Supervisors of this office throughout the country have been instructed to observe the operation of amateur stations closely. Any stations reported for violations may expect to be penalized as provided for under the radio act of 1927.

## INTERNATIONAL RADIOTELEGRAPH CONFERENCE TO BE HELD IN MADRID

The next International Radiotelegraph Conference will be held in Madrid, Spain, beginning in September, 1932. The International Telegraph Conference will be held at the same time.

## BRITISH WEATHER SHIPPING BULLETIN

On and after March 1, the complete issue of this bulletin now made through the Air Ministry station GFA on 73.2 kc/s. (4,098 m.), A1, at 0900 and 2000 G. M. T. will be made through Rugby Radio GBR on 16 kc/s. (18,750 m.) A1, at 0910 and 2118 G. M. T. The issue of the portions of this bulletin for the western, southern, and eastern areas through spark stations will remain as at present.

## CHANGE IN FREQUENCIES, ETC., AT MALABAR, JAVA, FOR TRANSMITTING NAVIGATIONAL WARNINGS, ETC.

Urgent navigational warnings are now transmitted by PKX and PLA on 19.23 kc/s. (15,600 A1, and by PLO on 11,440 kc/s. (26.22 m.), A2, at 0100, G. M. T. PKX broadcasts daily except Sunday; PLA broadcasts on Sunday only; PLO broadcasts daily. The week-day transmissions from PKX and PLO are effected simultaneously. Time signals are transmitted immediately after the navigational warnings. Information regarding the prevalence of epidemic diseases is also broadcast in plain English.

## MEDICAL ADVICE FURNISHED BY ELBE-WESER (DAC), GERMANY

This station will forward requests for medical consultations received either by radiotelegraph or radiotelephone. It operates on 417 kc/s. (720 m.), A2 and 1,875 kc/s. (160 m.) A3.

The messages must be addressed to "Funkarzt Cuxhaven (radio medical officer, Cuxhaven)" and if radiotelephone is used, the master of the vessel requiring the consultation can be put into direct telephonic communication with the radio medical officer.

Requests transmitted by radiotelegraph are to be signed by the master. Requests transmitted by radiotelephone are to be made by the master, or someone authorized by him. All messages can be carried out in German, English,

French, or Spanish, but unless German is used an immediate reply can not be guaranteed. In some cases the reply may be made immediately in German and confirmed later in the language used in the inquiry. The message of inquiry should contain a brief but clear and full description of all symptoms of the illness and the circumstances which led to it. In very urgent cases, messages prefixed by XXX will have precedence over all other traffic, except distress calls.

The medical advice is given free of charge but the messages whether by radio-telegraph or radiotelephone are subject to the usual charges.

CHANGE IN TIME SIGNALS TRANSMITTED BY BUENOS AIRES, ARGENTINA

This station now called Buenos Aires-Darsena Norte (LOL) transmits time signals twice daily except Sundays and holidays at 0200 and 1400, G. M. T., corresponding to 2200 and 1000 standard time on 8,690 kc/s. (34.52 m.) and 284.9 kc/s. (1,053 m.) simultaneously. On Sundays and holidays at 1400 G. M. T. (1000 S. T.) only.

The signals which are relayed from Buenos Aires naval observatory are automatic and the procedure is as follows:

G. M. T.

h m s			h m s			
13	52	00				CQ CQ CQ LOL LOL LOL . . . . .
						. . . . .
	56	05 to	13	56	50	— — — every 10 sec., except that the third group, 25 to 30 sec., is replaced by a 5-second dash.
	57	00 to	57	47		— . . — every 5 sec.
				55	56 57 58 59 60	
	57	55 to	58	00		. . . . . Time signal.
	58	08 to	58	50		— . every 10 sec.
				55	56 57 58 59 60	
	58	55 to	59	00		. . . . . Time signal.
	59	06 to	59	50		— — — every 10 sec.
				55	56 57 58 59 60	
13	59	55 to	14	00	00	. . . . . Time signal.

Half an hour after the transmission, the W/T station sends the correction in hundredths of a second, together with the sign (+ or -).

The definite correction can be obtained from the observatory, on request. During summer time, the period, September 1 to March 31, standard mean time of meridian 45° W. will be kept, or 3<sup>h</sup> 00<sup>m</sup> 00<sup>s</sup> slow on G. M. T.

PROGRESS IN AERONAUTIC RADIO RESEARCH

The Bureau of Standards has made performance tests of its recently developed simultaneous radiotelephone and range-beacon transmitter. This development permits an airplane pilot to receive simultaneously voice messages and visual radiobeacon signals, all on a single receiving set. Tests made at a distance with a commercial aircraft receiving set showed that the quality of the received speech signals is substantially better than that obtained in existing airplane radiotelephone reception, and that the operation of the beacon course indicator is equivalent to that obtained with existing visual type range beacons. Test flights were made to determine the useful distance range of the combined transmitter in its present adjustment. At a distance of 100 miles from the transmitting station, it was still unnecessary to employ the full sensitivity of the receiving set. Increasing the effective height of the transmitting antenna system will result in still greater useful distance range. These results insure that simultaneous transmission of the weather broadcast and range-beacon services and the simultaneous reception of these services on the airplane, is entirely practicable for use on the airways.

A brief description of a radio system under development by the bureau as an aid to the prevention of collision between aircraft in flight under conditions of poor visibility was given in a previous issue of this bulletin. This system involves transmission of a warning signal on a very high frequency from each airplane and reception on the same frequency on each airplane. Upon receiving the warning signal from an airplane ahead of him, the pilot will maneuver his airplane to reduce the intensity of received signal, thereby automatically devi-

ating from the direction of danger. On account of the very high frequency and relatively short distance required, the power needed is very low. A transmitting set for this purpose has been constructed employing a single commercial receiving tube and operating on a frequency of 165,000 kilocycles. The receiving set also uses a single receiving tube of the same type in a very stable superregenerative circuit. To secure visual indication of the received signal, a copper-oxide rectifier and microammeter were connected to the output of the receiving set. A directional receiving antenna system was used, consisting of three doublet antennas approximately 3 feet long and spaced 18 inches apart, one being connected to the input of the receiving set. In preliminary tests a useful distance range of 3 miles was obtained, which is about the distance that it would be desirable to have the collision prevention system work. The apparatus does not yet have sufficient stability for practical application; the experiments continue.

The Bureau of Standards has developed an indicator for the visual type radio range beacon which may have some advantages over the reed indicator regularly employed. In the new instrument a pointer remains at a zero mark when the airplane is on the course and swings to right or left as the airplane deviates from the course. Numerous flight tests have been made of this device and its practicability demonstrated. One of these instruments has been loaned to an air transport operator for service tests in regular operation flights in connection with a radio range beacon of the visual type installed on the airways. Until such tests are completed, it can not be stated whether this instrument is preferable to the reed indicator. The device is operated by a reed converter; that is, a reed indicator in which, besides the set of driving coils for operating each reed from the received beacon signals, a set of pick-up coils is provided for each reed. The motions of the two reeds induce alternating voltages in the two pick-up coils, which are proportional to the reed vibration amplitudes and consequently to the intensities of the two low frequencies constituting the received beacon signal. The induced alternating voltages are rectified by means of copper-oxide rectifiers and the rectified voltages applied in opposition to the terminals of the zero-center instrument which the pilot sees. One of the problems which had to be considered in connection with this instrument was the possibility that the beacon signals might stop, or the receiving set fail, and the instrument continuing to read zero the pilot would be deceived into thinking his course was still being indicated. To preclude this possibility, a volume indicator is employed. A paper describing the new instrument is in preparation. When issued, a notice will be given in these columns.