DEPARTMENT OF COMMERCE

RADIO SERVICE BULLETIN

ISSUED MONTHLY BY BUREAU OF NAVIGATION

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CONTENTS

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.
Kc.	= 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.

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

Station	Call signal	Wave lengths	Service	Hours	Station controlled by—
Denver, Colo.[1]	KFD	24.5, 17.7	FX	X	General Electric Co.
Hoquiam, Wash.[2]	KJQ	600, 700	P	X	Twin Harbor Stevedoring Co.
Philadelphia, Pa.[3]	WNW	600, 600	FG		Tidewater Wireless Telegraph Co.
Rocky Point, N. Y.[4]	WSS	16, 120	FX	N	R. C. A.

[1] Loc. O 104° 54′ 14″, N 39° 44′ 00″; range, 1,500; system, General Electric Co. v. t. teleg.
[2] Loc. O 123° 48′ 06″, N 47° 00′ 00″; range, 200; system, Navy-K. & C., 1,000.
[3] Loc. O (approximate) O 75° 10′ 00″, N 39° 57′ 00″; range, 100; system, composite, 120; hours, 6 a. m.–12 midnight; rates, ship service 10 cents (32 centimes) per word; address of owner, Philadelphia Tidewater Terminal Pier No. 96, South Delaware Avenue, Philadelphia, Pa.
[4] Loc. O 72° 56′ 30″, N 40° 55′ 45″; range, 6,000; system, Alexanderson alternator.

Commercial ship stations, alphabetically by names of vessels

[Additions 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]

Name of vessel	Call signal	Rates	Service	Hours	Owner of vessel	Station controlled by—
Astero II	KFZO				Jesse L. Livermore	
Cutty Sark	KFZU				Alexander Smith	
Easterling	KFJD	S	PG	X	U. S. Shipping Board	
Evansville[1]	KIKT	S	PG	X	M. & J. Tracy (Inc.)	I. W. T. Co.
Guayaquil[1]	KFKN	S	PG	X	Panama R. R. Co.	Owner of vessel.
Josephine	KFZS	S	PG	X	Edmond S. Burke, jr.	R. C. A.
Lake Charles	KHW	S	PG	X	Noland S. S. Co.	I. W. T. Co.
Lake Treba	KOSQ	S	PG	X	Richard Walsh	Do.
Margaret F. Sterling	KFZR	S	PG	X	Ray M. Sterling	
Manilsto[1]	KORT	S	PG	X	Munson S. S. Line	Do.
Robador	KFZQ	S	PG	X	Robert Law, jr.	R. C. A.
Sabotawan[4]	KIJJ	S	PG	X	Finkbine-Guild Transportation Co.	I. W. T. Co.
San Pedro	WMT	S	PG	X	Hammond Lumber Co.	R. C. A.
Savarona	KFZT	S	PG	X	Richard M. Cadwalader, jr.	Do.
Stella Lykes	KIZM	S	PG	X	Lykes Bro. S. S. S. Co.	Do.
Western Knight	KEFQ	S	PG	X	U. S. Shipping Board	Do.
West Lashaway[1]	WREA	S	PG	X	do	
Windham	KFZN	S	PG	X	Western Dredging & Marine Construction Co.	Do.

[1] Range, 200; system, Navy, 1,000; w. l., 600, 700, 800.
[2] Range, 300; system, Marconi, 1,000; w. l., 600, 700, 800.
[3] Range, 200; system, Navy-Simon, 1,000; w. l., 600, 700, 800.
[4] Range, 300; system, Navy-Marconi, 1,000; w. l., 600, 700, 800.

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	
KEFQ	Western Knight	b	KHW	Lake Charles	b
KEJD	Easterling	b	KIJJ	Sabotawan	b
KFKN	Lake Fanquier	b	KIKT	Evansville	b
KFD	Denver, Colo.	c	KIZM	Stella Lykes	b
KFZN	Windham	b	KJQ	West Lashaway	b
KFZO	Astero II	b	KORT	Hoquiam, Wash.	c
KFZQ	Robador	b	KOSQ	Hancock County	b
KFZR	Margaret F. Sterling	b	WMT	Lake Treba	b
KFZS	Josephine	b	WNW	San Pedro	b
KFZT	Savarona	b	WREA	Philadelphia, Pa.	c
KFZU	Cutty Sark	b	WSS	Rocky Point, N. Y.	c

Commercial airplane stations, alphabetically, by names of stations

[Additions 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]

Station	Call signal	Wave length	Service	Hours	Station controlled by—
Airplane (unnamed)[1]	KDA	60.82, 44.22	P	X	North American Newspaper Alliance (Detroit Arctic Expedition).

[1] Range, 50; system, composite v. t. telegraph.

Broadcasting stations, alphabetically, by names of States and cities

[Additions to the List of Radio Stations of the United States, edition of June 30, 1925, and List in Radio Service Bulletin No. 105, Jan. 30, 1926]

State and city	Call signal	State and city	Call signal
Colorado: Colorado Springs [1]	KFUM	Minnesota: Minneapolis [1]	WLB
Florida: Pensacola	WCOA	New York: Buffalo [1]	WPDQ
Iowa: Le Mars [1]	KWUC	Wisconsin: Omro	WJBR
Michigan: Escanaba [1]	WRAK		

[1] Relicensed.

Broadcasting stations, alphabetically, by call signals

Call signal	Location of station (address)	Owner of station	Power (watts)	Wave length	Frequency (kilocycles)
KFUM [1]	Colorado Springs, Colo., Cascade Ave.	W. D. Corley	100	219.9	1,250
KWUC [1]	Le Mars, Iowa	Western Union College	50	232	1,190
WCOA	Pensacola, Fla	City of Pensacola	250	222.1	1,350
WJBR	Omro, Wis	Gensch & Stearns	50	227.1	1,320
WLB [1]	Minneapolis, Minn	University of Minnesota	500	277.6	1,080
WPDQ [1]	Buffalo, N. Y., 121 Norwood Ave.	Hiram L. Turner	50	206.4	1,460
WRAK [1]	Escanaba, Mich., 1105 Ludington St.	Economy Light Co	100	256.3	1,170

[1] Relicensed.

Special land stations, alphabetically, by names of stations

[Additions to the List of Radio Stations of the United States, edition of June 30, 1925]

Station	Call signal	Station controlled by—
Alva, Okla	5YC	Northwestern State Teachers College.
Ames, Iowa	9XX	Earl D. Smith, 915 Duff Street.
Chico, Calif. (portable)	6XAK	F. Wellington Morse.
Columbus, Ohio	8XJ	Ohio State University.
Dartmouth, Mass. (portable)	1XAN	Round Hills Radio Corporation.
Dartmouth, Mass	1XV	Do.
Hollywood, Calif. (portable)	6XAL	L. E. Taft, 5653 De Longpre Avenue.
Los Angeles, Calif	6XAE	D. G. Chilson, 514 Law Building.
New Orleans, La	5YU	Tulane University.
San Francisco, Calif	6XBB	Ralph M. Heintz, 119 Twenty-sixth Avenue.
Seattle, Wash	7YC	Young Men's Christian Association.
Do	7YD	University of Washington.
Tulsa, Okla	5XF	Skelly Oil Co.
Washington, D. C	2XG	Maj. J. O. Mauborgne, Signal Corps.
Waterbury, Conn	1XAJ	Bureau Fire Alarm and Police Telegraph.
White Haven, Pa	8XAK	Stuart Ballantine.

Special land stations grouped by districts

Call signal	District and station	Call signal	District and station
	First district:		Sixth district—Continued.
1XAJ	Waterbury, Conn.	6XAL	Hollywood, Calif. (portable).
1XAN	Dartmouth, Mass. (portable).	6XBH	San Francisco, Calif.
1XV	Dartmouth, Mass.		Seventh district:
3XG	Third district: Washington, D. C.	7YC	Seattle, Wash.
	Fifth district:	7YD	Do.
5XF	Tulsa, Okla.		Eighth district:
5YC	Alva, Okla.	8XAX	White Haven, Pa.
5YU	New Orleans, La.	8XJ	Columbus, Ohio.
	Sixth district:	9XX	Ninth district: Ames, Iowa.
6XAE	Los Angeles, Calif. (portable).		
6XAK	Chico, 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, 1925, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

CARLISLE, ALASKA.—Hours, N.
HOLLYWOOD, CALIF.—*Read* Los Angeles, Calif., w. l., 146.3.
JOHNSWOOD, MICH.—Loc. (approximate) O 83° 40′ 00″, N 45° 50′ 00″.
LOS ANGELES, CALIF. (portable—KYX).—W. l., 146.3.
LUDINGTON, MICH.—System, Marconi, 1000.
POINCIANA, FLA.—Loc. (approximate) O 81° 02′ 00″, N 25° 32′ 00″.
POINT BARROW, ALASKA.—Owner of station, North American Newspaper Alliance (Detroit Arctic Expedition).
POINT BARROW, ALASKA (portable).—Owner of station, North American Newspaper Alliance (Detroit Arctic Expedition).
Strike out all particulars of the following-named stations: Camp 60, 61, and 61-C, California.

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 Berne bureau]

ABRON.—System, Navy-Marconi, 1000; w. l., *600*, 706, 800; station controlled by I. W. T. Co.
A. C. BEDFORD.—System, R. C. A. v. t. telegraph; w. l., 450, *600*, 706, 750, 800, 900.
AGWISUN.—W. l., *600*, 706, 800.
AMERICAN BANKER.—W. l., *600*, 706, 800.
ANNAPOLIS.—System, composite v. t. telegraph; w. l., 143, *600*.
ARCADIA.—Service, PG; hours, X; rates, 8 cents per word; station controlled by R. C. A.
ARIO.—W. l., *600*, 706, 800.
AVALON (WFH).—W. l., *600*, 706, 800; rates, strike out rate between East San Pedro and Avalon, Calif.
BALDHILL.—Station controlled by R. C. A. (U. S. L.).
C. A. CANFIELD.—W. l., *600*, 706, 800.
C. A. SNIDER.—W. l., *600*, 706, 800.
CEDARHURST.—Owner of vessel, Steamer Freeport Corporation; station controlled by R. C. A.
CHARLES R. MCCORMICK.—Owner of vessel, Chas. R. McCormick Lumber Co.
CHICASAW.—W. l., *600*, 706, 800.
CITY OF PHILADELPHIA.—System, Navy-Marconi, 1000; w. l., *600*, 706, 800.
COLDWATER.—Owner of vessel United States Shipping Board.
COLLAMER.—W. l., *600*, 706, 800.
COLUSA.—System, R. C. A. v. t. telegraph; w. l., add 750.
COMMACK.—W. l., 450, *600*, 706, 800.
COMMERCIAL GUIDE.—Station controlled by R. C. A. (U. S. L.).
CORNELIA.—Station controlled by R. C. A.

DELISLE.—Station controlled by R. C. A.
DOCHET.—W. l., *600*, 706, 800; station controlled by I. W. T. Co.
EASTERN GLEN.—Station controlled by R. C. A.
EASTERN VICTOR.—W. l., *600*, 706, 800.
EAST SIDE.—W. l., *600*, 706, 800.
EDENTON.—System, Navy-R. C. A., 1000; w. l., *600*, 706, 800; station controlled by R. C. A. (U. S. L.).
EFFINGHAM.—W. l., *600*, 706, 800.
EMIDIO.—W. l., *600*, 706, 800, 2100, 2400.
EMORY L. FORD.—System, Navy-Simon, 1000; w. l., *715*, 800, 875; rates, Great Lakes service 4 cents per word.
EVERETT (KZT).—W. l., *600*, 706, 800.
FABIA.—Station controlled by R. C. A.
FORTUNA.—Range, 25-150; system, Western Electric Co. v. t. telegraph and telephone and Marconi spark, 1000; w. l., *600*, 706, 800.
FRANKLIN.—W. l., *600*, 706, 800.
GULFMAID.—System, Marconi, 1000; w. l., *600*, 706, 800.
GULFPOINT.—System, Navy-R. C. A., 1000; w. l., 450, *600*, 706, 800.
HALEAKALA (KFEU).—System, Navy-Marconi, 1000; w. l., *600*, 706, 800; hours, X.
HALF MOON.—W. l., *600*, 706, 800.
HAMPTON ROADS (KESR).—Station controlled by I. W. T. Co.
HENRY FORD II.—W. l., *600*, 706, *715*, 1875.
HENRY R. MALLORY.—W. l., *600*, 706, 800.
H. T. HARPER.—W. l., *600*, 706, 800.
I. J. MERRITT.—System, Navy-Marconi, 1000; w. l., *600*, 706, 800.
INTREPID.—Station controlled by R. C. A.
JAMESTOWN.—System, R. C. A. v. t. telegraph and R. C. A. spark, 1000; w. l., *600*, 706, 800, 900, 1800, 2100.
JEFF DAVIS.—W. l., *600*, 706, 800, 1800, 2000, 2100, 2400.
JOHN WORTHINGTON.—System, R. C. A. v. t. telegraph; w. l., *600*, 706, 750, 800, 900; rates, strike out Great Lakes rate.
J. R. GORDON.—W. l., *600*, 706, 800.
KERSHAW.—W. l., *600*, 706, 800.
KROONLAND.—System, I. W. T. Co. arc and Navy-Lowenstein, 1000; w. l., *600*, 706, 800, 1800, 2000, 2100, 2400.
LAKE ELLSBURY.—Name changed to Munloyal.
LAKE FERNANDO.—Name changed to Munami.
LAKE GADSDEN.—Name changed to Genevieve Lykes.
LAKE GALATA.—Name changed to Wyoming; range, 200; system, Navy-Simon, 1000; w. l., *600*, 706, 800.
LAKE GIDDINGS.—Range, 200; system, Navy-Simon, 1000; w. l., *600*, 706, 800.
LAKE GLAUCUS.—Name changed to Volusia; range 200; system, Navy-Marconi, 1000; w. l., *600*, 706, 800.
LAKE WASHBURN.—Range, 150; system, R. C. A. v. t. telegraph; w. l., *600*, 706, 800.
LA PURISIMA.—W. l., *600*, 706, 800, 1800, 2100, 2400.
LAS VEGAS.—Station controlled by R. C. A. (U. S. L.).
LIBERTY BELL.—W. l., *600*, 706, 800.
LIEBRE.—W. l., *600*, 706, 800.
LIO.—W. l., *600*, 706, 800, 1800, 2100, 2400; station controlled by F. T. Co.
LIVINGSTONE ROE.—System, R. C. A. v. t. telegraph; w. l., *600*, 706, 750, 800, 900.
LOUISE (KUKN).—W. l., *600*, 706.
MAGNETIC.—Owner of vessel, United States Shipping Board.
MAKIKI.—W. l., 450, *600*, 706, 800.
MALABAR.—System, I. W. T. Co. arc and Navy, 1000; w. l., add 1800.
MINEOLA.—W. l., *600*, 706, 800.
MOHAWK (KFYU).—Station controlled by I. W. T. Co.
MOLINE.—Name changed to Lara.
MONTAGUE.—Station controlled by I. W. T. Co. (U. S. L.).
NORTHLAND (WGJ).—Station controlled by I. W. T. Co.
ORITANI.—Station controlled by R. C. A.
ORMES.—Station controlled by R. C. A.
OSCEOLA.—Owner of vessel, Osceola S. S. Co.
PATRICK HENRY.—W. l., *600*, 706, 800.
PONCE.—System, Marconi, 1000.
PRESIDENT ROOSEVELT.—W. l., *600*, 706, 800, 1800, 1900, 2000, 2100, 2400.

RADIANT.—Range, 300; system, R. C. A. v. t. telegraph; w. l., *600*, 706, 750, 800, 900; owner of vessel, Union Oil Co. of California.
REPUBLIC (KSN).—Station controlled by I. W. T. Co.
ST. ANTHONY.—W. l, *600*, 706, 800; rates, strike out Great Lakes rate.
SAN JUAN (WWM).—System, Gray & Danielson, 1000.
SAN PEDRO.—Station controlled by R. C. A.
SEABORN.—Range, 300; system, Marconi v. t. telegraph and Marconi spark, 1000; w. l., *600*, 706, 800, 2100, 2400; service, PG; hours, X; station controlled by owner of vessel.
SEEKONK.—W. l., *600*, 706, 800.
SHENANGO.—W. l., *600*, 706, 800.
SHICKSHINNY.—Owner of vessel, United States Shipping Board.
SOLANA.—Owner of vessel, Associated Oil Co.
STEEL SEAFARER.—W. l., *600*, 706, 800.
STORM KING (KDJM).—Station controlled by I. W. T. Co.
THALASSA.—Station controlled by Marconi International Marine Communication Co. (Ltd.), London, England.
THOMAS TRACY.—Station controlled by I. W. T. Co.
T. J. WILLIAMS.—System, R. C. A. v. t. telegraph; w. l., *600*, 706, 750, 800, 900.
TRACY BROS.—Station controlled by R. C. A.
TULSA.—Owner of vessel, United States Shipping Board.
VABA.—Owner of vessel, Steamer Freeport Corporation; station controlled by R. C. A.
VIRGINIA EXPRESS.—Station controlled by owner of vessel.
VIRGINIA LIMITED.—Station controlled by owner of vessel.
WEST CARNIFAX.—W. l., 600, 706, 800.
WEST GAMBO.—Station controlled by R. C. A.
WEST HIXTON.—System, Navy-Marconi, 1,000; w. l., *600*, 706, 800; station controlled by I. W. T. Co.
WEST JAFFA.—Name changed to Oriole.
WEST KATAN.—Owner of vessel, California & Eastern S. S. Co.
WEST KEBAR.—W. l., *600*, 706, 800, 1,800, 1,900, 2,000, 2,100, 2,400.
WEST KEDRON.—W. l., *600*, 706, 800.
WILLIAM G. AGNEW.—Name changed to George F. Rand.
WILLIAM GREEN.—System, R. C. A. v. t. telegraph; w. l., *600*, 706, 750, 800, 900.
W. J. HANNA.—System, R. C. A. v. t. telegraph; w. l., *600*, 706, 750, 800, 900.
Strike out all particulars of the following-named vessels: Columbia, La Jota, Laurentian, Elena Valdez, Pizarro, Traveller, Wellington, Yosemite (KDWE).

COMMERCIAL LAND AND SHIP STATIONS, ALPHABETICALLY BY CALL SIGNALS

KELM, *read* Minami; KEXN, *read* Lara; KFCT, *read* George F. Rand; KITP, *read* Genevieve Lykes; KOFP, *read* Munloyal; KOJJ, *read* Lake Galata; KUKJ, *read* Oriole; KUMV, *read* Volusia; KZI, *read* Los Angeles, Calif.; strike out all particulars following the call signals, KDPV, KDPW, KDTX, KDWE, KDXF, KELG, KFLI, KFM, KFPU, KIVK, KMR.

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, Jan. 30, 1926]

KFBC (San Diego, Calif.).—Power, 50.
KFMQ (Fayetteville, Ark.).—Call signal changed to KUOA.
KFNF (Shenandoah, Iowa).—Power, 1,000.
KFXC (Santa Maria, Calif.).—Call signal changed to KSMR.
WAMD (Minneapolis, Minn.).—Owner of station Radisson Radio Corporation.
WAPI (Auburn, Ala.).—Power, 1,000.
WCBR (Providence, R. I., portable).—Power, 100; w. l., 209.7; fy. kc., 1,430.
WCEE (Elgin, Ill., near).—Call signal changed to WSWS; location changed to Wooddale, Ill.; owner of station, Illinois Broadcasting Corporation.
WDBE (Atlanta, Ga.).—Owner of station, Gilham-Schoen Electric Co.
WDOD (Chattanooga, Tenn.).—Address, 615 Market Street.
WEBH (Chicago, Ill.).—Power, 2,000.
WHAT (Minneapolis, Minn.).—Call signal changed to WGWY.
WJBB (St. Petersburg, Fla.).—Owner of station, Financial Journal, 126 Thirteenth Street North.
WKBK (New York, N. Y.).—Call changed to WBNY.

WLWL (New York, N. Y.).—Power, 3,500.
WMAL (Washington, D. C.).—Power, 100.
WNBH (New Bedford, Mass.).—Power, 100.
WOCL (Jamestown, N. Y.).—Owner of station, A. E. Newton.
WTAQ (Osseo, Wis.).—Location of station, Eau Claire, Wis.; owner of station, C. S. Van Gorden.
Strike out all particulars of the following-named stations: KDZB (Bakersville, Calif.); KFAJ (Boulder, Colo.); KFVH (Manhattan, Kans.); KUO (San Francisco, Calif.); WDBC (Lancaster, Pa.); WEBM (United States, portable); WHBK (Ellsworth, Me.).

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]

ANACORTES, WASH. (Section Base 12).—Loc. O 122° 30′ 43″, N 48° 31′ 14″.
CAPE LEWES, DEL.—Strike out all particulars.
CAPE MALA, CANAL ZONE (RC).—Loc. O 79° 59′ 33″, N 7° 27′ 34″.
HEMPSTEAD, N. Y. (Hazlehurst Field).—Location changed to New Brunswick, N. J. (Hadley Field).
PORT ANGELES, WASH. (Section Base 13).—Loc. O 123° 24′ 07″, N 48° 08′ 24″.
PORT TOWNSEND, WASH. (Section Base 10).—Loc O 122° 45′ 40″, N 48° 06′ 51″.
SAN FRANCISCO, CALIF. (Yerba Island—Section Base 11).—Change to Oakland, Calif.; loc. O 122° 14′ 43″, N 37° 46′ 39″.

GOVERNMENT LAND AND SHIP STATIONS, ALPHABETICALLY BY CALL SIGNALS

NEG, *read* Oakland, Calif.; WWU, *read* New Brunswick, N. J. (Hadley Field); strike out all particulars following the call signal NWE.

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, 1925]

PHILADELPHIA, PA. (3XB).—Change to Darby, Pa.
Strike out all particulars of the following-named stations: Buffalo, N. Y. (8XN); Dearborn, Mich. (8XAQ); Highland Park, Ill. (9XBG); Newark, N. J. (2XAI); New York, N. Y. (2XAJ); Seattle, Wash. (7XZ).

MISCELLANEOUS

List of naval radio stations transmitting time, weather, and hydrographic bulletins.

Name of station	Call signal	Wave length	Type of emission	Time (75th meridian)	Nature of service
Annapolis, Md. (Washington, D. C.).	NSS	17,150	Arc	1155	Time.
				1700	Ice report.
				2155	Time.
Arlington, Va. (Washington, D. C.).	NAA	2,655	V. t. a. c. w.	1000	Weather, hydrographic.
				1155	Time, storm warnings.
				2155	Time, weather, hydrographic.
				2210	Marine weather.
Balboa, Canal Zone	NBA	6,604	Arc	0500	Hydrographic.
				1255	Hydrographic, time.
				2255	Time.
Boston, Mass	NAD	1,363	V. t. a. c. w.	1100	Weather, hydrographic.
				1155	Time, if Arlington fails.
				1700	Weather, hydrographic.
Brownsville, Tex	NAY	2,234	Spark	0000	Weather.
				1200	Do.
				1900	Do.
		4,997	V. t. c. w.	0000	Do.
				1200	Do.
				1900	Do.
Cavite, P. I.	NPO	5,250	Arc c. w.	0855	Time, weather, hydrographic.
				2155	Do.
		2,701	V. t.	0855	Do.
				2155	Do.
Charleston, S. C.	NAO	2,607	V. t. c. w.	1000	Weather, hydrographic.
				1155	Time, if Arlington fails.
				1900	Weather, hydrographic.
Colon, Canal Zone	NAX	1,817	Spark	0500	Hydrographic, press.
				1255	Time, hydrographic.
				2255	Time.

List of naval radio stations transmitting time, weather, and hydrographic bulletins—Continued

Name of station	Call signal	Wave length	Type of emission	Time (75th meridian)	Nature of service
Detour Point, Mich	NZU	800	Spark		Hydrographic (first 10 minutes of each hour).
Dutch Harbor, Alaska	NPR	2,254	do	0930	Weather (local).
				1730	Do.
Eureka, Calif	NPW	3,158	V. t. c. w	1200	Weather, hydrographic.
				1455	Time.
				1700	Weather, hydrographic.
				2030	Do.
Great Lakes, Ill	NAJ	1,980	do	1045	Weather.
				1100	Hydrographic.
				1155	Time.
				1715	Hydrographic.
				2300	Weather.
Guantanamo Bay, Cuba	NAW	4,543	Arc	2100	Weather (June 1 to Nov. 1).
		1,385	Spark		Hurricane warnings as issued and repeated every four hours.
Honolulu, Hawaii (Pearl Harbor).	NPM	2,254	V. t.	0855	Time.
		5,552	do	0130	Weather, hydrographic.
				1330	Do.
				1730	Do.
		11,490	Arc	1855	Time.
Jupiter, Fla	NAQ	1,304	Spark	1130	Weather.
				1800	Do.
Key West, Fla	NAR	1,463	V. t. c. w	1155	Time.
				1700	Weather.
				2200	Do.
New Orleans, La	NAT	2,752	do	1000	Weather.
				1100	Weather, hydrographic.
				1155	Time.
				1700	Weather, hydrographic.
New York, N. Y	NAH	1,538	do	1030	Do.
				1155	Time, if Arlington fails.
				1700	Weather, hydrographic.
Norfolk, Va	NAM	1,953	Spark	0830	Weather.
				1045	Weather, hydrographic.
				1155	Time, if Arlington fails.
				1600	Weather.
				2000	Do.
		1,395	V. t	2030	Weather, hurricane warnings as issued and repeated every two hours.
North Head, Wash	NPE	2,726	Spark	0630	Weather.
				1230	Do.
				1455	Time.
				1630	Weather, hydrographic.
				2030	Weather.
				2330	Weather, hydrographic.
Pensacola, Fla	NAS	1,333	V. t. c. w	1145	Weather.
				1800	Do.
Philadelphia, Pa	NAI	1,304	do	1045	Weather, hydrographic.
				1700	Do.
Port au Prince, Haiti	NSO	2,254	Spark		Hurricane warnings as issued and repeated every four hours.
Puget Sound, Wash	NPG	2,429	V. t. c. w	0800	Weather.
				1200	Weather, hydrographic.
				1600	Do.
				2000	Weather.
				2200	Hydrographic.
				2300	Weather.
San Diego, Calif	NPL	2,798	Arc	1155	Time.
		2,908	V. t. c. w	1130	Weather.
				1155	Time.
				1700	Weather.
				2300	Do.
San Francisco, Calif	NPG	4,836	Arc	0055	Time.
				1455	Do.
		7,005	do	1200	Weather, hydrographic.
				2200	Do.
		2,607	V. t. c.	0055	Time.
				0100	Weather, hydrographic.
				0300	Bonita Channel weather.
				0700	Do.
				1100	Do.
				1455	Time.
				1500	Bonita Channel weather.
				1900	Do.
				2230	Weather, hydrographic.
				2300	Bonita Channel weather.

List of naval radio stations transmitting time, weather, and hydrographic bulletins—Continued

Name of station	Call signal	Wave length	Type of emission	Time (75th meridian)	Nature of service
San Juan, P. R.	NAU	4,836	Arc	1945	Weather.
Savannah, Ga.	NEV	1,436	Spark	1100	Do.
				1800	Do.
St. Augustine, Fla.	NAP	2,342	do	1130	Do.
St. Croix, Virgin Islands	NNI	450	do		Hurricane warnings as issued and repeated every four hours.
St. Thomas, Virgin Islands	NDB	1,665	do		Do.
Tatoosh, Wash.	NPD	800	do	0800	Weather.
				1200	Do.
				1600	Do.
				2000	Do.
				2200	Do.
Tutuila, Samoa	NPU	4,543	do	0230	Hydrographic.
				1430	Do.
				1830	Do.
				2230	Do.

List of Canadian, Cuban, and Mexican broadcasting stations in order of wave lengths

Wave length	Frequency	Power (watts)	Call signal	Location	Owner
230	1,300	20	2TW	Habana, Cuba	Roberto E. Ramirez.
235	1,276	50	2LR	do	Jose Lara.
247.8	1,210	75	CFKC	Thorold, Ontario, Canada	D. J. Fendell.
250	1,200	100	5DY	Santiago, Cuba	Alberto Ravelo.
255	1,176	15	2BB	Habana, Cuba	Bernardo Barrie.
260	1,153	200	6BY	Cienfuegos, Cuba	Jose Gandusa.
265	1,131	10	2UF	Habana, Cuba	Roberto K. Ramirez.
		100	CYF	Oaxaca, Mexico	Federico Zorilla.
267.7	1,120	500	CFRC	Kingston, Ontario, Canada	Queens University.
		20	CYMC	do	Monarch Battery Co.
275	1,090	500	CYD	Mexico City, Mexico	Jose J. Reynosa-El Buen Tono.
		100	CYM	Monterey, Mexico	Roberto Reyes.
		100	6JK	Santa Clara, Cuba	Frank H. Jones.
280	1,070	10		Guadalajara, Mexico	Radio Club.
		20	2MG	Habana, Cuba	Manuel y Guillermo Salas.
291.1	1,030	20	CFXC	New Westminster, British Columbia, Canada.	Westminster Trust Co.
		500	CJYC	Scarboro Station, Ontario, Canada.	De Forest Radio Corporation.
		500	CNRV	Vancouver, British Columbia, Canada.	Canadian National Railways.
300	999.4	100	2OL	Habana, Cuba	Oscar Collado Orta-Columbia Radio & Cycle Co.
		500	CYA	Mexico City, Mexico	Efrian R. Gomez.
310	967.2	20	2RK	Habana, Cuba	Paul Karman.
312	961	100	CYU	Puebla, Mexico	Augustin del P. Zaens.
312.3	960	50	CYCY	Charlottetown, Prince Edward Island, Canada.	Island Radio Co.
		500	CNRA	Moncton, New Brunswick, Canada.	Canadian National Railways.
		500	CKCK	Regina, Saskatchewan, Canada.	Leader Publishing Co.
		500	CNRR	do	Canadian National Railways.
320	936.9	10	2CX	Habana, Cuba	Frederick W. Borton.
322	931.1	100	CYQ	Tampico, Mexico	Cipriano Sagaon S. en C
325	922.5	250	CZF	Chihuahua, Mexico	Telephone Co.
		500	CYX	Mexico City, Mexico	El Excelsior-Parker.
329.6	910	5,000	CKCW	Burlington Junction, Ontario, Canada.	Canadian Broadcasting Corporation.
		500	CJGC	London, Ontario, Canada	Free Press Printing Co.
		500	CHUC	Saskatoon, Saskatchewan, Canada.	International Bible Students Association.
		250	CJWC	do	Wheaton Electric Co.
		500	CFQC	do	The Electric Shop.
		500	CNRS	do	Canadian National Railways.
		500	CFCT	Victoria, British Columbia, Canada.	George W. Deaville.
340	881.8	100	6KW	Santa Clara, Cuba	Frank H. Jones.
340.7	880	10	CHCS	Hamilton, Ontario, Canada	Hamilton Spectator.
		500	CFCU	do	Jack V. Elliott (Ltd.).
		50	CKOC	do	Wentworth Radio Supply Co.

List of Canadian, Cuban, and Mexican broadcasting stations in order of wave lengths—Continued

Wave length	Frequency	Power (watts)	Call signal	Location	Owner
350	856.6	500	CZE	Mexico City, Mexico	Departmento de Educacion.
355	844.6	400	2EP	Habana, Cuba	El Pais.
356.9	840	500	CFCA	Toronto, Ontario, Canada	Star Publishing & Printing Co.
		500	CHIC	do	Northern Electric Co.
		500	CHNC	do	Toronto Radio Research Society.
		500	CJBC	do	Jarvis Street Baptist Church.
		500	CJSC	do	Evening Telegram.
		50	CJCD	do	T. Eaton Co.
		500	CKCL	do	Dominion Battery Co.
		500	CKNC	do	Canadian National Carbon Co.
		500	CNRT	do	Canadian National Railways.
		250	CHSC	Unity, Saskatchewan, Canada.	Horace N. Stovin.
375	799.5	100	CYH	Mexico City, Mexico	Miguel S. Castro-The High Life.
384.4	780	500	CKY	Winnipeg, Manitoba, Canada.	Manitoba Telephone System.
		500	CNRW	do	Canadian National Railways.
400	749.5	500	CYL	Mexico City, Mexico	Raoul Azcarraga-Universal-Casa del Radio.
		500	PWX	Habana, Cuba	Cuban Telephone Co.
410.7	730	1,650	CFCF	Montreal, Quebec, Canada	Canadian Marconi Co.
		850	CHYC	do	Northern Electric Co.
		1,200	CKAC	do	La Presse Publishing Co.
		1,000	CNRM	do	Canadian National Railways.
		1,650			
		50	CFCQ	Vancouver, British Columbia, Canada.	Spratt-Shaw Radio Co.
		10	CFDC	do	Western Auto Electric Co.
		50	CFKC	do	First Congregational Church.
		500	CFYC	do	Radio Corporation of Vancouver.
		500	CJKC	do	Pyramid Temple Society.
		1,000	CKCD	do	Daily Province.
421	705.5	100	CYO	Mexico City, Mexico	Martinez y Zetina.
434.5	690	500	CFAC	Calgary, Alberta, Canada	Calgary Herald.
		750	CFCN	do	W. W. Grant Radio (Ltd.).
		750	CNRC	do	Canadian National Railways.
		250	CHXC	Ottawa, Ontario, Canada	J. R. Booth, jr.
		100	CKCO	do	Dr. G. M. Geldert.
		500	CNRO	do	Canadian National Railways.
475	631.2	250	CYR	Mazatlan, Mexico	Castulo Llamas.
490	611.9	1,000	FAM	Guadalajara, Mexico	Federal Military Command.
499.7	600	250	CFCH	Iroquois Falls, Ontario, Canada.	Abitibi Power & Paper Co.
516.9	580	100	CFCK	Edmonton, Alberta, Canada.	Radio Supply Co.
		500	CJCA	do	Edmonton Journal.
		500	CNRE	do	Canadian National Railways.
548	547.1	100	CYY	Yucatan, Mexico	Partido Socialista del Sureste.
		10		Tampico, Mexico	El Mundo.
		100		do	Alberto Isaak.

BROADCASTING STATION EQUIPPED SO AS TO SUPPRESS HARMONICS

Station KHQ, Spokane, Wash., owned by Louis Wasmer, is now so equipped.

LOCATION OF CAPE MALA RADIO COMPASS STATION

The geographical location of the receiving loop of Cape Mala compass station is longitude 79° 59′ 30″ W., latitude 7° 27′ 45″ N., the location of the transmitter is longitude 79° 59′ 33″ W., latitude 7° 27′ 34″ N. It has been recalibrated over the arc from 0° to 235°.

INTERNATIONAL ICE PATROL SERVICE

The Coast Guard cutters *Tampa* and *Modoc* have been detailed for the season of 1926 to carry on the international ice observation and ice patrol service provided for by the International Convention for the Safety of Life at Sea at London in 1913 and 1914. For further particulars regarding this service see Radio Service Bulletin No. 106, January 30, 1926.

EXPERIMENTAL BROADCASTING OF ICE REPORTS BY THE SCHEVENINGEN (HOLLAND) RADIO STATION

Ice reports containing data concerning conditions in Netherlands harbor and approaches will be broadcast, as occasion arises, by the Scheveningen station, located in approximately longitude 4° 16′ E., latitude 52° 06′ N., call signal, PCH, wave length, 1,800 meters, spark, at 1115 G. M. T. daily, following the weather bulletin. These reports will be transmitted in code, the particulars of which are given below.

Beginning with the words "Ijsbericht, Ice report," the code consists of two groups of four figures, and, as the harbors concerned are always signalled in the same order as given in the list, each figure therefore represents the navigational conditions existing in the locality designated by its relative position.

List of harbors	Code conditions
(a) Delfzijl (Ems).	1. Navigation practicable.
(b) Harlingen (Zuider Zee).	2. Difficult for sailing vessels.
(c) Amsterdam (North Sea Canal).	4. Closed to sailing vessels, but still possible for steamers.
(d) Zaandam (Voorzaam).	6. Closed to small steamers and motor vessels.
(e) Helder (Zuider Zee).	8. Closed.
(f) Rotterdam (Waterway).	
(g) Dordrecht (North).	
(h) Dordrecht (Mallegat).	

Example.—Ijsbericht Ice report, 4611; 1111.

Decoded.—Ice intelligence, ice report. Delfzijl: Navigation closed to sailing vessels, but still possible for steamers. Harlingen: Navigation closed to small steamers and motor vessels. Amsterdam Zaandam, Helder, Rotterdam, Dordrecht (North) and Dordrecht (Mallegat): Navigation practicable.

The boardcasting of ice reports will begin when navigation is closed to small steamers and seagoing motor vessels at any of the harbors mentioned above, and will cease when navigation is reopened. The service is to be regarded as experimental for the present.—*Notice to Mariners, No. 22, 1926, London.*

BORKUM RIFF LIGHT VESSEL FOG SIGNAL ESTABLISHED

An experimental radio fog signal has been established on this vessel, located in longitude 6° 04′ E., latitude 53° 46′ N. (approximately) Germany, North Sea; call signal KBR; wave length, 1,000 meters, i. c. w. The radio fog signals consists of a group of signals which are transmitted six times from the 15th minute to the 60th minute of each hour.

Procedure:

— . . . — . . .	Silent
6.6 sec.	1.253 sec.

16 dashes (— — — etc.) each of one second duration

with 0.253 second intervals	Silent
19.795 sec.	2.352 sec.

(Duration—30 seconds.)

This series is repeated seven times every 3½ minutes, followed by a silent interval of 4 minutes. Total period of group, 7½ minutes, which is repeated 6 times, as stated above.

Submarine fog signals:

The submarine sound transmitter signals the letter B (— . . .) once every 30 seconds.

Procedure:

— . . .	Silent
9 sec.	21 sec.

This signal is sent out continuously, and, when transmitted simultaneously with the radio fog signal, commences at the final dot of the radio fog signal BB (— . . . — . . .).

The bearing of the light vessel can be determined either with the ship's direction finder, by means of the radio fog signal, or with the submarine sound signal-receiving apparatus, by means of the submarine sound signals.

The distance of the light vessel can be determined by using the radio fog signal in conjunction with the submarine sound signals in the following manner: (1) When the 16 dashes (— — — etc.) are being transmitted in the radio fog signal, count the number of dashes until the signal synchronises with the receipt of the beginning of the submarine sound signal (— — . . .). The number of the dash is the required distance in miles. (2) Count the number of seconds which elapse between the final dot of the radio fog signal (— . . . — . . .) and the beginning of the dash of the submarine sound signal (— . . .). Multiply this number by 0.8, and the product is the required distance in miles.—*Notice to Mariners, No. 97, 1926, London.*

HANSTHOLM LIGHT STATION (DENMARK) RADIO FOG SIGNAL ESTABLISHED

A radio fog signal operating on 1,000 meters has been established at this light station, located in longitude 8° 35′ 18″ E., latitude 57° 09′ 06″ N. The signal consists of the Morse letters HM (. . . . — —) HM (. . . . — —) HG (. . . . — —.), followed by 20 dots, period 1 minute. The time interval between the dots is 1.3 seconds. The first sound of the submarine signal commences simultaneously with the dot in the letter G of the radio fog signal, so that the number of dots of the radio fog signal counted until one begins to hear the submarine fog signal will indicate in miles the distance from the submarine oscillator.—*Efterretninger for Sofarende 2 (64), Kobenhavn, January 13, 1926.*

CHANGES IN THE KATTEGAT, LAESO-TRINDEL (DENMARK) LIGHT VESSEL FOG SIGNAL

This vessel, located in approximately longitude 11° 20′ E., latitude 57° 28′ N., has undergone the following changes: The submarine fog bell has been replaced by a submarine oscillator which sounds the letters LT (. — . . —) of the Morse code every 60 seconds, sound 19.5 seconds, silent 40.5 seconds.

A radio fog signal has been inaugurated. The signal consists of the Morse letters LTR (. — . . — . —), followed by a series of 20 dots, mutually separated by a time interval of 1.3 seconds. The signal is made on a 1,000 meter wave, and the period of the signal is 2 minutes. The submarine fog signal commences to sound simultaneously with the last dot of the letter R of the radio fog signal, and by observing at which dot (of the series 20) of the radio fog signal the first sound of the submarine fog signal is received this number will indicate in nautical miles the distance from the light vessel.—*Efterretninger for Sofarende 2 (78), Kobenhavn, January 13, 1925.*

List of broadcasting stations in Chicago and vicinity equipped with piezo crystal oscillators calibrated to their designed frequency

Call signal	Location	Owner	Wave length	Frequency
KYW	Chicago, Ill.	Westinghouse Electric & Manufacturing Co.	535.4	560
WBBM	Do.	Atlass Investment Co.	225.4	1,330
WEBH	Do.	Edgewater Beach Hotel Co.	370.2	810
WFKB	Do.	Francis K. Bridgman	217.3	1,380
WJJD	Mooseheart, Ill.	Loyal Order of Moose	370.2	810
WLS	Crete, Ill.	Sears, Roebuck & Co.	344.6	870
WOK	Homewood, Ill.	Neutrowound Radio Manufacturing Co.	217.3	1,380
WQJ	Chicago, Ill.	Calumet Rainbo Broadcasting Co.	447.5	670
WSBC	Do.	World Battery Co.	209.7	1,430

EXCERPTS FROM THE PROCEEDINGS OF THE FOURTH NATIONAL RADIO CONFERENCE

The following resolution was unanimously adopted by the advertising and publicity committee for the guidance of all broadcasting stations:

Whereas the excellence and public-service value of radio programs is increased by the support of those seeking appropriate publicity; and

Whereas the use of inappropriate publicity methods meets with the hearty disfavor of the listening public; and

Whereas this public disfavor is fatal to the purpose of those seeking publicity and good will, as well as detrimental to the interest of the broadcaster and all branches of the radio industry: Therefore be it

Resolved, That it is the sense of this conference that the best interests of the listening public, of the radio industry, and of the broadcaster are all served by that form of broadcasting which provides a meritorious program of entertainment and educational nature and which limits itself to the building of good will for the sponsor of the program, whether be be the owner of the station or a subscriber utilizing its facilities.

Resolved, That the conference deprecates the use of radio broadcasting for direct sales effort, and any form of special pleading for the broadcaster or his products, which forms are entirely appropriate when printed or through direct advertising mediums.

Resolved, That the conference concurs in the suggestion of the Secretary of Commerce that the problems of radio publicity should be solved by the industry itself and not by Government compulsion or by legislation; and be it further

Resolved, That the conference urges upon all owners of radio-broadcasting stations the importance of safeguarding their programs against the intrusion of that publicity which is objectionable to the listener, and consequently detrimental to others in the industry, as well as to the reputation of the individual broadcasting station.

The committee on operating regulations adopted the following resolution:

Resolved, That it is the view of this conference that public interest as represented by service to the listener shall be the basis for the broadcasting privilege.

The following are the proceedings of the committee on interference, in part:

Radiating receiving sets.—One form of interference to broadcast reception is that which may be caused by certain types of receiving apparatus. The elimination of this interference naturally falls into two classifications, namely: (*a*) Remedies to be applied to receivers of the radiating type that are already in operation and (*b*) the prevention of interference from receivers which may in the future be placed in operation.

(*a*) The elimination of interference from radiating receivers already in use should preferably take the form of persuasion rather than coercion. It is felt that one of the most effective means of eliminating such interference is to give publicity to methods of operating receivers in such a manner that they will not radiate. Some publicity of this kind has been given during the past year, but it is felt that if the desired results are to be accomplished the matter must be presented even more emphatically than has been done in the past. In view of the fact that a large proportion of all the interference reported in the various radio districts has been due in the past to radiating receivers, it is believed that the dissemination of information upon this matter is of the greatest public importance, and that the attention of the press and of the periodicals of the country relating to radio should be especially called to it. The success of the efforts which the public press has already made in disseminating information on radio broadcasting has been so great that it is believed their efforts continued in the direction will largely aid in suppressing this interference problem.

(*b*) In conformity with the keynote of this conference, that the interest and welfare of the broadcasting listeners are paramount, and in view of the fact that radiating receivers are potential sources of interference, this committee urgently recommends that at some definite and reasonable future date, the manufacture and sale of all radiating receivers for broadcast reception be discontinued. Because of the benefits which will accrue to the radio public from the suppression of radiating receivers, it is urgently recommended that if the manufacture and sale of such receivers be not discontinued within a reasonable period, legislation to that end shall be sought.

A radiating receiver is defined as a receiving device which generates oscillations of frequency within broadcasting limits in the receiving antenna so as to produce radiation therefrom of an intensity sufficient to cause noticeable interference in other receiving sets of average sensitivity.

(The adoption of this paragraph by the conference was with the understanding that it should not apply to every possible radiation, but that its interpretation should be a matter of degree.)

Maintenance of assigned frequencies.—Frequency allocations have been made on the basis of narrow margins between adjacent stations, and this calls for maintenance of frequency within the closest possible limits. A better check

on the use of unauthorized frequencies is being provided. Regular measurements and reports should be made of the frequencies actually used by radio transmitting stations throughout the United States. Work of this character is a proper duty of the Department of Commerce radio service. If, however, the Department of Commerce is unable to undertake more extended work of this kind at the present time, it is urged that arrangements be made by organizations operating radio stations, by which a systematic check may be obtained on the frequencies used by their radio transmitting station. Such self-regulation has been carried on by several organizations, and it is believed that its extension, especially by organizations of broadcasting stations, is desirable.

Apparatus is now available for maintaining and checking the frequency of transmitting stations. It is recommended that the Department of Commerce require all stations to use some means of frequently checking their transmitted frequencies with a properly calibrated instrument. If this is done, it is believed that a separation of 10 kilocycles between broadcasting stations will not result in interference.

Harmonics.—Interference from harmonics results from the emission of radio power on one or more frequencies higher than the fundamental frequency. Any transmitting set is subject to this faulty tendency. By the use of simple and relatively inexpensive modern methods this objectionable transmission can be overcome. It is recommended that all offending transmitting stations emitting harmonics shall be compelled to install suitable means to suppress harmonic radiation.

Nonradio electrical interference.—The solution of this portion of the radio interference problem insofar as the solution seems to be possible at this time apparently involves such subjects as the education of a portion of the public in all parts of the United States and the cooperation with companies and individuals who render electric supply and communication services. In other words, it is a matter for self-service and helpful cooperation on the part of the public.

Such interference may occur at any point where electrical circuits are used. The most powerful high-voltage line and the least powerful household electrical appliance may produce such interference. Even a disconnected wire such as a guy wire, if irregularly grounded, as, for example, through the moving branches of a tree, may under the atmospheric conditions which exist in some parts of the country cause sufficient interference to prevent the reception of weak radio broadcasts in that vicinity.

As these interferences do occur in every community, their sources can not possibly be found by the necessarily limited number of Government employees. As only a portion of the sources are caused by the lines that belong to companies which supply any kind of electric service and as the broadcast listeners in a limited area are frequently the only persons who are conscious of the existence of an interference, the most effective step to eliminate such interferences is to educate broadcast listeners in methods of locating the source of interference and its prevention or to take the necessary cooperative steps to have the interference eliminated.

This education of and action by the listening public can be brought about, as has been found experimentally, through the formation of local broadcast listeners' clubs, which can be guided by information from those who have made a special study of the subject.

The establishment of automobile clugs is said to have been a fundamental cause of our good roads. The establishment and maintenance of systematically and conservatively conducted radio clubs in all communities should serve as a fundamental factor for solving this and other radio problems that have to do with the giving of the best possible radio service to the public. For example, the results obtained through the clubs in which observations have already been made show that, through the club papers, talks and interference committees, such interferences were stopped. Also through demonstrations at club meetings uninformed users of interfering radio receivers were shown how they produced interference which they then stopped.

Wave-length frequency table recommended by committee on general allocation of frequency or wave lengths bands

Frequency (kilocycles)	Wave length (meters)	Type of transmission	Service	Remarks
95-120	3,156-2,499	CW and ICW	Government only	
120-125	2,499-2,399	do	Marine and aircraft only	
125	2,399	CW	Government	Nonexclusive.
125-165	1,940-1,817	CW and ICW	Point-to-point, marine, and aircraft only.	
165	1,934	do	Government	Do.
165-190	1,817-1,578	do	Point to point and marine only	
175	1,713	do	Government	Do.[1]
190-220	1,578-1,361	do	Government only	
220-235	1,364-1,276	do	University and college experimental only.	
235-245	1,276-1,052	Phone	Marine only	
245	1,224	CW and ICW	Government	Do.
275	1,090	do	do	Do.
285-300	1,052-600		Marine and coastal only	
300	1,000	CW and ICW	Beacons only	
315	952	do	Government only	
343	874	do	Marine only	
375	800	do	Radio compass only	
410	731	CW, ICW, spark	Marine only	
425	706	do	do	
445	674	CW and ICW	Government	Do.
454	660	CW, ICW, spark	Marine only	
600	600	CW, ICW, spark, phone.	Calling and distress, and messages relating thereto, only.	
500-550	600-545	CW, ICW, phone	Aircraft and fixed safety of life stations	Do.
550-1,500	545-200	Phone	Broadcasting only	
1,500-2,000	200-150	CW, ICW, phone	Amateur only	
2,000-2,250	150-133		Point-to-point	Do.
2,250-2,300	133-130		Aircraft only	
2,300-2,750	130-109		Mobile and Government mobile only	
2,750-2,850	109-105		Relay broadcasting only	
2,850-3,500	105-85.7		Public toll service, Government mobile, and point-to-point communication by electric power supply utilities, and point-to-point and multiple-address message service by press organizations only.	
3,500-4,000	85.7-75.0		Amateur, Army mobile, naval aircraft and naval vessels working aircraft only.	
4,000-4,525	75.0-66.3		Public toll service, mobile, Government, point-to-point, and point-to-point public utilities.	Do.
4,525-5,000	66.3-60.0		Relay broadcasting only	
5,000-5,500	60.0-54.5		Public toll service only	
5,500-5,700	54.5-52.6		Relay broadcasting only	
5,700-7,000	52.6-42.8		Point-to-point only	
7,000-8,000	42.8-37.5		Amateur and Army mobile only	
8,000-9,050	37.5-33.1		Public toll service, mobile, Government point-to-point, and point-to-point public utilities.	Do.
9,050-10,000	33.1-30.0		Relay broadcasting only	
10,000-11,000	30.0-27.3		Public toll service only	
11,000-11,400	27.3-26.3		Relay broadcasting only	
11,400-14,000	26.3-21.4		Public service, mobile, and Government point-to-point.	Do.
14,000-16,000	21.4-18.7		Amateur only	
16,000-18,100	18.7-16.6		Public toll service, mobile, and Government point-to-point.	Do.
18,100-56,000	16.6-5.33		Experimental	
56,000-64,000	5.33-4.69		Amateur	
64,000-400,000	4.69-0.7496		Experimental	
400,000-401,000	0.7496-0.7477		Amateur	

[1] Ice patrol, broadcast, etc.

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. 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 Jan. 20, 1926
						Per cent	*Per cent*
WQL	Radio Corporation of America.	Coram Hill, Long Island, N. Y.	17.13	14	84	0.2	0.3
WCI	do	Hartcgat, N. J.	17.95	12	69	.2	.2
WGO	do	Tuckerton, No. 1, N. J.	18.86	30	232	.2	.4
WII	do	New Brunswick, N. J.	21.80	10	83	.1	.2
WRT	do	do	22.60	9	28	.1	.1
WVA	United States Army	Annapolis, Md.	100	11	116	.2	.3
NAA	United States Navy	Arlington, Va.[1]	113	4	31	.2	.3
WJR	Detroit Free Press						
WJX	Jewett Radio & Phonograph Co.	Pontiac, Mich.[2]	580	5	26	0	0
WEAF	American Telephone & Telegraph Co.	New York, N. Y.	610	14	101	0	0
WCAP	Chesapeake & Potomac Telephone Co.	Washington, D. C.	640	29	129	.1	0
WRC	Radio Corporation of America.	do	640	25	111	.1	.1
WSB	Atlanta Journal	Atlanta, Ga.	700	29	140	.2	.3
WGY	General Electric Co.	Schenectady, N. Y.	790	32	156	.1	0
WBZ	Westinghouse Electric & Manufacturing Co.	Springfield, Mass.	900	22	70	.1	.2

[1] Time signal frequency.
[2] Same transmitting set for both call letters WCX and WJR.

SPECIAL RADIO SIGNAL TRANSMISSIONS OF STANDARD FREQUENCY, MARCH TO JUNE

The Bureau of Standards transmits twice a month radio signals of definitely announced frequencies for use by the public in standardizing frequency meters (wave meters) and transmitting and receiving apparatus. The signals are transmitted from the bureau station WWV, Washington, D. C., and from station 6XBM, Stanford University, Calif.

The transmissions are by continuous-wave radio telegraphy. The signals have a slight modulation of high pitch which aids in their identification. A complete frequency transmission includes a "general call," a "standard frequency signal," and "announcements." The "general call" is given at the beginning of the 8-minute period and continues for about 2 minutes. This includes a statement of the frequency. The "standard frequency signal" is a series of very long dashes with the call letters (WWV or 6XBM) intervening. This signal continues for about 4 minutes. The "announcements" are on the same frequency as the "Standard frequency signal" just transmitted and contain a statement of the frequency. An announcement of the next frequency to be transmitted is then given. There is then a 4-minute interval while the transmitting set is adjusted for the next frequency.

The signals can be heard and utilized by stations equipped for continuous-wave reception at distances within about 500 to 1,000 miles from the transmitting stations. Information on how to receive and utilize the signals is given in Bureau of Standards Letter Circular No. 171, which may be obtained on application from the Bureau of Standards, Washington, D. C. Even though only a few points are received, persons can obtain as complete a wave-meter

calibration as desired by the method of generator harmonics, information on which is given in the letter circular.

The schedule of standard frequency signals from both the Bureau of Standards and Stanford University is as follows:

Schedule of frequencies in kilocycles

[Approximate wave lengths in meters in parentheses]

Time[1]	Mar. 5	Mar. 20	Apr. 5	Apr. 20	May 5	May 20	June 5	June 21
10 to 10.08 p. m.	550 (545)	1,500 (200)	3,000 (100)	125 (2,400)	300 (1,000)	550 (545)	1,500 (200)	3,000 (100)
10.12 to 10.20 p. m.	630 (476)	1,650 (182)	3,300 (91)	133 (2,254)	315 (952)	630 (476)	1,650 (182)	3,300 (91)
10.24 to 10.32 p. m.	730 (411)	1,800 (167)	3,600 (83)	143 (2,097)	345 (869)	730 (411)	1,800 (167)	3,600 (83)
10.36 to 10.44 p. m.	850 (353)	2,000 (150)	4,000 (75)	156 (1,924)	375 (800)	850 (353)	2,000 (150)	4,000 (75)
10.48 to 10.56 p. m.	980 (306)	2,200 (136)	4,400 (68)	168.5 (1,800)	425 (705)	980 (306)	2,200 (136)	4,400 (68)
11 to 11.08 p. m.	1,130 (265)	2,450 (122)	4,900 (61)	205 (1,465)	500 (600)	1,130 (265)	2,450 (122)	4,900 (61)
11.12 to 11.20 p. m.	1,300 (231)	2,700 (111)	5,400 (55)	260 (1,153)	600 (500)	1,300 (231)	2,700 (111)	5,400 (55)
11.24 to 11.32 p. m.	1,500 (200)	3,000 (100)	6,000 (50)	315 (952)	664 (450)	1,500 (200)	3,000 (100)	6,000 (50)

[1] Eastern standard time for WWV, Washington, D. C.; Pacific standard time for 6XBM, California.

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 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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