DEPARTMENT OF COMMERCE

RADIO SERVICE BULLETIN

ISSUED MONTHLY BY BUREAU OF NAVIGATION

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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.
- FS = Fog signal.
- 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. = Intercity Radio Telegraph Co.
I. W. T. C. = Independent Wireless Telegraph Co.
K. & C. = Kilbourne & Clark Manufacturing Co.
R. C. A. = Radio Corporation of America.
U. R. Corp. = Universal Radio Corporation.
W. S. A. Co. = Wireless Specialty Apparatus Co.
C. w. = Continuous wave.
I. c. w. = Interrupted continuous wave.
K. c. = Kilocycles.
Fy. = Frequency.
A. c. = Alternating current.
V. t. = Vacuum tube.
U. S. L. = After operating company denotes that the change applies only to the List of Radio Stations of the United States.

This edition is the first supplement to the new edition of the list of Commercial and Government Radio Stations, June 30, 1926, which will be ready for distribution by the Superintendent of Documents, Government Printing Office, about September 1, next.

4513°—26——1

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—
Baler, P. I. (Tayabas)[1]	KZBR	600, 600, 750	FG		Philippine Insular Government.
Borongan, P. I. (Samar)[2]	KZBN	600, 775, 950	PG		Do.
Catbalogan, P. I. (Samar)[3]	KZCT	475, 600, 750, 850, 975, 1100	PG		Do.
Detroit, Mich.[4]	WJF	35, 27	FX	X	Graham Bros.
Harrison, Ohio[5]	WDJ	21.4, 24.3	FX	X	Crosley Radio Corporation.
Hinatuan, P. I. (Surigao)[6]	KZHN	600, 725, 980	FG		Philippine Insular Government.
Philadelphia, Pa.[7]	WDH	674, 1050	FX	X	First Troop, Philadelphia City Cavalry, Headquarters Troop, Fifty-second Cavalry Brigade.
Seattle, Wash.[8]	KPA	600, 700	PG	N	L. L. Jackson.
Sogod, P. I. (Leyte)[9]	KZSD	600, 725	PG		Philippine Insular Government.
Warm Springs Bay, Alaska[10]	KNH	600, 675	FX	X	Warm Springs Bay Packing Co.

[1] Loc. (approximately) O 121° 23' 21" E., N 13° 44' 39"; range, 75; system, W. S. A. Co., 1,000; hours, 8 a. m.–12 noon, 2–5.30 p. m., daily; 9–11 a. m., Sundays and holidays; ship service last 10 minutes of each hour; rates, ship service 6 cents per word.

[2] Loc. (approximately) O 125° 28' 07" E., N 11° 36' 31"; range, 100; system, v. t. c. w. and i. c. w.; hours, 8 a. m.–12 noon, 2–5.30 p. m., daily; 9–11 a. m., Sundays and holidays; ship service first 10 minutes of each hour; rates, ship service 6 cents per word.

[3] Loc. (approximately) O 124° 52' 20" E., N 11° 46' 42"; range, 250; system, v. t., c. w. and i. c. w.; hours, 8 a. m.–12 noon, 2–5.30 p. m. daily; 9–11 a. m. and 2–5.30 p. m., Sundays and holidays; ship service last 10 minutes of each hour; rates, ship service 6 cents per word.

[4] Loc. (approximately) O 83° 03' 00", N 42° 20' 00"; range, 300; system, composite, v. t. telegraph.

[5] Loc. (approximately) O 84° 48' 00", N 39° 18' 00"; range, 1,000; service, composite, v. t. telegraph.

[6] Loc. (approximately) O 126° 20' 00" E., N 9° 23' 00"; range, 200; system, R. C. A., 1,000; hours, 8 a. m.–12 noon, 2–5.30 p. m., daily; 9–11 a. m., Sundays and holidays; ship service first 10 minutes of each hour; rates, ship service, 6 cents per word.

[7] Loc. O 75° 10' 46", N 39° 57' 05"; range, 25; system, U. S. Army v. t. telegraph.

[8] Loc. (approximately) O 122° 20' 00", N 47° 37' 00"; range, 150; system, composite, 1,000; rates, ships official business 5 cents (25 centimes) per word, other traffic 10 cents (52 centimes) per word.

[9] Loc. (approximately) O 124° 58' 00" E. N 10° 29' 00"; range, 100; system, v. t., c. w. and i. c. w.; hours, 8 a. m.–12 noon, 2–5.30 p. m., daily; 9–11 a. m. Sundays and holidays; ship service 0.45 to 0.55 of each hour; rates, ship service 6 cents per word.

[10] Range, 150; system, Navy-W. S. A. Co., 1,000.

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]

Name of vessel	Call signal	Rates	Service	Hours	Owner of vessel	Station controlled by—
Alden A. Mills	KGBQ	8	FG	X	Ocean Trawling Co.	R. C. A.
C. D. Johnson III[1]	KDIT	8	FG	X	Pacific Spruce Corporation	F. T. Co.
Commercial Trader	WMZ	8	FG	X	Honolulu S. S. Co.	R. C. A.
Enchantress[2]	KGBT		P	X	Stuart F. Wainwright	Owner of vessel.
Lake Gaither	KOJZ		FG	X	Western Reserve Nav. Co.	
Lake Mirallores	KDNR	8	FG	X	Stanley Hiller (Inc.)	
Louis M. Winslow	KGBR	8	FG	X	Ocean Trawling Co.	R. C. A.
Lynford E. Geer[3]	WNG		FG	X	Reiss S. S. Co.	Owner of vessel.
Madison	KGBN	8	FG	N	Eastern S. S. Lines	I. W. T. Co.
Mariner	KGBM				Frank Fullaway	
William P. Snyder (RC)[4]	KGBO		FG	X	Stewart Furnace Co.	R. C. A.
Wilpen (RC)[4]	KGBP		FG	X	Shenango S. S. Co.	

[1] Range, 150; system, F. T. Co., 1000; w. l., 600, 700, 800.

[2] Range, 500; system, composite v. t. telegraph; w. l., 37, 600.

[3] Range, 200; system, Navy-Simon, 1000; w. l., 715, 800, 875; rates, Great Lakes service, 4 cents per word.

[4] Range, 150; system, R. C. A., 1000; w. l., 715, 875; rates, Great Lakes service, 4 cents per word.

[5] Rates, Great Lakes service, 4 cents per word.

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	
KDIT	C. D. Johnson III	b	KZBN	Borongan, P. I. (Samar)	c
KDNR	Lake Miraflores	b	KZBR	Baler, P. I. (Tayabas)	c
KGBM	Mariner	b	KZCT	Catbalogan, P. I. (Samar)	c
KGBN	Madison	b	KZHN	Hinatuan, P. I. (Surigao)	c
KGBO	William P. Snyder	b	KZSD	Sogod, P. I. (Leyte)	c
KGBP	Wilpen	b	WDH	Philadelphia, Pa	c
KGBQ	Alden A. Mills	b	WIJ	Harrison, Ohio	c
KGBR	Louis M. Winslow	b	WJF	Detroit, Mich	c
KGBT	Enchantress	b	WMZ	Commercial Trader	b
KNH	Warm Springs Bay, Alaska	c	WNG	Lynford E. Geer	b
KOJZ	Lake Gaither	b			
KPA	Seattle, Wash	c			

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, and List in Radio Service Bulletin No. 105, Jun. 30, 1926]

State and city	Call signal	State and city	Call signal
Alaska: Ketchikan	KGBU	Louisiana: New Orleans	WJBW
Arizona: Tucson	KGAR	Michigan: Ferndale	WJAF
California: Los Angeles-San Francisco (temporary)	KRCA	Missouri: Joplin	KGBW
Colorado: Denver (near)	KFVR	New York:	
Illinois:		Jamaica	WMRJ
Chicago	WCFL	Woodhaven	WJBV
Do	WCRW	Pennsylvania: Lancaster	WKJC
Do	WJBT	Tennessee: Tullahoma (Ovoca)	WCFT
Do	WKBA	Washington: Seattle	KGBS
Do	WMBI		

Broadcasting stations, alphabetically, by call signals

Call signal	Location of station (address)	Owner of station
KFVR	Denver, Colo. (near), Moonlight Ranch, Route 6	Eugene Reed.
KGAR	Tucson, Ariz., 80 South Stone Street	Tucson Citizen.
KGBS	Seattle, Wash., 844 East Fifty-eighth Street	A. C. Dailey.
KGBU	Ketchikan, Alaska, Sunset Manor	Roy R. Thornton.
KGBW	Joplin, Mo., 112 West Sixth Street	Martin Brotherton.
KRCA	Los Angeles-San Francisco, Calif. (temporary)	R. C. A.
WCFL	Chicago, Ill., 166 West Washington Street	Chicago Federation of Labor.
WCFT	Tullahoma, Tenn. (Ovoca)	Knights of Pythias Home (Knights of Pythias Orphanage).
WCRW	Chicago, Ill., 650 Waveland Avenue	Clinton R. White.
WJAF	Ferndale, Mich., 187 East Woodland Avenue	J. A. Fenburg Radio Co.
WJBT	Chicago, Ill., 7421 Sheridan Street	John S. Boyd.
WJBV	Woodhaven, N. Y., 9024 Seventy-eighth Street	Union Courte Laboratories.
WJBW	New Orleans, La., 2743 Dumaine Street	C. Carlson, Jr.
WKBA	Chicago, Ill., 1217 Wabash Avenue	Arrow Battery Co.
WKJC	Lancaster, Pa., 16 West King Street	Kirk Johnson & Co.
WMBI	Chicago, Ill.	Moody Bible Institute of Chicago.
WMRJ	Jamaica, N. J., 10 New York Avenue	Peter J. Prinz.

Government 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 length	Service	Hours	Station controlled by—
Fort Levett, Me.[1]	WUAV	1414	FX	X	U. S. Army.
Seattle, Wash.[2]	NGT	110, 115, 120..	O	N	U. S. Coast Guard.
Seward, Alaska	WUW				U. S. Army.

[1] Loc. O 70° 11' 39", N. 43° 38' 40"; range, 50; system, U. S. Army v. t. telegraph.
[2] Range, 50; system, Western Electric Co. v. t. telegraph.

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—
Brant	NURQ		O	X	Bureau of Fisheries, Department of Commerce.

Government land and ship stations, alphabetically, by call signals

[b, ship station; c, land station]

Call signal	Name of station		Call signal	Name of station	
NGT	Seattle, Wash	c	WUAV	Fort Levett, Me	c
NURQ	Brant	b	WUW	Seward, Alaska	c

Special land stations, alphabetically, by names of stations

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

Station	Call signal	Station controlled by—
Ames, Iowa	9XBH	Iowa State College.
Boston, Mass	1XT	Tropical Radio Telegraph Co., 1 Federal Street.
Detroit, Mich	8XN	Evening News Association, 615 West Lafayette Boulevard.
Hollis, N. Y	2XV	Radio Engineering Laboratories, 186 Jordon Avenue.
Mobile, Mich	8XM	Evening News Association, 615 West Lafayette Boulevard, Detroit, Mich.
Oakland, Calif	6XAA	Abraham Binneweg, jr., 594 Fairbanks Avenue.
San Francisco, Calif	6XAG	Garrett W. Lewis, 169 Tenth Avenue.
Stanford University, Calif. (portable).	6XH	Herbert Hoover, jr., Stanford University.

Special land stations, grouped by districts

Call signal	District and station	Call signal	District and station
1XT	First District: Boston, Mass.		Eighth district:
2XV	Second district: Hollis, N. Y.	8XM	Mobile, Mich.
	Sixth district:	8XN	Detroit, Mich.
6XAA	Oakland, Calif.	9XBH	Ninth district: Ames, Iowa.
6XAG	San Francisco, Calif.		
6XH	Stanford University, Calif. (portable).		

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, 1926, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

ROCKY POINT, N. Y. (WQL).—Hours, N.
ROCKY POINT, N. Y. (WQM).—Hours, N.

The above changes will appear in the June 30, 1926, edition of the list of commercial and Government Radio Stations of the United States.

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, 1926, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

AMBRIDGE.—Station controlled by R. C. A.
AMERICAN TRADER.—Station controlled by I. W. T. Co. (U. S. L.)
ASTERO II.—*Read* Athero II.
BAKERSFIELD.—W. l., *600*, 706, 800.
BARRYTON.—Owner of vessel, W. E. Hedger Co.
BRAVE COEUR.—Station controlled by R. C. A. (U. S. L.)
CADDO.—System, R. C. A. v. t. telegraph; w. l., *600*, 706, 750, 800, 900.
CARDONIA.—Station controlled by I. W. T. Co. (U. S. L.)
CITY OF FAIRBURY.—Station controlled by I. W. T. Co. (U. S. L.)
DERBLAY.—Owner of vessel, Alaska S. S. Co.
DORCHESTER (KGBG).—Station controlled by R. C. A.
EURANA.—Owner of vessel, Gulf Refining Co.
HAITI.—Owner of vessel, Columbian S. S. Co., station controlled by I. W. T. Co.
INDEPENDENCE.—Station controlled by R. C. A. (U. S. L.)
JOHN N. STEWART.—Range, 50; system, composite, v. t. telegraph; w. l., add 800.
KERHONKSON.—Station controlled by R. C. A. (U. S. L.).
LAKE HELEN.—Station controlled by R. C. A.
LAKE TREBA.—Owner of vessel Lake Treba S. S. Co.
LIBERTY GLO.—Station controlled by R. C. A. (U. S. L.)
LIGHTBURNE.—W. l., *600*, 706, 800.
MARJ III.—Range, 150; system, composite v. t. telegraph; w. l., *600*, 706, *715*; service, PG; hours, X; rates, Great Lakes service 4 cents per word, all other services 8 cents per word; station controlled by owner of vessel.
NISHMARA.—Station controlled by I. W. T. Co. (U. S. L.).
PETREL.—Station controlled by I. W. T. Co.
PRESIDENT JACKSON.—Owner of vessel, Admiral Oriental Line.
PRESIDENT MCKINLEY.—Owner of vessel, Admiral Oriental Line.
SAMONA.—W. l., 126, *600*; service, P; rates, none.
SANTA TECLA.—Owner of vessel, New Orleans & South American S. S. Co.
SIELE.—Range, 100; system, R. C. A. v. t. telegraph; w. l., *600*, 706, 750, 800, 900; service, PG; hours, X; rates, 8 cents per word; station controlled by R. C. A.
THE LAMBS.—Station controlled by R. C. A.
TOPA TOPA.—Station controlled by I. W. T. Co. (U. S. L.).
TUXPANOIL.—Station controlled by R. C. A.
WAUKEGAN.—Station controlled by R. C. A. (U. S. L.).
WEST CAMARGO.—Owner of vessel Pacific Argentine Brazil Line.
WEST DURFEE.—Station controlled by I. W. T. Co. (U. S. L.).
WEST EKONK.—Station controlled by I. W. T. Co. (U. S. L.).
WESTERN GLEN.—Station controlled by I. W. T. Co. (U. S. L.).
WESTMORELAND.—Station controlled by R. C. A. (U. S. L.).
WEST MUNHAM.—Station controlled by R. C. A.
WEST NERIS.—Station controlled by I. W. T. Co. (U. S. L.).
WEST NOHNO.—Station controlled by I. W. T. Co. (U. S. L.).
WEST NORRANUS.—Name changed to Pacific Pine.
WEST TACOOK.—Station controlled by R. C. A. (U. S. L.).
WEST WIND.—Name changed to Edwin Christenson.
WILLETT.—Station controlled by R. C. A.
Strike out all particulars of the following-named vessels: Fordonian, Jean, Lokl, Miami (KFZK), Palo Alto, Shortsville, Wm. F. Fitch.

COMMERCIAL LAND AND SHIP STATIONS, ALPHABETICALLY BY CALL SIGNALS

KF2O, *read* Athero II; KJH, *read* Edwin Christenson; KUVZ, *read* Pacific Pine; strike out all particulars following the call signals, KDCT, KDGD, KFSN, KFYW, KFZK, KIKK, KZJ.

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, 1925, and list in Radio Service Bulletin No. 106, January 30, 1926]

KFIQ (Yakima, Wash.).—Owner of Station Dr. I. M. Miller.
KLDS (Kansas City, Mo.).—When this station is operating under the auspices of the Kansas City Journal-Post, call letters KMJP are used.
WBNY (New York, N. Y.).—Owner of station, Baruchrome Corporation.
WDBK (Cleveland, Ohio).—Owner of station, Stanley J. Bros.
WGHB (Clearwater, Fla.).—Owner of station Fort Harrison Hotel (Ed. A. Haley)
WGN (Chicago, Ill.).—Owner of station, The Chicago Tribune.
WIBA (Madison, Wis.).—Owner of station, Capital Times Studio and Strand Theatre Corporation.
WIBR (Weirton, W. Va.).—Changed to Steubenville, Ohio.
WIOD (Miami Beach, Fla.).—Owner of station, Carl G. Fisher Co.
WQAO (New York, N. Y.).—When this station is operating under the auspices of the Palisades Amusement Park, Palisades, N. J., call letters WPAP are used.
WJZ (New York, N. Y.).—Changed to Bound Brook, N. J.
WLAP (Louisville, Ky.).—Owner of station, Virginia Avenue Baptist Church, 2600 Virginia Ave.
WRAX (Gloucester City, N. J.).—Changed to Philadelphia, Pa.; owner of station, Berachah Church (Inc.), 1608 Allegheny Ave.
Strike out all particulars of the following-named station: WOWL (New Orleans, La.).

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, 1925, and to the International List of Radiotelegraph Stations, published by the Berne Bureau]

NOTE.—With the exception of Fort Hayes, Ohio, and Key West, Fla. (NGK), all of these changes will appear in the June 30, 1926 edition of the List of Commercial and Government Radio Stations of the United States.

ANACOSTIA, D. C.—Hours, strike out.
BELLEFONTE, PA.—W. l., *3407*, 3446.
BOSTON, MASS. (NAD).—W. l., strike out.
BOSTON, MASS. (NCP).—*Read* Nahant, Mass.; w. l., 110, 115, 130.
BROWNSVILLE, TEX.—Hours, strike out.
BRYAN, OHIO.—W. l., 3295, *3407*.
CAVITE, P. I.—W. l., strike out; service, FX.
CHEYENNE, WYO.—W. l., 70.55, 3123, *3407*.
CLEVELAND, OHIO.—W. l., *3407*, 3795.
CONCORD, CALIF.—W. l., 72.68.
ELKO, NEV.—W. l., *3407*, 4052.
FORT HAYES, OHIO (COLUMBUS).—W. l., 1091, 1414.
GREAT LAKES, ILL.—Hours, strike out.
IOWA CITY, IOWA.—W. l., 2726, *3407*.
KEY WEST, FLA. (NGK).—Loc. O 81° 48′ 23″, N 24° 33′ 22″
MAYWOOD, ILL.—W. l., *3407*, 3569.
NEW BRUNSWICK, N. J. (HADLEY FIELD).—W. l., 3190, *3407*.
NEW YORK, N. Y.—Hours, N.
NORTH HEAD, WASH.—W. l., strike out 3950.
NORTH PLATTE, NEBR.—W. l., 2100, *3407*.
NORTH TRURO, MASS.—W. l., strike out 600.
OFU, SAMOA.—W. l., strike out; service, FX; hours, strike out.
OMAHA, NEBR.—W. l., 70.55, 2830, *3407*.
PARRIS ISLAND, S. C.—Hours, strike out.
PHILADELPHIA, PA.—W. l., strike out.
RENO, NEV.—W. l., 70.55, *3407*, 3795.
ROCK SPRINGS, WYO.—W. l., 3156, *3407*.
SACRAMENTO, CALIF. (MATHER FIELD).—W. l., 72.68; service, O.

ST. CROIX, V. I.—Service, FX; hours, strike out.
SALT LAKE CITY, UTAH.—W. l., 70.55, 2911, *3407*.
SAN FRANCISCO, CALIF. (KFZP).—W. l., 72.68.
SAN FRANCISCO, CALIF. (NPG).—Service, FX; hours, strike out.
TATOOSH, WASH.—W. l., strike out *600*.
TAU, SAMOA.—Service, FX.
WASHINGTON, D. C. (WWX).—W. l., *3407*, 3656.

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 Berne bureau]

Strike out all particulars of the following-named stations: Arctic Plane No. 1, Arctic Plane No. 2, Arctic Plane No. 3. (These stations are included in the list of ship stations.)

GOVERNMENT LAND AND SHIP STATIONS, ALPHABETICALLY BY CALL SIGNALS

NCP, *read* Nahant, Mass.; strike out all particulars following the call signals, NADK, NAFK, NAGK.

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]

Strike out all particulars of the following-named stations: Carterville, Mo. (9XV); Milford, Utah (6XB).

MISCELLANEOUS

ADDITIONS TO LIST OF VESSELS EQUIPPED WITH RADIOCOMPASS

The following-named vessels have been equipped with a radiocompass: *Outagamie*, owned by Standard Oil Co. of Indiana; *Pennsylvania Sun* (WKP) and *Renown*, owned by Standard Oil Co. of Indiana.

INSTRUCTIONS FOR TRANSMITTING HYDROGRAPHIC AND WEATHER REPORTS FROM SHIPS TO GOVERNMENT OFFICES

All hydrographic information which includes reports on ice, wrecks, derelicts, floating obstructions, and important changes in aids to navigation should be addressed to the Hydrographic Office or any of its branch offices by mail and to any of the following-named naval radio stations by radio, addressed "Gov't Hydro:"

Name of station	Call signal	Name of station	Call signal
Atlantic Ocean:		Pacific Ocean:	
Boston	NAD	Balboa, Canal Zone	NBA
New York	NAH	San Francisco	NPG
Philadelphia	NAI	Eureka	NPW
Norfolk	NAM	North Head	NPE
Charleston	NAO	Puget Sound	NPC
Key West	NAR	Honolulu	NPM
New Orleans	NAT	Cavite, P. I.	NPO
Brownsville	NAY	Great Lakes: Great Lakes, Ill.	NAJ
St. Thomas, Virgin Islands	NBB		
San Juan, P. R.	NAU		
Guantanamo, Cuba	NAW		
Colon, Canal Zone	NAX		

Attention is also invited to the fact that all communications concerning weather should be forwarded to the Weather Bureau, Washington, D. C., and if sent by radio or telegraph should be addressed "Observer." In accordance with the recent amendment of Navy regulations, the prefix "Gov't" in the address of such messages should be omitted.

Under the subject "Weather" should be included all information of a meteorological nature, including reports of barometric pressures, wind force and direction, and movements of air strata. Forms and instructions for reports can be obtained from the Weather Bureau, Washington, D. C.

A report of any buoys adrift or any deficiencies noted in lighted aids to navigation affecting United States waters should be forwarded to the superintendent of the nearest lighthouse district, as given in the Light and Buoy List.

Care should be taken in properly addressing messages, if not most of the value of a message will probably be lost due to the delays which occur when it is incorrectly addressed.

RADIOBEACON ESTABLISHED AT ST. PIERRE ISLAND, NEWFOUNDLAND

A radiobeacon has been established at St. Pierre Island, Galantry Head Light Station. During fog this beacon broadcasts the signal HYR, followed by a series of dashes on a wave length of 850 meters. The audible range is 100 miles. Location, 46° 45′ 39″ N., 56° 09′ 22″ W.

CHANGES IN TRANSMISSION OF FOG SIGNALS, WEATHER REPORTS, ETC., BY FOREIGN STATIONS

Spitsbergen (Svalbard), Norway.—Vessels fitted with radiocompass apparatus can obtain signals for the determination of bearings from this station on request. Position, 78° 04′ 25″ N., 14° 09′ 20″ E., call singals LFG, wave length 600 meters, range 300 miles. *Borkum Riff Light Vessel:* Radio fog signals are now transmitted from this light vessel on 950 meters.

Karlsborg, Sweden.—Weather bulletins and storm warnings are now transmitted from this station at 10.50 and 22.00, G. M. T., on a wave length of 2,500 meters, spark. The weather bulletin for shipping is transmitted at 12.15, G. M. T., on Sundays and holidays. The synoptic messages previously transmitted at 07.40, 13.40, and 18.40, G. M. T., on 4,200 meters, continuous wave, have been discontinued.

Karlskrona, Sweden.—The synoptic messages referred to above as having been discontinued by Karlsborg are now transmitted by this station at the same time on a wave length of 18,520 meters, continuous wave.

Malabar, Java.—Urgent notices to mariners are transmitted by this station immediately after the time signal, both on 15,600 meters, continuous wave.

Times of transmission by far eastern stations of weather reports and time signals

Hour of transmission (Greenwich time)	Station	Call signal	Matter transmitted	System employed	Wave length
01.54-02.30	Shanghai-Zikawei	FFZ	Time signal	Spark	750
03.00-03.05	Do	FFZ	Weather report	do	750
06.00-06.10	Cape d'Aguilar, Hong Kong	VPS	do	do	600
08.00-08.10	Do	VPS	do	do	600
08.54-08.50	Shanghai-Zikawei	FFZ	Time signal	do	750
09.00-09.05	Do	FFZ	Weather report	do	750
09.00-09.10	Cape d'Aguilar, Hong Kong	VPS	do	do	600
11.20-11.30	Do	VPS	do	do	600
12.00-12.10	Do	VPS	do	do	600
14.00-14.05	Shanghai-Zikawei	FFZ	do	do	750
14.20-14.35	Do	FFZ	do	do	750
16.00-16.15-	Cape d'Aguilar, Hong Kong	VPS	do	do	600
18.00-18.05	Shanghai-Zikawei	FFZ	do	do	750
00.30-00.35	Kalyo Met. Obs. Kobe	JTJ	do	do	750
01.50-02.04	Chosbi	JCS	Time signal	do	600
06.30-06.35	Kalyo Met. Obs. Kobe	JTJ	Weather report	do	750
08.00-08.05	Keelung	JFK	do	do	600
11.50-12.04	Chosbi	JCS	Time signal	do	600
12.05-12.10	Do	JCS	Weather report	do	600
12.30-12.35	Kalyo Met. Obs. Kobe	JTJ	do	do	750
12.30-12.35	Keelung	JFK	do	do	600
13.00-13.05	Dairen Dairenwan (JDA), in Berne list	JDA	do	do	600

TIME SIGNALS BY ILHA DO GOVERNADO STATION, RIO DE JANEIRO, BRAZIL

The International system of radio time signals (also known as the "Onogo" system) has been replaced at this station by the New International System of radio time signals, which was adopted at the International Time Commissions, 1925.

The time signals are automatically transmitted from Rio de Janeiro Observatory at 14h 00m 00s and 24h 00m 00s, G. M. T., corresponding to 11h 00m 00s and 21h 00m 00s, standard time. After the usual preliminary signals the procedure is as follows:

G. M. T.				Signal						Meaning
h.	m.	s. h.	m. s.							
13 / 23	57	00–13 / 23	57 50	— . . — — . . — etc.						
				55	56	57	58	59	60	
	57	55–56	00	.	.	.	.	.	.	Time signal.
	58	00–58	10	— .						
	58	10–58	20	— .						
	58	20–58	30	— .						
	58	30–58	40	— .						
	58	40–58	50	— .						
				55	56	57	58	59	60	
	58	55–59	00	.	.	.	.	.	.	Time signal.
	59	00–59	10	— — .						
	59	10–59	20	— — .						
	59	20–59	30	— — .						
	59	30–59	40	— — .						
	59	40–59	50	— — .						
				55	56	57	58	59	60	
13 / 23	59	55–14 / 24	00 00	.	.	.	.	.	.	Time signal.

The duration of the dash is one second, and that of the dot 0.2 of a second. The final dot, therefore, terminates at $\begin{matrix}14^h\\24^h\end{matrix}$ 00m 00.2s. G. M. T.

In the event of failure the time signals are transmitted 30 minutes later, the word "Correcto" being sent in conjunction with this series of signals. Call signal SOH, wave length, 1,800 meters, spark.—*Admiralty Notice to Mariners, No. 1138, year 1926, London.*

LIST OF FOREIGN RADIO BROADCASTING STATIONS

City and call signal	Wave length (meters)	Power (watts)	Operator of station and general information
AUSTRIA			
Vienna (ORV)	530	1,500	Oesterreichischer Radioverkehrs, A. G. Broadcasts three 2-hour programs daily, including music (opera and popular), weather and market reports, and news.
Do	488	10,000	Oesterreichischer Radioverkehrs, A. G. Testing; to replace above station in the near future.
Graz	404	500	Oesterreichischer Radioverkehrs, A. G.
BELGIUM			
Brussels (BAV)	450	1,500	Radio Belgique Co. Broadcasts 2½ hours daily; programs consist entirely of music, except for news broadcast at the close of each program.
Liege	265	.....	Radio Wallonie station.
	205	.....	Radio central station.
CZECHOSLOVAKIA			
Prague (OKP)	375	5,000	Radio Journal, Strasnice station.
Brunn (OKB)	521	500	Radio Journal.
DENMARK			
Copenhagen	346	500	Copenhagen Radio Broadcasting Station, Government owned.
Soro	1,150 2,400	1,000	Ministry of War. Replaced station at Ryvang.

LIST OF FOREIGN RADIO BROADCASTING STATIONS—continued

City and call signal	Wave length (meters)	Power (watts)	Operator of station and general information
DENMARK—continued			
Odense	810	250	Relay station, Government owned.
Bjorring	1,250	500	Do.
ESTHONIA			
Tallinn	350	.....	No data.
FINLAND			
Bjorenborg	255.3	.....	Under construction by the Nuoren Voiman Liiton Radioyhdistys.
Hango	259.6	200	Nuoren Voiman Liiton Radioyhdistys.
Helsingfors	522	500	Finnish Civil Guard. Broadcasts concerts daily, and special programs.
	318	750	Military station at Skatudden, a suburb, supported by the public. Broadcasts concerts and other programs irregularly.
Jyvaskyla	561	200	Nuoren Voiman Liiton Radioyhdistys. Broadcasts musical and other programs irregularly.
Mikkeli	561	100	Nuoren Voiman Liiton Radioyhdistys.
Pori	255.3	100	Do.
St. Michel	561	500	Nuoren Voiman Liiton Radioyhdistys. Under construction.
Tammerfors (3NB)	393	250	Nuoren Voiman Liiton Radioyhdistys. Broadcasts concerts and other programs irregularly.
Tampere	373	250	No data.
Uleaborg	733	100	Do.
FRANCE			
Agen (2BD)	315	250	Department of Lot et Garonne.
Angers	250	500	Ministry of Posts, Telegraphs, and Telephones.
Bordeaux	330	500	Do.
Caen	333	.....	No data.
Grenoble	380	150	Ministry of Posts, Telegraphs, and Telephones.
Issy - les - Moulineaux (QQA)	1,800	500	Ministry of War.
Lyon (YN)	260	2,000	Dubanchet and Trulliet station radio, Lyon.
	482.3	600	Ministry of Posts, Telegraphs, and Telephones; station La Doua, named for suburb in which located.
Marseilles	351	300	Ministry of Posts, Telegraphs, and Telephones.
Mont de Marsen	390	300	No data.
Montpellier	200	200	Radio Montpellier station.
Paris:			
FL	2,650	5,000	Ministry of Posts, Telegraphs and Telephones. Eiffel Tower station.
SNG	333	500	Journal Petit Parisien.
FL	345	500	Petit Parisien.
SAJ	1,780	100	Societe Francais Radioelectrique.
	1,750	4,000	Cie. Francais de Radiophonie.
FPTT	459.4	500	Superior School of the Ministry of Posts, Telegraphs and Telephones
Pic du Midi	350	.....	No data.
St. Etienne	220	50	Radio Club Forezien.
Strasbourg (8GH)	200	100	Radio Club.
Toulouse	435.1	2,000	La Radio Barcelona.
Toulouse (MHD)	280	2,000	Ministry of Posts, Telegraphs, and Telephones. Aerodrome station.
GERMANY			
Berlin (AFT)	1,300	1,600	Postal authorities. Konigswusterhausen station. Relays Vox Haus programs.
	571	400	Madgeburger Plats station.
	507	[1] 2,250	Postal authorities Vox Haus station.
Bremen	279	700	Nordische Rundfunk, A. G. Relays Hamburg programs.
Breslau	414.8	[1] 4,000	Schlesische Funkstunde. Received at Rome; to be replaced by station with 10,000 watts input.
Dortmund	283	300	No data.
Dresden	292	500	Mitteldeutscher Rundfunk, A. G. Relays Leipzig programs.
Elberfield	259	300	Suspended.
Frankfurt-on-the-main	470.4	500	Sudwestdeutscher Rundfunkdienst. To be replaced by a station with an input power of 10,000 watts.
Gleiwitz	.....	[1] 1,500	Projected, to relay Breslau programs.
Hamburg	392.1	[1] 2,000	Nordischer Rundfunk, A. G.
Hanover	296	[1] 1,500	Nordischer Rundfunk, A. G. Relays Hamburg programs.
Kassel	283	300	Sudwestdeutscher Rundfunkdienst, A. G. Relays Frankfort programs.

[1] Input.

LIST OF FOREIGN RADIO BROADCASTING STATIONS—continued

City and call signal	Wave length (meters)	Power (watts)	Operator of station and general information
GERMANY—continued			
Kiel	293	300	No data.
Konigsberg	463	200	Ostmarken Rundfunk, A. G. Reception reported at Rome; to be replaced by station under construction to have an input power of 10,000 watts.
Leipzig	454	200	Mitteldeutscher Rundfunk, A. G.
Muenster	410	300	Westdeutscher Funkstunde, A. G.
Munich	485	200	Deutsche Stunde in Bayern. Reception reported at Rome; to be replaced by station, completed and now testing, with input power of 10,000 watts.
Nuremberg	340	[1] 750	Deutsche Stunde in Bayern. Relays Munich programs.
Stettin	241		No data. Relays Berlin (Vox Haus) programs.
Stuttgart	446.1	[1] 1,500	Suddeutsche Rundfunk, A. G.
HUNGARY			
Budapest (MTI)	550	400	Muegyetemi Radio Club. Broadcasts music only.
	1,050	[1] 2,000	Magyar Tavirati Iroda. Broadcasts market reports and news.
Reykjavik	450	500	No data.
LUXEMBURG			
Luxemburg	1,200	250	Do.
IRISH FREE STATE			
Dublin (2RN)	300.0	1,500	Government.
ITALY			
Rome (1RO)	434	1,200	Unione Radiofonica Italiana. Broadcasts concerts and news 8.30 to 11 o'clock p. m. daily; to be replaced by a station now under construction of 2,500 watts power.
Milan	305	1,200	Unione Radiofonica Italiana.
LATVIA			
Riga	450	2,000	No data.
NETHERLANDS			
Hilversum (HDO)	1,050	1,000	Nederlandsche Seintoestlen Fabriek and Hilversum Draadloos Omroep.
NORWAY			
Oslo	381.2	1,500	Broadcasting Company, A. S.
Bergen	358	500	Bergen Broadcasters.
	358	1,500	Bergen Broadcasters. Projected.
POLAND			
Warsaw	480	[1] 8,000	Polski Ericsson. To be replaced by a 50,000-watt-input station.
PORTUGAL			
Lisbon (P1AA)	320	500	Grandes Armazens de Chiado. Suspended.
SPAIN			
Almeria (EAJ16)		100	D. Anicoto de Ojiegua (under construction).
Barcelona:			
EAJ1	325	500	Association National Radiofusion. To be replaced by a 1,000-watt station; radio Catalana.
EAJ13	462	750	D. Rufino de Orbe-Radio Catalana.
Bilbao:			
EAJ9	415	350	D. Nivardo Pina. Broadcasts 7 to 9.30 p. m.; programs consist of numbers by paid singers and a considerable amount of advertising.
	418	200	Vizcaya Radio Broadcasting station. Broadcasts music provided by local talent and considerable advertising, from 10 to 12 p. m. daily.
EAJ11	418	150	Don Armando de Otera. Radio Vizcaya station.
Cadiz:			
EAJ3	350	350	Don Francisco de la Vinsca.
EAJ10			Anulada concession.
Cartagena (EAJ16)	330	150	Don Enrique de Orbe.
Madrid:			
EAJ2	335	500	Radio España.
EAJ4	340	1,000	Don Antonio Castilla.

[1] Input.

LIST OF FOREIGN RADIO BROADCASTING STATIONS—continued

City and call signal	Wave length (meters)	Power (watts)	Operator of station and general information
SPAIN—continued			
Madrid—Continued.			
EAJ6	392	750	Radio Iberica.
EAJ7	373	1,000	Union Radio.
EAJ12	300	150	Don Vicente de Goyeneche (under construction).
EAJ15	----	----	Anulada concession.
	334	300	Radio España.
Malaga:			
EAJ20	----	----	Anulada concesion.
EAJ25	325	150	D. Alfonso de Villota.
Oviedo (EAJ19)	340	150	Don Arturo Cima.
Salamanca (EAJ22)	405	150	D. Jose Luis Castilla.
San Sebastian (EAJ8)	425	500	Don Sabino Ucelayeta.
Seville:			
EAJ5	357	150	Seville Radio Club.
EAJ17	309	100	Don Manuel Garcia Ballesta.
EAJ21	----	----	Anulada concesion.
Valencia:			
EAJ14	----	----	Do.
EAJ24	----	----	Do.
Zaragoza (EAJ23)	----	----	Do.
SWEDEN			
Boden (SASE)	1,200	1,000	Radiotjanst.
Eskilstuna (SMUC)	250	250	Radio Club. Relays Stockholm programs 4 days each week; broadcasts local programs other days.
Falun (SMZK)	250	250	Do.
Gavle (SMXF)	206	250	Radio Club. Relays programs 4 days each week; broadcasts local programs other days
Goteborg (SASB)	290	500	Radiotjanst.
Helsingborg	253	250	No data.
Jonkopings (SMZD)	265	200	Jonkopings Rundradiostation. Relays Stockholm programs 4 days each week; broadcasts local programs other days.
Kalmar	253	250	No data.
Karlsborg (SASF)	1,365	1,000	Radiotjanst. Relays Stockholm programs 4 days each week; broadcasts local programs other days.
Karlskrona	196	200	Relays Stockholm programs 4 days each week; broadcasts local programs other days.
Karlstad (SMXG)	233	50	Karlstads Rundradiostation. Relays Stockholm programs 4 days each week; broadcasts local programs other days.
Kristinehamn	202	100	No data.
Linkoping (SMUV)	467	250	Radio Club. Relays Stockholm programs 4 days each week; broadcasts local programs other days.
Malmo (SASC)	270	500	Radiotjanst.
Norkoping (SMVV)	290	250	Radio Club. Relays Stockholm programs 4 days each week; broadcasts local programs other days.
Orebro (SMTI)	227	250	No data.
Sadle	245	500	Do.
Stockholm (SASA)	427	500	Radiotjanst.
Sundsvall (SASD)	545	500	Do.
Trollhattan (SMXG)	345	50	Trollhattans Rundradiostation.
Umea	----	180	Relays Stockholm programs 4 days each week; broadcast local programs at other times irregularly.
Varberg	385	100	No data.
SWITZERLAND			
Basel	900 1,300	300	Aerodrome. Projected.
Berne	392 435	1,500 1,500	General Post and Telegraph Office. Radio Club of Berne.
Geneva	760	500	Radio Broadcasting Society of Geneva. Broadcasts music and news.
Lausanne (HB2)	850	600	Champ de l'Air Station. Lausanne Radio Society. Broadcasts music and news.
Zurich:			
HGZ	515 650	500	Zurich University.
	514.1	1,000	Radio Genossenschaft.
UNITED KINGDOM			
Aberdeen (2BD)	497.1	1,500	
Belfast (2BE)	413.7	1,500	
Birmingham (5IT)	476.6	1,500	
Bournemouth (6BM)	385	1,500	
Cardiff (5WA)	351.6	1,500	
Daventry (5XX)	1,600	16,000	
Dundee (2DE)	330.5	200	
Edinburgh (2EH)	328	200	

LIST OF FOREIGN BROADCASTING STATIONS—continued

City and call signal	Wave length (meters)	Power (watts)	Operator of station and general information
UNITED KINGDOM—con.			
Glasgow (5SC)	421.6	1,500	
Hull (6KH)	335	200	
Leeds-Bradford (2LS)	343.5		
	310		
Liverpool (6LV)	313	200	
London (2LO)	362	3,000	
Manchester (2ZY)	375.6	1,500	
Newcastle (5NO)	400.9	1,500	
Nottingham (5NO)	326	1,500	
Plymouth (5PY)	338	200	
Sheffield (6FL)	303.5	200	
Stoke on Trent (6ST)	306	200	
Swansea (5SX)	482	200	
YUGOSLAVIA			
Belgrade (HFF)	1,550	2,000	No data.
ALASKA			
Juneau (KFIU)	229	10	Alaska Electric Light & Power Co.
CANADA			
Nova Scotia			
Halifax (CHNS)	322.4	100	Carlton Hotel station (Northern Electric Co.).
Charlottetown (CYCY)	312.3	50	Island Radio Co.
Summerside (CHLC)	267.7	25	Prince Edward Island. R. T. Holman.
New Brunswick			
Moncton (CNRA)	322.4	500	Canadian National Railways.
Quebec			
Montreal:			
CFCF	410.7	1,650	Canadian Marconi Co.
CHRC	340.7	5	E. Fontaine.
CHYC	410.7	750	Northern Electric Co.
CKAC	410.7	1,200	La Presse Publishing Co.
CNRM			Canadian National Railways. Uses equipment of other local stations.
Ontario			
Brantford (CFOC)	296.9	50	Brant Radio Supply Co.
Hamilton (CKOC)	340.7	50	Wentworth Radio Supply Co.
Huntsville (CHCO)	247.8	5	A. Staples.
Kingston:			
CYMC	267.7	20	Monarch Battery Co.
CFRC	267.7	500	Queens University.
Kitchener (CJCF)	247.8	25	G. Rumpel
London (CJOC)	329.5	500	Free Press Printing Co.
Ottawa:			
CHXC	434.8	250	J. R. Booth, jr.
CKCO	434.8	100	Dr. G. M. Geldert (Ottawa Radio Association).
CNRO	434.8	500	Canadian National Railways.
Toronto:			
CFCA	356.9	500	Star Publishing and Printing Co.
CHNC	356.9	500	Toronto Radio Research Society.
CKCL	356.9	500	Dominion Battery Co. (Ltd.).
CKNG	356.9	500	Canadian National Carbon Co.
Burketon Junction	329.5	5,000	Canadian Broadcasting Corporation, projected.
Prescott (CFLC)	296.9	50	Radio Association of Prescott.
Preston (CKPC)	247.8	7½	Wallace Russ.
Hamilton	340.7	10	Hamilton Spectator. Suspended.
Scarboro Station (CJYC)	291.1	500	Universal Radio Co. of Canada.
Thorold	247.8	75	D. J. Fendell. Suspended.
Toronto:			
CHIC			Northern Electric Co. Uses equipment of other local stations.
CJSC			Evening Telegram. Uses equipment of other local stations.
CNRT			Canadian National Railways. Uses equipment of other local stations.
Manitoba			
Winnipeg:			
CKY	384.4	500	Manitoba Telephone System.
CNRW			Canadian National Railways. Uses equipment of CKY.

LIST OF FOREIGN BROADCASTING STATIONS—continued

City and call signal	Wave length (meters)	Power (watts)	Operator of station and general information
CANADA—continued.			
Saskatchewan			
Regina:			
CHWC	296.9	15	R. H. Williams & Sons.
CKCK	296.9	500	Leader Publishing Co.
CNRR	296.9	----------	Canadian National Railways. Uses equipment of CKCK.
Saskatoon:			
CFQC	329.5	500	The Electric Shop.
CHUC	329.5	10	International Bible Students Association.
CJWC	329.5	250	Wheayon Electric Co.
CNRS	----------	----------	Canadian National Railways. Uses equipment of other local stations.
Alberta			
Calgary:			
CFCN	434.5	1,500	W. W. Grant Radio (Ltd.).
CFAC	434.5	500	Calgary Herald.
CNRC	----------	----------	Canadian National Railways. Uses equipment of other local stations.
Edmonton:			
CFCK	516.9	100	Radio Supply Co. (Ltd.).
CHCY	516.9	250	International Bible Students Assn.
CJCA	516.9	500	Edmonton Journal (Ltd.).
CNRE	----------	----------	Canadian National Railways. Uses equipment of other local stations.
Lethbridge (CJOC)	267.7	50	J. E. Palmer.
British Columbia			
Burnaby (CFVC)	410.7	500	International Bible Students Association.
Kamloops (CFJC)	267.7	15	N. S. Dagleish & Sons and Weller & Weller.
New Westminster (CFXC).	291.1	50	Westminster Trust Co.
Vancouver:			
CFDC	410.7	10	A. Holmstead and William Hanlon.
CFYC	410.7	500	Radio Corporation of Vancouver.
CKCD	410.7	1,000	Daily Province.
CKFC	410.7	50	First Congregational Church.
CNRV	291.1	500	Canadian National Railways.
CFCQ	410.7	----------	Sprott-Shaw Radio Co. Suspended.
Victoria (CFCT)	329.5	500	George W. Deaville.
CUBA			
Cienfuegos (6BY)	360	200	Jose Gandara.
Central Ekia	300	500	Ella Sugar Co.
7BR	350	500	Salvador Rionda.
Habana:			
PWX	400	500	Cuban Telephone Co.
2BB	250	15	Bernardo Barbe.
2BY	200	100	Frederick W. Button.
2EP	355	400	El Pais.
2HP	295	100	Credito y Construcciones Co.
2LR	235	50	Jose Lara.
2MG	284	70	Manuel y Guillermo Salas.
2OK	360	100	Mario Garcia Velez.
2OL	225	100	Columbia Radio and Cycle Co.
2RK	315	20	Raoul Karman.
2TW	270	20	Roberto E. Ramirez.
2UF	265	10	Benito Ferro.
Santiago (8BY)	250	100	Alberto Bavelo.
Tuinucu:			
6JK	272	100	Frank H. Jones.
6KW	340	100	Do.
MEXICO			
Chihuahua (CZF)	325	250	Federal Government State Capitol station.
Guadalajara	260	10	Radio Club.
Mazatlan (CYR)	475	250	Castulo Llamas.
Mexico City:			
CYA	300	750	Efirian R. Gomez.
CYB	275	500	Jose J. Reynosa; operated by El Buen Tono Cigarette Factory.
CYH	375	100	Miguel S. Castro; operated by La High Life, newspaper.
CYL	400	500	Raoul Azcarraga; operated by Universa.
CYO	425	100	Martinez y Zetina.
CYX	325	500	El Excelsior-Parker.
CZE	350	500	Department of Education.

LIST OF FOREIGN RADIO BROADCASTING STATIONS—continued

City and call signal	Wave length (meters)	Power (watts)	Operator of station and general information
MEXICO—continued			
Monterey:			
CYM	275	100	Roberto Reyes.
CYS			Constantinito de Tarnava. Under construction.
Oaxaca (CYF)	265	100	Frederico Zenilla.
Puebla (CYU)	312	100	Augustin del P. Zaenz.
Tampico		10	El Mundo. Suspended.
CYQ	322	100	Cipriano Sagnon, S. en C.
Vera Cruz (CYC)	337	40	Manuel Angel Fernandez. Recently inaugurated for broadcasting advertising of an American product.
Yucatan (CYY)	548	100	Partida Socialista del Sureste.
PORTO RICO			
San Juan (WKAQ)	340	500	Radio Corporation of Porto Rico.
SALVADOR			
Salvador (AQM)	482	500	Division of Telephones and Telegraphs. Broadcasts concerts Monday, Wednesday, and Friday nights at 8.15.
ARGENTINA			
Buenos Aires:			
LOO	270	1,000	No data. Received at Pernambuco and Valparaiso.
LOR	400	500	Argentine Association of Broadcasters.
LOT	272.7	1,000	No data.
LOV	352	1,000	Francisco J. Brutta.
LOW	325	1,000	Grand Splendid Theater.
LOX	375	500	Radio Cultura, magazine.
LOY	313	1,000	Radio Nacional.
	423	1,000	University of La Plata.
BRAZIL			
Bahia	250	500	Radio Sociedade do Bahia.
Bello Horizonte	400	500	National Telegraph Service.
Fortaleza		30	Radio Club.
Pernambuco	310	500	Radio Club. One hour daily and two hours three days each week.
Porto Alegre	350	80	Radio Society. Broadcasts one hour daily; to be replaced by 500-watt station.
Rio de Janeiro		1,000	Radio Society. Daily programs by local artists.
	312	500	National Telegraph Service. Praia Vermelha Station; operated by Radio Club; daily news and concerts.
		10	No data. Phonograph records broadcast 2 to 4 p. m. daily, concerts from 7 to 9 p. m. three or four days each week.
Santos		10	No data.
Sao Paulo	350	10	Radio Society. Broadcasts two programs daily, of two hours each; performance at Municipal and other theaters principally; to be replaced by a 1,000-watt station.
Do	400	100	Dias Carneiro & Co.; operated by the Radio Club of Sao Paulo.
	350	10	Radio Club of Sao Paulo. Broadcasts Hotel Terminus orchestra and phonograph records daily.
CHILE			
Antofagasta (CHAO)		200	Senor J. Pedreny.
Santiago:			
CRC	385	350	Chilean Broadcasting Society.
	360	1,200	El Mercurio, newspaper.
	320	100	Fratelli Castagnolo.
	340	30	Commercial Radio Co.
Tacna (CROT)	550	1,000	Chilean Government.
Valparaiso (ACB)	400	50	Antonio Cornish.
PERU			
Lima (OAX)	360	1,500	Peruvian Broadcasting Co. (Ltd.).
URUGUAY			
Montevideo	250	500	El Dia, newspaper.
		500	General Electric Co. of Uruguay. Crandon Institute Station, operated by Radio Sud American.
VENEZUELA			
Caracas	360	1,000	A. Santana, Scholtz & Co. operating through subsidiary, Empresa Venezolana de Radiotelefonia; under construction.
Colombo	600	[1] 1,000	Ceylon Government. Replaced private station; new equipment placed in use in January, 1926.

[1] Input.

LIST OF FOREIGN RADIO BROADCASTING STATIONS—continued

City and call signal	Wave length (meters)	Power (watts)	Operator of station and general information
CHINA			
Shanghai	365	100	Kellogg Switchboard and Supply Co. Operates four hours daily between 9.45 a. m. and 11 p. m.
INDIA			
Bombay:			
2FV	387	220	Bombay Presidency Radio Club, operated by the Indian States and Eastern Agency.
2AX	220	.....	Walter Rogers & Co.
Calcutta (5AF)	425	1,500	Indian States and Eastern Agency.
Karachi	425	40	Karachi Radio Club.
Madras	220	120	Crampton Electric Co.
Rangoon	450	40	Radio Club of Burma and Wireless Club of Burma. Broadcasts musical programs every Friday evening.
JAPAN			
Nagoya (JOCK)	360	1,500	Nagoya Radio Broadcasting Co. Broadcasts daily, 9 a. m. to 9 p. m.; Sundays and holidays, 12 m. to 9 p. m.; programs consist of music, weather and market reports, news bulletins, and talks.
Osaka (JOBK)	385	500	Osaka Radio Broadcasting Co. Programs in English and Japanese; 1,500-watt station projected.
Tokyo (JOAK)	375	1,000	Tokyo Radio Broadcasting Co. Programs in English and Japanese.
KWANTUNG			
Dairen	400	.....	Government Bureau of Communications. Employs a commercial station; daily programs broadcast, consisting of music, educational and entertainment numbers.
NETHERLANDS EAST INDIES			
Soerabaya	90	.....	Netherlands Indies Radiotelegraph Club.
STRAITS SETTLEMENTS			
Singapore	270	100	Amateur Wireless Society of Malaya. Two-hour program broadcast each Sunday evening, and children's concert on Wednesdays; received at Colombo, Ceylon.
AUSTRALIA			
New South Wales			
Bathurst (2MK)	.....	.....	No data.
Newcastle (2HD)	288	100	H. A. Douglas.
Northbridge (2UW)	203	[1] 500	Otto Sandel.
Sydney:			
2BE	326	[1] 100	Burgin Electric Co.
2BL	353	[1] 5,000	Broadcasters Sydney (Ltd.).
2FC	1,100	[1] 10,000	Farmer & Co. (Ltd.), Labor Party.
2UE	297	[1] 250	Electrical Utilities Supply Co.
Victoria			
Brighton (3PB)	.....	.....	Projected. No data.
Melbourne:			
3AR	484	[1] 1,600	Associated Radio Co. of Australia, Pty. (Ltd.).
3LO	371	[1] 5,000	Broadcasting Co. of Australia, Pty. (Ltd.).
3UZ	319	[1] 100	O. J. Nilson & Co.
3WR	303	[1] 100	L. J. Hellier; Wangaratta Sports Depot.
Mildura (3EO)	286	[1] 100	R. J. Eggo.
Queensland			
Brisbane:			
4CM	278	[1] 250	Dr. V. McDowell. Under construction.
3MB	337	[1] 250	Radio Manufacturers (Ltd.). Projected.
4QG	385	[1] 5,000	Queensland Government.
Rockhampton (4RN)	323	[1] 500	Queensland Government. Projected.
Toowoomba (4GR)	294	[1] 100	Gold Radio Electric Service.
Tasmania			
Hobart (7ZL)	525	[1] 250	Associated Radio Co. of Australia (Ltd.). To be replaced by a 3,000-watt (input) station to be operated by the Tasmanian Broadcasters Pty. (Ltd.)

[1] Input.

LIST OF FOREIGN RADIO BROADCASTING STATIONS—continued

City and call signal	Wave length (meters)	Power (watts)	Operator of station and general information
AUSTRALIA—continued			
South Australia			
Adelaide:			
6CL	395	[1] 5,000	Central Broadcasting Co.
5DN	313	[1] 500	E. J. Hume. Operated by 5DN Pty. (Ltd.).
5MA	.....	.....	Millswood Auto and Radio Co.
5MC	273	[1] 500	Marshall & Co.
Western Australia			
Perth (6WF)	1,250	[1] 5,000	Westralian Farmers (Ltd).
HAWAII			
Honolulu (KGU)	270	500	Marion A. Mulrony, L.
ALGERIA			
Algiers (8DR)	310	100	Colin & Fils.
CANARY ISLANDS			
La Laguna (EAJ5)	250	60	Servando Ortoll Delmotte.
Las Palmas	300	6	Canary Islands Radio Club.
EGYPT			
Cairo	255	.....	Amateur station; unknown.
MOROCCO			
Casablanca (CNO)	250	500	Radio Club of Morocco Omega Station.
SENEGAL			
St. Louis	300	100	Senegal Radio Club. Projected.
TUNISIA			
Tunis:			
TUA	1,450	300	French Army. Two musical programs broadcast each week.
OUTU	45		
UNION OF SOUTH AFRICA			
Cape Town	375	1,200	Cape Peninsula Broadcasting Association (Ltd.). Broadcasts 54 hours per week; programs by paid orchestra and local talent.
Durban	400	1,200	Town council.
Johannesburg	438	1,000	Associated Scientific and Technical Broadcasting Co. (Ltd.).

[1] Input.

CONSTANT FREQUENCY STATIONS

In this issue of the Radio Service Bulletin the list of "standard frequency stations" is supplemented by the following list of certain other stations which are known to use special means of maintaining their frequencies accurately on their assigned values. 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 assigned values. The Bureau of Standards makes regular measurements of the transmitted frequencies of the standard frequency stations only. The number of stations on whose transmissions such measurements are made is necessarily small, because practical difficulties limit the measurements of this kind which can be made at one place. 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.

Stations included in the following list employ a special device for controlling or checking their frequencies and fulfill two additional conditions: (1) The fre-

quency calibration of the device is in agreement with the frequency standards of the Bureau of Standards; (2) the station has given evidence of following carefully a special procedure in the use of the device. The special devices for frequency regulation include automatic peizo control, piezooscillators, piezoresonators, and frequency indicators. A frequency indicator is a special type of frequency meter (wave meter) so constructed as to give readings at only a single point or over a very narrow range of frequencies (not over 10 per cent). The usual frequency meter designed for measurements of frequencies over a wide range is not adequate for this purpose.

The use of the piezooscillator for checking a station's frequency and the use of a frequency indicator are described, respectively, in Bureau of Standards Letter Circulars 186 and 180, which publications give, in addition, specifications for the construction of these devices. They are entitled, respectively, "Specifications for portable piezooscillator, Bureau of Standards Type N," and "Specifications for Frequency Indicator, Bureau of Standards Type B, for use in radiotransmitting stations." Either letter circular may be obtained by persons having actual use for it upon application to the Bureau of Standards.

The list of stations given below is purely preliminary; more stations will be added in future lists. All of the stations listed below use either a frequency indicator of a piezooscillator as a checking device (not automatic control).

Station	Owner	Location	Assigned wave length	Frequency (kilocycles)	Apparatus for frequency regulation
WOC	Palmer School of Chiropractic.	Davenport, Iowa..	483.6	620	Piezooscillator.
WTIC	Travelers' Insurance Co..	Hartford, Conn....	475.9	630	Do.
WMAQ	Chicago Daily News.....	Chicago, Ill.....	447.5	670	Frequency Indicator Type B.
WCCO	Washburn Crosby Co....	Minneapolis-St. Paul, Minn.	416.4	720	Piezooscillator.
WWJ	Detroit News.....	Detroit, Mich.....	352.7	850	Frequency Indicator, Type B.
WLS	Sears, Roebuck & Co....	Crete, Ill.....	344.6	870	Piezooscillator.
KFAB	Nebraska Buick Auto Co..	Lincoln, Nebr.....	340.7	880	Do.
WJJD	Loyal Order of Moose....	Mooseheart, Ill....	370.2	810	Do.
WEAO	Ohio State University....	Columbus, Ohio..	293.9	1,020	Frequency Indicator, Type B.
KFKA	Colorado State Teachers' College.	Greeley, Colo.....	272.6	1,100	Piezooscillator.
KFH	Hotel Lassen (Rigby-Gray Hotel Co.).	Wichita, Kans....	267.7	1,120	Frequency Indicator, Type B.
WSBNR	All American Radio Corporation.	Chicago, Ill.....	265.3	1,130	Piezooscillator.
WCAD	St. Lawrence University.	Canton, N. Y.....	263	1,140	Frequency Indicator, Type B.
WAAM	I. R. Nelson.....	Newark, N. J.....	263	1,140	Piezooscillator.
WSKC	WorldStar Knitting Co..	Bay City, Mich...	260.7	1,150	Frequency Indicator.
WOWO	Main Auto Supply Co...:	Fort Wayne, Ind..	227.1	1,320	Piezooscillator.
WBBM	Atlas Investment Co.....	Chicago, Ill.....	225.4	1,330	Do.
WEBQ	Joseph R. Tate.....	Harrisburg, Ill....	225.4	1,330	Do.
KFVS	Hirsch Battery & Radio Co.	Cape Girardeau, Mo.	223.7	1,340	Frequency Indicator, Type B.
WOK	Nontrowound Radio Manufacturing Co.	Homewood, Ill....	217.3	1,380	Piezooscillator.
WPDQ	Hiram L. Turner.....	Buffalo, N. Y.....	203.4	1,460	Frequency Indicator, Type B.

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 frequency standards.

As shown by the list of constant frequency stations, there may be many other stations maintaining their frequency just as constant as these, but these are the only ones among those observed at the bureau. There is, of course, no actual guaranty that the stations named below will maintain the constancy shown, but the data indicate the high degree of confidence that can be placed in them. The transmitted frequencies from these stations can be utilized for standardizing 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.

Station	Owner	Location	Assigned frequency (kilocycles)	Period covered by measurements (months)	Number of times measured	Deviations from assigned frequencies noted in measurements	
						Average	Greatest since June 25, 1926
						Per cent	*Per cent*
NSS	United States Navy	Annapolis, Md.	17.60	2	8	0.1	0.2
WGI	Radio Corporation of America.	Burnsmt, N. J.	17.95	17	82	.1	.3
WGG	do	Tuckerton, No. 1, N.J.	18.88	35	253	.2	.1
WII	do	New Brunswick, N. J.	21.93	16	114	.1	.1
WIT	do	do	22.09	14	38	.1	.1
WVA	United States Army	Annapolis, Md.	100	16	150	.2	.5
NAA	United States Navy	Arlington, Va.	112	9	58	.2	.2
WEAF	American Telephone & Telegraph Co.	New York, N. Y.	610	19	122	.0	.0
WCAP	Chesapeake & Potomac Telephone Co.	Washington, D. C.	640	34	144	.1	.0
WRC	Radio Corporation of America.	do	640	31	139	.1	.2
WIZ	do	Bound Brook, N. J.	660	2	8	.1	.2
NAA	United States Navy	Arlington, Va.	680	2	15	.0	.1
WGY	General Electric Co.	Schenectady, N. Y.	790	37	170	.1	.1
WBZ	Westinghouse Electric & Manufacturing Co.	Springfield, Mass.	900	25	75	.1	.1
KDKA	do	East Pittsburgh, Pa.	970	2	16	.1	.2
KDKA[1]	do	do	[2] 4,711	2	10	.1	.1

[1] High frequency telephone transmitting set.
[2] Not an assigned frequency; 4,711 kilocycles determined by special test; deviations noted are from this frequency.

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 on the left of each reference classifies the reference by subject, in accordance with the scheme presented in 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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