

DEPARTMENT OF COMMERCE

RADIO SERVICE BULLETIN

ISSUED MONTHLY BY BUREAU OF NAVIGATION

Washington, February 28, 1927—No. 119

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ABBREVIATIONS

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

Name	= Name of station.
Loc.	= Geographical location. O= west longitude. N=north latitude. S=south latitude.
Call	= Call letters assigned.
System	= Radio system used and sparks per second.
Range	= Normal range in nautical miles.
W. l.	= Wave lengths assigned: Normal wave lengths in italics.
Service	= Nature of service maintained.
	FX = Point-to-point (fixed service).
	PG = General public.
	PR = Limited public.
	RC = Radiocompass station.
	AB = Aviation beacon.
	B = Beacon.
	P = Private.
	O = Government business exclusively.
Hours	= Hours of operation:
	N = Continuous service.
	X = No regular hours.
F. T. Co.	= Federal Telegraph Co.
I. R. T. Co.	= Inter-city Radio Telegraph Co.
I. W. T. Co.	= Independent Wireless Telegraph Co.
K. & C.	= Kilbourne & Clark Manufacturing Co.
R. C. A.	= Radio Corporation of America.
T. R. T. Co.	= Tropical Radio Telegraph Co.
U. R. Corp.	= Universal Radio Corp.
W. S. A. Co.	= Wireless Specialty Apparatus Co.
C. w.	= Continuous wave.
I. c. w.	= Interrupted continuous wave.
Kc.	= Kilocycles.
Fy.	= Frequency.
A. c.	= Alternating current.
V. t.	= Vacuum tube.

NOTICE.—Copies of the new radio law of 1927 (Public No. 632) are available at the office of the Superintendent of Documents, Government Printing Office,

NEW STATIONS

Commercial land stations, alphabetically by names of stations

[Additions to the List of Radio Stations of the United States, edition of June 30, 1926, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Station	Call signal	Wave lengths	Service	Hours	Station controlled by—
Fresno, Calif. ¹	KGT	44.06	FX	X	Pacific Air Transport.
McCauley, Tex. ²	KSZ	44.05	FX	X	Texas Pipe Line Co.

¹ Loc. (approximately) O 119° 50' 00", N 26° 45' 00"; system, composite v. t. telegraph.
² Loc. O 102° 14' 12", N 31° 05' 39"; system, composite v. t. telegraph.

Commercial ship stations, alphabetically by names of vessels

[Additions to the List of Radio Stations of the United States, edition of June 30, 1926, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Names of vessel	Call signal	Waves	Service	Hours	Owner of vessel	Station controlled by—
Artemis.....	WQS	8	PG	N	U. S. Shipping Board.....	
Cabrille.....	KENS	8	PG	X	Chile S. S. Co.....	
Covena.....	KEMP	8	PG	X	Hammond Lumber Co.....	
Darden.....	KUPE	8	PG	X	U. S. Shipping Board.....	
Dartford.....	KDAV	8	PG	X	James C. Brady.....	I. W. T. Co.
Gulf Pride (RC).....	KGEJ	8	PG	X	Gulf Refining Co.....	H. C. A.
Lake Ellithorpe.....	KOFM	8	PG	X	New England, New York & Texas S. S. Corp.	Do.
Lake Inglesook.....	KOBT	8	PG	X	Do.....	Do.
Malolo (RC).....	KII	8	PG	N	Do.....	Do.
Malolo Lifeboat.....	KIIA				Do.....	Do.
Malolo Lifeboat.....	KIIB				Do.....	Do.
Norfolk.....	WZUA	8	PG	X	Coastwise Transportation Corp.....	Do.
Sahani.....	WNBH	8	PG			

Commercial land and ship stations, alphabetically by call signals

[b, Ship station; c, land station]

Call signal	Name of station	Call signal	Name of station
KDAV	Dartford.....b	KOBT	Lake Inglesook.....b
KEMP	Covena.....b	KOFM	Lake Ellithorpe.....b
KENS	Cabrille.....b	KSZ	McCauley, Tex.....c
KGEJ	Gulf Pride.....b	KUPK	Darden.....b
KGT	Fresno, Calif.....c	WNBH	Sahani.....b
KII	Malolo.....b	WQS	Artemis.....b
KIIA	Malolo lifeboat.....b	WZUA	Norfolk.....b
KIIB	Malolo lifeboat.....b		

Broadcasting stations, alphabetically by names of States and cities

[Additions to the List of Radio Stations of the United States, edition of June 30, 1926]

State and city	Call signal	State and city	Call signal
California:		New York:	
Burbank.....	KELW	Endicott.....	WNBW
Los Angeles.....	KUFJ	Le Roy.....	KOFL
Do.....	KILO	Rochester.....	WNBQ
Yuba City.....	KGFM	North Dakota: Amida.....	KOFN
Colorado:		Ohio: Youngstown.....	WNBW
Durango.....	KOLO	Oregon:	
Trinidad.....	KGFL	Portland.....	KLW
Illinois:		Do.....	KWBB
Bloomington.....	WMBY	Pennsylvania:	
Do.....	WNBL	Bethayres (portable).....	WALH
Forest Park.....	WNBA	Washington.....	WMO
Peru.....	WNBI	South Dakota: Mitchell.....	KGFP
Iowa: Sioux City.....	KSCJ	Tennessee:	
Kentucky: Hopkinsville.....	WFIW	Knoxville.....	WNBJ
Massachusetts: Boston.....	WIBM	Memphis.....	WNB
Minnesota: Hallock.....	KGFK	Texas: Fort Stockton.....	KGFI

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Broadcasting stations, alphabetically by call signals

[The power and wave lengths given in this table were compiled from applications for licenses furnished the department by the owners of the stations. Since the department does not make assignments in either respect, this list is not necessarily in conformity with wave lengths or power actually used. All of the stations named hereunder were licensed prior to the approval of the radio act of 1927]

Call signal	Location of station (address)	Owner of station	Power (watts)	Wave length	Frequency (kilo-cycles)
KELW	Burbank, Calif., 3702 Magnolia Avenue.	Earl L. White.....	250	535	560.4
KGA	Spokane, Wash., 325 Rowan Avenue.	Northwest Radio Service Co....	20,000	340.7	880
KGEO	Grand Island, Nebr., 116 North Locust Street.	Raymond D. Chamberlain (Central Power Co., Independent Publishing Co., Universal Pictures Corporation, and Yonay Hotel Co.).	50	271	1,106
KGFI	Fort Stockton, Tex.	M. L. Enves.....	75	220.4	1,360
KGFJ	Los Angeles, Calif., 2333 West Twenty-first Street.	Ben S. McGlashan.....	100	218	1,375
KGFK	Hullock, Minn.	Kittson County Enterprise (C. W. Haggveter).	100	215	1,333
KGFL	Trinidad, Colo., 219 West Main Street.	Trinidad Broadcasting Co.	50	222	1,351
KGFM	Yuba City, Calif., 336 Flumas Street.	George W. Johnson.....	15	450	666.3
KGFN	Ames, N. Dak.	Haroldson & Thingstad.....	15	272.1	1,350
KGFP	Mitchell, S. Dak., 113 West Fourth Avenue	Mitchell Broadcast Co.	15	263	1,140
ELIT	Portland, Oreg., 475 Twenty-first Street.	Lewis I. Thompson.....	10	350	780
KOLO	Durango, Colo., P. O. Box 786....	Gerald K. Hunter.....	5	345.1	844.3
KRLO	Los Angeles, Calif., 218 North Larchmont Boulevard.	Freeman Long and A. B. Scott...	250	440	681.4
KSCJ	Sioux City, Iowa.....	Sioux City Journal.....	10	444	675.3
KWBS	Portland, Oreg., 220 East Forty-Erd Street.	Schaeffer Manufacturing Co.	10	200	1,600
WALK	Rothaynes, Pa. (portable).....	Albert A. Walker.....	50	285	1,052
WCOC	Columbus, Miss.	Crystal Oil Co. (H. B. Holmes, Jr.).	100	225.3	1,130
WFIW	Hopkinsville, Ky.	Acme Mills (Inc.).....	1,000	354.9	840
WLEB	Boston, Mass., 351 Washington Street.	Browning Drake Corporation....	50	480	624.6
WMBW	Youngstown, Ohio, 647 Market Street.	Youngstown Broadcastine Co....	50	270	1,075
WMBY	Bloomington, Ill., 108 East Front Street.	Robert A. Issues.....	15	261.1	1,030
WNDA	Forest Park, Ill., 810 Desplaines Avenue.	M. T. Rafferty.....	500	238	1,260
WNDF	Endicott, N. Y., 117 West Main Street.	Howitt-Wood Radio Co. (Lyle E. Howitt and H. L. Wood).	50	265.4	1,420
WNBI	Peru, Ill., 621 East Seventh Street.	Wm. J. Romanowski.....	10	157	139.8
WNBJ	Knoxville, Tenn.	Lonsdale Baptist Church.....	15	335	895
WNBK	La Hoy, N. Y., 18 Myrtle Street.	H. C. Barton Electrical Co.	250	354	847
WNBL	Bloomington, Ill., 167 East Front Street.	Harvey H. Stern.....	15	495	606.7
WNBO	Washington, Pa., 319 East Beuz Street.	John B. Spriggs.....	15	215	1,395
WNBQ	Rochester, N. Y., 192 South Goodman Street.	Gordon P. Brown.....	15	467.6	735.6
WNBR	Memphis, Tenn., 863 Poplar Avenue.	Popular Radio Shop (John Ulrich).	25	316	948.8

Government ship stations, alphabetically by names of stations

[Additions to the List of Radio Stations of the United States, edition of June 30, 1926, and to the International List of Radiotelegraph Stations published by the Berne bureau.]

Station	Call signal	Wave length	Service	Hours	Station controlled by—
Omara	WVGV	200	G	Y	U. S. Navy

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Government land and ship stations, alphabetically by call signals

[b, ship station; c, land station]

Call signal	Name of station
WYCV	Omega.....b

ALTERATIONS AND CORRECTIONS

COMMERCIAL LAND STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1925, and to the International List of Radiotelegraph Stations, published by the Berna Bureau]

BELFAST, ME.—Strike out all particulars.

ENSENADA, P. R.—Rates, ship service 10 cents per word.

POINT BARROW, ALASKA (KFZG).—Loc. (approximately) O 156° 27' 00", N. 71° 23' 00"; system composite v. t. telegraph; w. l., 45.32, 69.25.

POINT BARROW, ALASKA (KFZH, portable).—Change to Fairbanks, Alaska; loc. (approximately) O 147° 30' 00", N. 65° 00' 00"; system, composite v. t. telegraph; w. l., 44.71, 68.32.

SAN FRANCISCO, CALIF. (KFS).—See Palo Alto, Calif. (near) for particulars.

COMMERCIAL SHIP STATIONS, ALPHABETICALLY, BY NAMES OF VESSELS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1925, and to the International List of Radiotelegraph Stations, published by the Berna Bureau]

AGWIBAY.—Name changed to Axtell J. Byles; owner of vessel, Tide Water Associated Transport Corporation.

AGWISMITH.—Name changed to Helen Vinmont.

ANNISTON CITY.—Station controlled by R. C. A.

ATLANTA CITY.—Station controlled by R. C. A.

BALDHILL.—Station controlled by R. C. A.

BAYONNE.—Station controlled by owner of vessel.

BERKSHIRE.—Owner of vessel, Berkshire S. S. Co.

CAPE COD.—Name changed to Emma H. Coppage.

CAROLINA.—Owner of vessel, Maltran S. S. Co.

CARRISO.—Station controlled by I. W. T. Co.

CHARLES L. O'CONNOR.—Station controlled by I. W. T. Co.

CITIES SERVICE FUEL.—Owner of vessel, Cities Service Transportation Co.

CITY OF LORDBURG.—Name changed to James Griffiths.

COMMERCIAL PILOT.—Station controlled by I. W. T. Co.

DANNEDAIKE.—Owner of vessel, Dannedaike S. S. Corporation; station controlled by R. C. A. (U. S. L.).

DRUEL.—Name changed to Capac.

EAST INDIAN.—Station controlled by R. C. A.

EDITH.—Station controlled by R. C. A.

EDWARD CHRISTENSON.—Owner of vessel, Christenson S. S. Co.

ELEANOR CHRISTENSON.—Owner of vessel, Christenson S. S. Co.

FAITH.—Station controlled by R. C. A.

GOVERNOR JOHN LIND.—Station controlled by R. C. A.

INSPECTOR.—Station controlled by R. C. A.

JANE CHRISTENSEN.—Correct orthography Jane Christenson; owner of vessel, Christenson S. S. Co.

JEZEBEL.—Station controlled by R. C. A.

KEKUKU.—Name changed to Chilore; station controlled by R. C. A.

KEKOSKEE.—Station controlled by R. C. A.

MAURICE TRACY.—Station controlled by I. W. T. Co.

MICHAEL TRACY.—Station controlled by I. W. T. Co.

MUNPLACE.—Owner of vessel, Munson S. S. Line.

MUNDELTA.—Owner of vessel, Munson S. S. Line.

MYSTIC.—Owner of vessel, Mystic S. S. Corporation.

NORFOLK LIGHT.—Station controlled by R. C. A.

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PANAMA.—Owner of vessel, Alaska S. S. Co.
 PANSA.—Name changed to Mary D.; owner of vessel, Pacific American Fisheries; station controlled by R. C. A.
 PERRY L. SMITHERS.—Station controlled by R. C. A.
 PRISCILLA.—Name changed to Edward L. Shea; owner of vessel, Tide Water Associated Transport Corporation.
 RAJAH.—Owner of vessel, Cowley Gulf Line.
 RELIEF.—Station controlled by R. C. A.
 ROMULUS.—Station controlled by R. C. A.
 ROTARIAN.—Name changed to Condor.
 STEEL VOYAGER.—Station controlled by R. C. A.
 SUNOIL.—Name changed to Atlas; owner of vessel, Standard Transportation Co.
 VABA.—Owner of vessel, steamer Vaba Corporation.
 WEST COBALT.—Station controlled by R. C. A.
 WEST COHAB.—Station controlled by R. C. A.
 WILLKENS.—Station controlled by R. C. A.
 Strike out all particulars of the following-named vessels: Benj. F. Packard, Chicago, James MacNaughton, Romagne, William C. Atwater.

COMMERCIAL AIRPLANE STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1926, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

DETROITER.—*Read Alaskan*; w. l., 44.42, 60.81.

COMMERCIAL LAND AND SHIP STATIONS, ALPHABETICALLY, BY CALL SIGNALS

KDA, *read Alaskan* (airplane); KDCF, *read Condor*; KDJH, *read Jane Christenson*; KDRC, *read Helen Vinmont*; KDSR, *read Axtell J. Byles*; KFSE, *read Edward L. Shea*; KFZH, *read Fairbanks, Alaska*; KOMD, *read Capac*; KUJZ, *read Emma H. Coppage*; KUPV, *read Chilore*; KUTK, *read James Griffiths*; KUZN, *read Mary D.*; KWP, *read Atlas*; strike out all particulars following the call signals, KDJX, KFCN, WAC, WCE, WLA, WPB.

BROADCASTING STATIONS, BY CALL SIGNALS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1926, and list in Radio Service Bulletin No. 117, Dec. 31, 1926. The changes given hereunder were compiled from applications for licenses furnished the department by the owners of the stations prior to the approval of the radio act of 1927. Since the department does not make assignments in either respect, this list is not necessarily in conformity with wave lengths or power actually used]

KDYL (Salt Lake City, Utah).—Power, 250; w. l., 246.8, fy. kc., 1,215.
 KFAD (Phoenix, Ariz.).—Power, 500.
 KFLU (San Benito, Tex.).—Power, 15.
 KFON (Long Beach, Calif.).—Power, 750.
 KFPY (Spokane, Wash.).—Power, 500.
 KFWB (Hollywood, Calif.).—Power, 750.
 KFWV (Portland, Oreg.).—Power, 50.
 KFXB (Big Bear Lake, Calif.).—Change to Los Angeles, Calif., Commercial Exchange Building; power, 4,000; w. l., 352.7, fy. kc., 850.
 KFXV (Flagstaff, Ariz.).—Power, 10.
 KFYR (Bismarck, N. Dak.).—Power, 250.
 KGBX (St. Joseph, Mo.).—Power, 100.
 KGBY (Shelby, Nebr.).—Owner of station, Dunning and Taddiken.
 KGDM (Stockton, Calif.).—Owner of station, Victor G. Koping and E. F. Peffer, 42 South California St.
 KGEX (Muscatine, Iowa).—Call signal changed to KPNP.
 KGFA (Seattle, Wash.).—Call signal changed to KTCL; owner of station, American Radio Telephone Co., 614 Terminal Sales Building.
 KMO (Tacoma, Wash.).—Address, Hotel Winthrop.
 KMTR (Los Angeles, Calif.).—Owner of station KMTR Radio Corporation.
 KOCW (Chickasha, Okla.).—W. l., 270.1, fy. kc., 1,110.
 KSOO (Sioux Falls, S. Dak.).—Power, 250.
 KUT (Austin, Tex.).—W. l., 272.6, fy. kc., 1,100.
 KWWG (Brownsville, Tex.).—Owner of station, Chamber of Commerce (City of Brownsville); power, 750.
 KYW (Chicago, Ill.).—Power, 5,000; address, 508 South Michigan Ave.

- WBBP** (Petoskey, Mich.).—Power, 100.
WBET (Boston, Mass.).—Power, 500.
WBNY (New York, N. Y.).—Address, 400 East One hundred and thirty-ninth St.
WCAC (Mansfield, Conn.).—Road Storrs, Conn.
WCAO (Baltimore, Md.).—Power, 500.
WCFL (Chicago, Ill.).—Power, 1,500.
WCRW (Chicago, Ill.).—Power, 1,000; w. l., 410.7, fy. kc., 730.
WCWK (Fort Wayne, Ind.).—Power, 500.
WCWS (United States, portable).—Owner of station, Bridgeport Broadcasting Station (Harold D. Feuer and Charles W. Selen).
WDAD (Nashville, Tenn.).—Power, 5,000.
WDAH (El Paso, Tex.).—Power, 100.
WDBJ (Roanoke, Va.).—Power, 250.
WEBJ (New York, N. Y.).—Power, 1,000.
WEPS (Gloucester, Mass.).—Owner of station, Matheson Radio Co., 209 Main St.
WGBC (Memphis, Tenn.).—Power, 15.
WGBS (New York, N. Y.).—Changed to Astoria, N. Y.
WGBU (Fulford-by-the-Sea, Fla.).—W. l., 384.4, fy. kc., 780.
WGM (Jeanette, Pa.).—Power, 50.
WHAM (Rochester, N. Y.).—Owner of station, Stromberg-Carlson Telephone Manufacturing Co.
WHBL (Chicago, Ill., portable).—Power, 100.
WHBM (Chicago, Ill., portable).—Power, 100.
WHBQ (Memphis, Tenn.).—Owner of station, broadcasting station WHBQ (Inc.), Derron Building.
WHEC (Rochester, N. Y.).—Power, 500.
WHT (Deerfield, Ill.).—W. l., 390.8, fy. kc., 750.
WIBI (Flushing, N. Y.).—Owner of station, Frederick B. Zittel, jr. (George Palmer), 369 Amity St.
WIBJ (Chicago, Ill., portable).—Power, 100.
WJAM (Cedar Rapids, Iowa).—Power, 500.
WJAS (Pittsburgh, Pa.).—Address, Tenth and Pennsylvania Ave.
WJBT (Chicago, Ill.).—Address, 1654 Howard St., power, 10.
WJBY (Gadsden, Ala.).—Power, 100; w. l., 270.1, fy. kc., 1,110.
WKBF (Indianapolis, Ind.).—Power, 500; w. l., 243.8, fy. kc., 1,230.
WKBO (Jersey City, N. J.).—Power, 1,000; w. l., 472.7, fy. kc., 685; address, 2866 Boulevard.
WKBY (Danville, Pa., portable).—Power, 100.
WKRC (Cincinnati, Ohio).—Power, 2,000.
WLAC (Nashville, Tenn.).—Power, 5,000.
WLAP (Louisville, Ky.).—Power, 30.
WLBN (Chicago, Ill., portable).—Power, 50.
WNAX (Yankton, S. Dak.).—Owner of station, Dakota Radio Apparatus Co. and Gurney Seed and Nursery Co.
WNRC (Greensboro, N. C.).—Power, 500.
WVOI (Ames, Iowa).—Power, 5,000.
WOKO (Peekskill, N. Y.).—Power, 500.
WOWO (Fort Wayne, Ind.).—Power, 10,000.
WQAM (Miami, Fla.).—Power, 1,000.
WRCO (Raleigh, N. C.).—Power, 250.
WRNY (Coteyaville, N. Y.).—Address, Hotel Roosevelt, New York, N. Y.
WRST (Bay Shore, N. Y.).—Power, 150.
WSBC (Chicago, Ill.).—Power, 1,500.
 Strike out all particulars of the following-named stations: **KFOO** (Salt Lake City, Utah), **KFYO** (Texarkana, Tex.), **KGDI** (Seattle, Wash.), **KXRQ** (Seattle, Wash.), **WGBR** (Marshfield, Wis.), **WLBU** (Canastota, N. Y.), and **WWPR** (Detroit, Mich.).

GOVERNMENT LAND 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, 1926, and to the International List of Radiotelegraph Stations, published by the Bureau]

CAPE LOOKOUT, N. C.—Call signal changed to NAN; on page 116, list of Commercial and Government Radio Stations of the United States, under Atlantic Coast, add Cape Lookout, N. C.—NAN—latitude 34-36-12 N., longi-

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FOURTH CLIFF, MASS.—Call signal changed to NBF.

JUNEAU, ALASKA.—W. 1., 600, 800, 2,250; service, PG; hours, 8 a. m. to 12 midnight; rates, ship service 12 cents per word; station controlled by U. S. Army, Signal Corps.

KETCHIKAN, ALASKA.—W. 1., 600, 800, 1,874, 4,543; service, PG; hours, N; rates, ship service 12 cents per word; station controlled by U. S. Army, Signal Corps.

THATCHER ISLAND, MASS.—Call signal changed to NBE.

GOVERNMENT SHIP 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, 1926, and to the International List of Radiotelegraph Stations, published by the Berns Bureau]

EDGEMOOR.—Strike out all particulars.

GOVERNMENT AIRPLANE STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1926, and to the International List of Radiotelegraph Stations, published by the Berns Bureau]

PN 10 No. 1.—Strike out all particulars.

PN 10 No. 2.—Strike out all particulars.

GOVERNMENT LAND AND SHIP STATIONS, ALPHABETICALLY BY CALL SIGNALS

NAN, read Cape Lookout, N. C.; NBE read Thatcher Island, Mass.; NBF, read Fourth Cliff, Mass.; strike out all particulars following the call signals, NIRB (airplane), NIRC (airplane), WXC.

SPECIAL LAND 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, 1926]

RICHMOND HILL, N. Y. (2XE).—Owner of station, Atlantic Broadcasting Corporation.

MISCELLANEOUS

VESSELS EQUIPPED WITH A RADIOCOMPASS

The following-named vessels have been equipped with a radiocompass: *Acme*, *Argon*, *George W. Barnes*, *Mary D.*, *Paul H. Harwood*, and *W. L. Steed*.

CALL SIGNALS OF THATCHER ISLAND AND FOURTH CLIFF (MASS.) RADIOCOMPASS STATIONS CHANGED

The call signals of Thatcher Island and Fourth Cliff (Mass.) compass stations have been changed to NBE and NBF, respectively. These stations now have separate transmitters in the same geographical location as their receiving loops. The operation of the group in which they are located has not been changed in any manner; the Deer Island station controls as heretofore. (See pp. 112 to 116, list of Commercial and Government Radio Stations of the United States, edition June 30, 1926.)

DIAMOND SHOAL LIGHTSHIP RADIOBEACON TO BE CHANGED

The radiobeacon signal of this lightship will be changed about April 20, this year, to groups of two dashes and a dot repeated for 60 seconds and silent for 120 seconds, thus:

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

WEATHER REPORTS TO BE BROADCAST DAILY BY LIGHTSHIPS

Beginning March 1, 1927; San Francisco Lightship, Blunts Reef Lightship, Columbia River Lightship, and Swiftsure Bank Lightship will broadcast weather reports daily between 8 to 8:10 a. m., 12 m. to 12:10 p. m. and 8:10 to 8:20

its local weather report twice, requiring about 3 minutes, and the reports will follow from the different ships in the order named, totaling about 10 minutes. No requests for repeats (CQ) can be complied with, and Umatilla Reef Lightship will remain silent during these 10-minute periods. Special weather reports will be given by the regular stations and by Umatilla Reef Lightship when practicable on requests outside the regular broadcast periods. Shore stations and other ships are requested to remain silent during these periods.

INFORMATION REGARDING FOREIGN STATIONS

Canada.—A new commercial radio station has been established in Vancouver, British Columbia (long. 123° 06' 58", lat. 49° 17' 10"); call signal, VAB; wave lengths, 660, 2,235, 3,100 meters (l. e. w. and e. w.), 198.6 and 600 meters (phone); range, 250 miles; hours, continuous. The call signal of this station is that formerly used by Point Grey; the latter now uses call signal VAI.

Holland.—Navigational warnings after transmission on 2,930 meters are repeated twice immediately on 600 meters by the Scheveningen coast station. The Maasvluis compass station now charges 6 francs for each bearing. The call signal of the Ymuiden compass station is now PCYM. Change name of station PCWO to Willemsoord.

Norway.—A radiocompass station has been established on Lille Færder Light-house in 59° 01' 36" N., 10° 31' 54" E.; call signal LGH. The station operates on a 600-meter wave, but as it is not equipped with a sending apparatus requests for bearings should be made to Tjôme radio station, call signal LET. For the present no charge is made bearings. A vessel requiring a bearing calls Tjôme radio (LET) in the usual manner, and when answered sends QTE LGH (what is my true bearing from Færder radiocompass station?).

After receiving "K" the vessel proceeds to transmit her own call signal and the letter "V," alternately, for one minute. The signals should be made slowly with the dashes prolonged.

Tjôme radio station then replies: "QTE" (the true bearing of your ship from Færder radiocompass station is — degrees) followed by a three-figure group (000°=north; 270°=west) giving the true bearing off the vessel from the radiocompass station.

If the observation does not give a sharp result, owing to an indefinite minimum, the bearing will be indicated as "approximate."

For the present bearings within the sector from 85° to 115° will be designated as unreliable. No bearings will be given in the sector from 310° to 30°.

Masters of vessels, when certain of their positions, are invited to forward requests for bearings in order that both the station and vessels may obtain the best possible information as to the reliability of the bearings supplied; also, when convenient, forward a report on the results obtained to the director of telegraphs, radio division, Oslo, Norway.

Caution.—The authorities accept no responsibility for the accuracy or inaccuracy of bearings furnished by the radiocompass station.

The radio fog signal at Lille Færder light station was discontinued when the above-mentioned radiocompass station commenced to function.

Röst radiocompass station, in (approximately) 67° 39' 30" N., 12° 04' 30" E., is no longer experimental in view of which a charge of 4.50 francs is made for each bearing. Vessels should therefore no longer request bearings for the purpose of testing their reliability although the radio division of the Norwegian Telegraph Administration at Oslo would still appreciate a report on bearings.

New Zealand.—The radio fog signal recently established on the islet off Cape Maria Van Diemen, in latitude 34° 29' S., longitude 172° 39' E. (approximately), transmits on 1,000 meters (spark), range 50 miles. The fog signal will operate on all occasions when weather of low visibility exists off the Cape and in the vicinity of Three Kings Islands.

The characteristic of the signal consists of a series of the Morse letter J, transmitted automatically, at a speed of 15 words per minute, every five minutes, thus:

. — — — . — — — &c.	Silent
2 min.	3 min.

Should the mechanism fail to operate, the following signal will be transmitted by hand (speed: 10 words per minute): VLU SK.

Vessels desiring the signal to operate on special occasions other than during

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wireless signal either to Awanui radio station (call signal, VLA) or Auckland (call signal: VLD): "Request operate Cape Maria radiobeacon commencing— (here state time in New Zealand standard time)."

On receipt of the message the radio station will immediately instruct Cape Maria Van Diemen. The signal will be transmitted automatically for a period of 30 minutes from the time indicated. A charge of 2 shillings will be debited to the vessel making the request, by the New Zealand Post and Telegraph Department.

The fog signal station does not exchange wireless messages with ships. Masters of vessels intercepting this fog signal are requested to forward reports as to the effectiveness of the signals, and particularly as to details concerning bearings and distances at which observations were made, to the Secretary, Marine Department, Wellington, New Zealand.

NOTE.—The above data was compiled from various foreign publications.

INTERNATIONAL ICE PATROL SERVICE

For the purpose of carrying on the International Ice Observations and Ice Patrol Service provided for by the International Convention for the Safety of Life at Sea, London, 1913-14, the United States Coast Guard cutters *Tampa* and *Modoc* have been detailed for this service.

The object of the Ice Patrol Service is to locate icebergs and field ice nearest to the North Atlantic lane routes. It will be the duty of the patrol vessels to determine the southerly, easterly, and westerly limits of the ice and to keep in touch with these fields as they move to the southward, in order that radio messages may be sent out daily, giving the whereabouts of the ice, particularly the ice that may be in the immediate vicinity of the regular North Atlantic lane routes.

During the months of March, April, May, and June, and as much longer as necessary, these two vessels will alternate on patrol.

Having located the ice, the patrol vessel will send daily radiograms and broadcasts, as stated below, each broadcast being repeated twice, with an interval of 2 minutes between each repeat. Each broadcast will be preceded by the general call "QST" on 600 meters (500 kilocycles) wave length, immediately followed by the ice broadcast on the wave length specified, as follows:

Time		Wave length (meters)	Frequency (in kilocycles)
G. C. T.	Seventy-fifth meridian		
0000	7.00 p. m.	1,713	175
1100	4.00 a. m.	706	425
1200	7.00 a. m.	1,713	175
2300	8.00 p. m.	706	425

NOTE.—Attention is invited to the change to 1,713 meters (175 kilocycles) from 1,621 meters (185 kilocycles), which was used during the season of 1925.

At 0030 (G. C. T.), 7.30 p. m., seventy-fifth meridian time, a radiogram will be sent to the Hydrographic Office, Washington, D. C., through land radio stations, defining the ice danger zone, its southern limits, or other definite ice news, while other messages will be sent during the night if any later information is obtained by the patrol vessel. The telegraphic address of the Hydrographic Office is "Hydrographic, Washington, D. C."

Ice information will be given by radio at any time to any ship with which the patrol vessel can communicate. Such information will be furnished as regular radio traffic (without charge) on commercial traffic frequencies (wave lengths).

Ice information broadcasts will be given in as plain, concise English as practicable and will state in the following order: (a) position of patrol vessel, (b) location and description of ice, (c) other data.

The ice patrol vessels' general radio call letters are NIDK. This is a special call for the vessel actually on patrol and should not be confused with the regular

The radio messages from the patrol vessel and from other sources will be given publicity by the Hydrographic Office, as follows:

(a) By radio broadcast from—

Station	G. C. T.	Seventy-fifth meridian standard time	Wave length (meters)
Arlington.....	1130	10.50 a. m.	2,677, A. C. W. tube.
	0300	10.00 p. m.	
Annapolis.....	2200	5.00 p. m.	17,130, C. W.
Boston.....	1600	11.00 a. m.	2,600, T. D. tube.
	2200	5.00 p. m.	
New York.....	1500	10.30 a. m.	2,776, T. D. tube.
	220	5.00 p. m.	
Norfolk.....	1548	10.45 a. m.	2,883 tube.
	2300	4.00 p. m.	

(b) All reports of ice are published in the Daily Memorandum and the weekly Hydrographic Bulletin.

The work of the United States Coast Guard cutters engaged on this ice patrol duty will be greatly facilitated if the principal trans-Atlantic steamships report the following data by radio to the patrol vessels:

(a) Icebergs or obstructions sighted, giving date, time (G. C. T.), latitude, longitude, set, and drift; and in case it is an iceberg, the temperature of the water at the time should be included.

(b) Surface temperature of the sea water every four hours when between latitude 39° N. and 48° N., and between longitudes 43° W. and 58° W., when bound either east or west, giving time of observation (G. C. T.), the latitude, longitude, course, and speed.

These data will facilitate the drawing of a temperature curve which will be useful in locating the branches of the Labrador Current.

It is requested that radio operators desist, as far as practicable, from operating at the above times in order to lessen radio interference.—*From Hydrographic Bulletin No. 1956, February 23, 1927.*

NEW RADIO BROADCASTING LAW IN THE PHILIPPINE ISLANDS

The legislature of the Philippine Islands has passed legislation providing a tax of \$5 on each radio receiving set in use in the Territory. This act, which originated in the house of representatives, was finally passed by that body on November 4, 1926, and by the senate on November 3, 1926. It has been approved by the Governor General and now becomes law. Following is the law:

AN ACT Imposing an annual registration fee on radio receivers, creating a radio broadcasting fund therefrom, providing for the disposition and application of said fund, and for other purposes.

Be it enacted by the Senate and House of Representatives of the Philippines in Legislature assembled and by authority of the same:

SECTION 1. *Words and phrases defined.*—The following phrases shall be used and taken in the sense given below in interpreting this act.

Radio receiving set means any device, apparatus, contrivance, or combination of parts used, designed to be used, or capable when properly adjusted or repaired of being used for the reception of radiotelegraphic or radiotelephonic signals, sounds, or impulses.

Radio broadcasting station means any radio transmitter specially adapted to or operated for the transmission of signals, messages, entertainment, or other communications for their reception by any or all radio receiving sets within range.

Person means a natural person, a corporation, or any other entity, except as the context may clearly require otherwise.

Sec. 2. Annual registration.—Every person having in his possession or control a radio receiving set shall register same annually with the collector of internal revenue or his deputies. Initial registration shall be effected within sixty days after the taking effect of this act, and thereafter registration shall be effected within thirty days after coming into possession or control of a radio receiving set subject to registration as aforesaid. Registration shall run for one year, where-

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Registration shall be effected by stating the name of the owner and his address in such form and with such other details as the collector of internal revenue may prescribe and by paying the registration fee hereinafter prescribed: *Provided*, That the collection of the registration fees provided for in this act shall not commence until after the radio broadcasting committee heroby created has certified that a radio broadcasting station of sufficient power to serve all points of the archipelago has been established.

SEC. 3. Out of service.—Any owner of a radio receiving set which is in storage undergoing repairs, or out of service for any other reason, may also be exempted from payment of the registration fee for the period during which the said radio receiving set is out of service, but no refund or reimbursement of registration fee or part thereof shall be made to any owner on account of a radio receiving set which is taken out of service subsequently to the payment of said fee. The owner desiring exemption under this section shall make affidavit covering the state of his radio receiving set and the time that it has been out of service in such form as may be acceptable to the collector of internal revenue.

SEC. 4. Change in ownership.—Whenever any radio receiving set is sold, or any change in the ownership or control thereof takes place, it is hereby made the duty of the former owner thereof to notify the nearest internal revenue office within seven days from the date of the change of ownership, in writing, of such change, giving the name and address of the new owner and the details of former registration of the set. This notice shall be accompanied by a fee of twenty centavos.

SEC. 5. The radio industry.—Persons engaged in the manufacture or assembly of or dealers in radio apparatus may be exempted from payment of the registration fee hereinafter required in respect to radio receiving sets kept for sale, upon registering themselves as such with the collector of internal revenue and making such periodic reports of stocks and sales as he may require.

SEC. 6. Registration fee.—There shall be paid and collected in respect to every radio receiving set in the Philippine Islands an annual registration fee in accordance with the following scale: Two pesos for crystal receivers and ten pesos for sets using a vacuum tube or tubes, whether for amplification or for detection. This registration fee shall be payable quarterly in advance, during the first twenty days of each quarter, and any such fee which is not paid within said twenty days shall be increased by a surcharge of twenty per centum, such surcharge to be part of the fee. The registration fees provided for in this act shall (not) cease to be collected whenever the radio broadcasting committee created by this act shall certify to the Secretary of Finance that there is a person or persons or entities that have established radio broadcasting stations of sufficient power to render effective service at all points of the archipelago and have given the necessary guaranties to fulfill gratuitously and permanently the requirements of subsection (b) of section twelve of this act.

SEC. 7. Exemption of sets for official use.—Radio receiving sets installed and operated for official use by the insular government, or any political subdivision thereof, or by the Army and Navy of the United States, shall be exempt from the registration fees imposed by section six of this act.

SEC. 8. Application of internal revenue laws.—All special or general administrative provisions of law relative to assessment, remission, collection, and reimbursement of internal revenue taxes and consistent with the provisions of this act are made extensive and applicable to the fees herein imposed.

SEC. 9. Radio broadcasting fund.—All the collections made under this act shall be deposited in the insular treasury, twenty per cent thereof shall accrue to the general fund, and the remaining eighty per cent shall be set aside and shall constitute a special fund to be known as the "radio broadcasting fund," which shall be used as hereinafter provided for.

SEC. 10. Application of fund.—The radio broadcasting fund shall be expended and disbursed by the radio broadcasting committee hereinafter provided for, under the supervision and with the approval of the Secretary of Commerce and Communications, who shall, during the first twenty days of each regular session of the legislature, submit to the latter a detailed report of all the expenses and disbursements made from this fund.

SEC. 11. Radio broadcasting committee.—There is hereby created a radio broadcasting committee to consist of the president of the University of the Philippines, the director of the bureau of posts, the collector of internal revenue, the chief of the executive bureau, two citizens of the Philippine Islands or the United States

eral, with the advice and consent of the Philippine Senate. The members of the radio broadcasting committee shall receive a per diem of five pesos for each meeting attended, not to exceed two meetings in any one month.

Sec. 12. *Purposes for which fund may be expended.*—The radio broadcasting fund shall be expended exclusively for the following purposes:

(a) Giving financial assistance to the municipalities and selected government institutions for the acquisition of radio receiving sets.

(b) Payment to the owners of any duly authorized radio broadcasting stations possessing satisfactory facilities and apparatus for service within the Philippine Islands, for the radio broadcasting of a minimum of two hours daily of governmental news, information, education, and entertainment, to be allocated among the several activities, functions, and departments of the government by the radio broadcasting committee: *Provided*, That the sum authorized for any station shall not exceed the actual value of the services rendered in accordance with this subsection.

(c) The employment of personnel, the payment of per diems, and the payment of the expenses necessary to the carrying out of the foregoing purposes: *Provided*, That in the event government employees are called upon to perform work under this act payment to them of such salaries, wages, per diems, etc., as may be authorized, may be made as herein provided for, the provisions of existing law to the contrary notwithstanding: *Provided further*, That the expenses authorized for these purposes shall not exceed five per centum of said fund.

(d) Any unexpended balance of the radio broadcasting fund after payment of all expenses authorized in accordance with subsection (a), (b), and (c) of this section shall be paid into a permanent fund which shall accumulate from year to year, to be used exclusively for the promotion and development of radio broadcasting in the Philippine Islands in the following manner: When, in the opinion of the radio broadcasting committee, this permanent fund has reached a sufficient figure for the establishment of broadcasting stations or any other installations in aid of radio broadcasting said committee shall recommend to the legislature the stations or installations to be established in Manila or in the Provinces, at the expense of said permanent fund.

Sec. 13. Any person failing to declare a radio receiving set in accordance with the provisions of this act shall pay a fine of not to exceed twenty-five pesos.

Sec. 14. This act shall take effect on its approval.

STANDARD FREQUENCY STATIONS

As a result of measurements by the Bureau of Standards upon the transmitted waves of a limited number of radio transmitting stations, data are given in each month's RADIO SERVICE BULLETIN on such of these stations as have been found to maintain a sufficiently constant frequency to be useful as standards.

As shown by the list of "constant frequency stations," there may be many other stations not measured in the bureau's laboratory which maintain their frequencies just as constant as the stations listed below. There is, of course, no actual guaranty that these stations will maintain the constancy shown, but the data indicate the high degree of confidence that can be placed in them. The transmitted frequencies from the standard frequency stations can be utilized for calibrating frequency meters and other apparatus by the procedure given in Bureau of Standards Letter Circular No. 171, which may be obtained by a person having actual use for it upon application to the Bureau of Standards, Department of Commerce, Washington, D. C.

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Station	Owner	Location	Frequency	Period covered by measurements	Number of times measured	Deviations from assigned frequencies noted in measurements	
						Average	Greatest since Jan. 25, 1927
NBS	United States Navy	Annapolis, Md.	Kilo-cycles 17.50	Months 9	45	Per cent 0.1	Per cent 0.8
WCI	Radio Corporation of America	Tuckerton, N. J.	17.95	24	105	.1	.1
WRS	Do.	Rocky Point, N. Y.	18.50	5	15	.1	.2
WGG	Do.	Tuckerton (No. 1), N. J.	18.80	42	290	.1	.1
WII	Do.	New Brunswick, N. J.	21.80	32	128	.1	.0
WVA	United States Army	Annapolis, Md.	100	23	170	.2	.3
NAA	United States Navy	Arlington, Va.	112	16	79	.2	.4
WEAF	National Broadcasting Co.	New York, N. Y.	610	25	154	.0	.0
WRC	Radio Corporation of America	Washington, D. C.	640	38	184	.1	.5
WJZ	Do.	Bound Brook, N. J.	660	9	37	.2	.3
WGY	General Electric Co.	Schenectady, N. Y.	700	44	194	.1	.8
WBZ	Westinghouse Electric & Manufacturing Co.	Springfield, Mass.	900	32	90	.1	.2
KDKA	Do.	East Pittsburgh, Pa.	970	9	42	.1	.1
EDRA	Do.	do.	4,711	9	25	.1	.0

† High-frequency telephone transmitting station.

CONSTANT FREQUENCY STATIONS

The list of "constant frequency stations" given below supplements the list of "standard frequency stations." The transmitted waves from the stations in either list should be of value to the public as frequency standards because of their constancy and close adherence to the licensed values. The Bureau of Standards makes regular measurements of the transmitted frequencies of the standard frequency stations only. The constant frequency stations in the following supplementary list do not carry the same assurance of reliability as if the transmitted waves were regularly measured by the Bureau of Standards, but it is probable that if measurement data were available many of them would show the same constancy as the standard frequency stations.

The fundamental requirement of a broadcasting station for inclusion in the following list is the employment of a special device for controlling or checking the frequency, the calibration of such a device being in agreement with the bureau's frequency standards. The special device may be automatic piezocontrol, a piezo-oscillator, piezoresonator, or frequency indicator. Stations not included in this list nor in the list of standard frequency stations, which use one of the special devices for frequency regulation, are invited to communicate with the Bureau of Standards requesting a copy of Letter Circular 214, Requirements of Constant Frequency Stations.

Station	Owner	Location	Frequency	Wave length	Apparatus for frequency regulation
WRO	Bankers Life Co.	Des Moines, Iowa	Kilocycles 570	Meters 525	Piezoscillator.
KFRU	Stephens College	Columbia, Mo.	600	499.7	Frequency indicator and piezoscillator.
WOC	Palmer School of Chiropractic	Davenport, Iowa	620	483.6	Piezoscillator.
WTIC	Traveler's Insurance Co.	Hartford, Conn.	650	475.9	Do.
WMAQ	Chicago Daily News	Chicago, Ill.	670	447.5	Frequency indicator, type B and piezoscillator.
KLDB	Reorganized Church of Jesus Christ of Latter Day Saints	Independence, Mo.	590	508.5	Frequency indicator.
KPO	Hals Bros. and the	San Francisco, Calif.	700	425.0	Do.

Station	Owner	Location	Fre-	Wave	Apparatus for fre-
			quency	length	
			<i>Kilocycles</i>	<i>Meters</i>	
WLW	Crosley Radio Corporation.	Harrison, Ohio.....	710	422.3	Frequency indicator and piezooscillator.
WCCO	Washburn-Crosby Co..	St. Paul-Minneapolis, Minn.	720	416.4	Piezooscillator.
WTAM	Willard Storage Battery Co.	Cleveland, Ohio.....	770	389.4	Do.
WEAR		New Arlington Hotel Co.	Hot Springs, Ark.....	800	374.6
KTHB					Frequency indicator, type B.
WJJD	Loyal Order of Moose..	Moocheart, Ill.	810	370.2	Piezooscillator.
KGO	General Electric Co....	Oakland, Calif.....	830	361.2	Piezocontrol and piezooscillator.
WJAD	Frank P. Jackson.....	Waco, Tex.....	850	352.7	Frequency indicator, type B.
WWJ	Detroit News.....	Detroit, Mich.....	850	352.7	Do.
WLS	Sears, Roebuck & Co....	Crete, Ill.....	870	344.6	Piezooscillator.
WKAQ	Radio Corporation of Porto Rico.	San Juan, P. R.....	880	342.7	Frequency indicator, type B.
KOA	General Electric Co....	Denver, Colo.....	930	322.4	Piezooscillator.
WEAO	Ohio State University..	Columbus, Ohio.....	1,020	293.9	Frequency indicator, type B.
WMBI	Moody Bible Institute of Chicago.	Chicago, Ill.....	1,040	288.3	Piezooscillator.
WFBG	William F. Gable Co....	Alloua, Pa.....	1,060	277.6	Frequency indicator.
KFKA	Colorado State Teachers' College.	Greeley, Colo.....	1,100	272.0	Piezooscillator.
WRAA	Purdue University.....	West Lafayette, Ind..	1,100	272.6	Do.
WOI	Iowa State College.....	Ames, Iowa.....	1,110	270.1	Automatic piezo control (checked with type B frequency indicator).
KFH	Hotel Lassen.....	Wichita, Kans.....	1,120	267.7	Frequency indicator, type B.
WENR	All American Radio Corporation.	Chicago, Ill.....	1,130	265.3	Piezooscillator.
WCAD	St. Lawrence University	Canton, N. Y.....	1,140	263	Frequency indicator.
WAAM	I. H. Nelson.....	Newark, N. J.....	1,140	263	Piezooscillator.
WOWO	Main Auto Supply Co..	Fort Wayne, Ind.....	1,320	227.1	Do.
WBBM	Atlas Investment Co..	Chicago, Ill.....	1,330	225.4	Do.
WEBQ	Tate Radio Co.....	Harrisburg, Ill.....	1,330	225.4	Piezooscillator, type N.
KFVS	Hirsch Battery & Radio Co.	Cape Girardeau, Mo..	1,340	223.7	Frequency indicator, type B.
WPDQ	Hiram L. Turner.....	Buffalo, N. Y.....	1,460	205.4	Do.

REFERENCES TO CURRENT RADIO LITERATURE

This is a monthly list of references prepared by the radio laboratory of the Bureau of Standards and is intended to cover the more important papers of interest to professional radio engineers which have recently appeared in periodicals, books, etc. The number at the left of each reference classifies the reference by subject, in accordance with the scheme presented A Decimal Classification of Radio Subjects—An Extension of the Dewey System, Bureau of Standards Circular No. 138, a copy of which may be obtained for 10 cents from the Superintendent of Documents, Government Printing Office, Washington, D. C. The various articles listed below are not obtainable from the Bureau of Standards. The various periodicals can be consulted at large public libraries.

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