DEPARTMENT OF COMMERCE

RADIO SERVICE BULLETIN

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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.
PG = General public.
PR = Limited public.
RC = Radio compass 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. W. T. Co. = Independent Wireless Telegraph Co.
K. & C. = Kilbourne & Clark Manufacturing Co.
R. C. A. = Radio Corporation of America.
S. O. R. S. = Ship Owners' Radio Service.
W. S. A. Co. = Wireless Specialty Apparatus Co.
C. w. = Continuous wave.
I. c. w. = Interrupted continuous wave.
V. t. = Vacuum tube.
FX = Fixed station.
U. S. L. = After operating company denotes that the change applies only to the List of Radio Stations of the United States.
Kc. = Kilocycles.
Fy. = Frequency.
A. c. = Alternating current.

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, 1923, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Station	Call signal	Wave lengths	Service	Hours	Station controlled by—
Allentown, Pa.[1]	WHC	135	FX	X	Pennsylvania Power & Light Co.
Los Angeles, Calif. (portable).[2]	KYX	146	FX	X	Carroll S. Pratt and L. C. Dutro.
Do[3]	KZI	146	FX	X	Do.
Red Bluff Bay, Alaska.[4]	KXS	300, 550, 600	FX	X	Baranoff Packing Co.
Sheboygan, Wis.[5]	WSK	300, 600, 706, 1764	PG		Reiss Steamship Co.
Williamsport, Pa.[6]	WPH	135	FX	X	Pennsylvania Power & Light Co.

[1] Loc. (approximate) O. 75° 28′ 00″, N. 40° 35′ 00″; range, 50; system, composite v. t. telephone and telegraph.
[2] Range, 150; system, composite v. t. telegraph.
[3] Range, 100; system, composite v. t. telegraph.
[4] Loc. (approximate) O. 134° 40′ 00″, N. 56° 20′ 00″; range, 150; system, Wireless Specialty Apparatus Co., 1000.
[5] Loc. (approximately) O. 87° 41′ 30″, N. 43° 45′ 00″; range, 300; system, composite, v. t. telegraph; rates, ship service 10 cents per word; point-to-point service 6 cents per word; hours 7 a. m. to 11 p. m. daily; 8 a. m. to noon and 4 to 8 p. m. Sundays and holidays.
[6] Loc. O. 77° 01′ 00″, N. 41° 15′ 03″; range, 100; system, composite v. t. telephone and telegraph.

Commercial ship stations, alphabetically, by names of vessels

[Additions to the List of Radio Stations of the United States, edition of June 30, 1923, 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—
Benson Ford	KFTC				Ford Motor Co.	R. C. A.
Henry Ford II	KFTD				do.	Do.
Hutoka	KFSU				George B. Drake	Owner of vessel.
Michael Gallagher[1]	KFST		PG	X	Becker Steamship Co.	Do.
Morris S. Tremaine[2]	KFTB		P	X	Eastern Steamship Corporation.	
Naroca	KFSV				S. Ross Campbell	
Nereus	KFTE		PG	N	Nereus Ship Co.	
Oneida	KDJO				Ford Motor Co.	R. C. A.
Onondaga	KDJR				do.	Do.
Pere Marquette 21	KFTA		PG	X	Pere Marquette R. R. Co.	Owner of vessel.
W. H. Becker[3]	KFSW		PG	X	Becker Steamship Co.	Do.

[1] Range, 200; system, Kilbourne & Clark, 1000; w. l., 300, 600; rates, Great Lakes service 2 cents per word.
[2] Range, 150; system, Wireless Specialty Apparatus Co., 1000; w. l., 300, 600, 706.
[3] Range, 200; system, Kilbourne & Clark, 1000; w. l., 300, 600; rates, Great Lakes service 2 cents per word.

Commercial land and ship stations, alphabetically by call signals

[b—ship station; C—land station]

Call signal	Name		Call signal	Name	
KDJO	Oneida	b	KFTD	Henry Ford II	b
KDJR	Onondaga	b	KFTE	Nereus	b
KFST	Michael Gallagher	b	KXS	Red Bluff Bay, Alaska	C
KFSU	Hutoka	b	KYX	Los Angeles, Calif. (portable)	C
KFSV	Naroca	b	KZI	Do	C
KFSW	W. H. Becker	b	WHC	Allentown, Pa	C
KFTA	Pere Marquette 21	b	WPH	Williamsport, Pa	C
KFTB	Morris S. Tremaine	b	WSK	Sheboygan, Wis	C
KFTC	Benson Ford	b			

Broadcasting stations, alphabetically by names of cities

[Additions to the List of Radio Stations of the United States, edition of June 30, 1928]

City	Call signal	City	Call signal
Anchorage, Alaska	KFQD	Lincoln, Nebr	WJAB
Atlanta, Ga	WDBE	Macon, Ga	WMAZ
Bangor, Me	WDBN	Minneapolis, Minn	KFQF
Boston, Mass	WDBR	Roanoke, Va	WDBJ
Chesham, N. H	WSAU	St. Louis, Mo	KFQA
Chicago, Ill	WQJ	Salem, N. J	WDBQ
Cincinnati, Ohio	WFBW	Stevens Point, Wis	WLBL
Cleveland, Ohio	WDBK	Superior, Wis	WDBP
Colorado Springs, Colo	KFQE	Taft, Calif	KFQC
Dayton, Ohio	WDBS	Valapraiso, Ind	WRBC
Fort Worth, Tex	KFQB	Winter Park, Fla	WDBO
Houston, Tex	WSAV		

Stations broadcasting market or weather reports, music, concerts, lectures, etc., alphabetically by call letters

[Additions to the List of Radio Stations of the United States, edition of June 30, 1928]

Call signal	Station operated and controlled by—	Location of station	Power (watts)	Wave length	Frequency (kilocycles)
KFQA	St. Louis, Mo., 5539 Page Avenue	The Principia	50	261	1,150
KFQB	Fort Worth, Tex	Searchlight Publishing Co.	100	254	1,180
KFQC	Taft, Calif., 311 Second Street	Kidd Brothers Radio Shop.	100	227	1,320
KFQD	Anchorage, Alaska	Chevin Supply Co	100	280	1,070
KFQE	Colorado Springs, Colo., 211 North Cascade Avenue.	Dickenson-Henry Radio Laboratories.	5	224	1,340
KFQF	Minneapolis, Minn., 2544 Pleasant Street	Donald A. Boult	10	224	1,340
WDBE	Atlanta, Ga., Cone and Poplar Streets	Gilham-Schoen Electric Co.	10	252	1,190
WDBJ	Roanoke, Va., 106 Church Avenue SW	Richardson-Wayland Electrical Corporation.	20	229	1,310
WDBK	Cleveland, Ohio, 13918 Union Avenue	M. F. Bros. Furniture, Hardware & Radio Co.	100	248	1,210
WDBN	Bangor, Me	Maine Electric Light & Power Co.	5	252	1,190
WDBO	Winter Park, Fla	Rollins College	50	240	1,250
WDBP	Superior, Wis	Superior State Normal School.	50	261	1,150
WDBQ	Salem, N. J., Andrews Building	Morton Radio Supply Co.	10	234	1,280
WDBR	Boston, Mass	Tremont Temple Baptist Church.	100	256	1,170
WDBS	Dayton, Ohio, 39 East Third Street	S. M. K. Radio Corporation.	5	283	1,060
WFBW	Cincinnati, Ohio	Ainsworth-Gates Radio Co.	750	309	970
WJAB	Lincoln, Nebr., 1521 O Street	American Electric Co.	100	229	1,310
WLBL	Stevens Point, Wis	Wisconsin Department of Markets.	500	278	1,080
WMAZ	Macon, Ga	Mercer University	100	261	1,150
WQJ	Chicago, Ill	Calumet Baking Powder Co.	500	448	670
WRBC	Valparaiso, Ind	Immanuel Lutheran Church.	500	278	1,080
WSAU	Chesham, N. H	Camp Marienfeld	10	229	1,310
WSAV	Houston, Tex., 1801 Carter Building	Clifford W. Vick Radio Construction Co.	100	360	833

Special land stations, alphabetically by names of stations

[Additions to the List of Radio Stations of the United States, edition of June 30, 1928]

Station	Call signal	Station controlled by—
Atlanta, Ga.	4XG	Bela A. Winterkorn, 277 Glenwood Avenue.
Bay City, Mich.	8XW	Stanley P. Northcott, 1204 North Birney Street.
Berkeley, Calif.	6ZCI	Charles M. Wilson, 3158 Lewiston Street.
Canton, Mass.	1ZV	John W. Packard, 1442 Washington Street.
Cedar Rapids, Iowa	9XBK	H. F. Paaz, 1444 Second Avenue East.
Cloudcroft, N. Mex.	5XAZ	A. K. Tatum, Box 189, Alamogordo, N. Mex.
Columbus, Ohio	8XJ	Ohio State University.
Do.	8ZG	Loren G. Windom, 1375 Franklin Street.
Conway, Ark.	5ZAA	Russell T. Cole, 506 Caldwell Street.
Dallas, Tex.	5XAY	William H. M. Watson, 2500 Maple Avenue.
Defiance, Ohio	8XM	K. A. Duerk, 1000 Wilhelm Street.
East Boston, Mass.	1ZX	Michael A. Sanella, 235 Lexington Street.
Erie, Pa.	8XC	F. Dawson Bliley, 450 West Ninth Street.
Galveston, Tex.	5XAX	Edwin W. Rouse, 1120 Mechanic Street.
Do	5ZF	James G. Flynn, jr., 2111 Twenty-ninth Street.
Kelseyville, Calif. (portable).	6XBV	Howard A. Conkson.
Do.	6ZCH	Do.
Los Angeles, Calif.	6XBS	Radio Supply Co. of California, 141 South Main Street.
Do.	6ZCJ	Charles F. Filstead, 2010 Sixth Avenue.
Medford, Mass.	1XAW	Tufts College Radio Society.
Do.	1ZW	Philip K. Baldwin, 101 Fallsway, West.
Morgantown, W. Va.	8XAA	West Virginia University.
Newark, N. J.	2XBF	Public Service Electric Co., 80 Park Place.
New York, N. Y.	2XBC	George Schubel, 1540 Broadway.
New York, N. Y. (portable).	2XBD	Russell S. Ohl, 2315 Andrews Avenue.
Do.	2XBE	American Telephone & Telegraph Co., 195 Broadway.
Oakland, Calif.	6XAM	Warner Brothers, 2201 Telegraph Avenue.
Do.	6ZCK	Raymond E. Wall, 1211 East Twenty-Third Street.
Oberlin, Ohio	8XT	Oberlin College.
Oklahoma City, Okla.	5ZL	Earl C. Hill, 1911 West Ash Street.
Philadelphia, Pa.	3XAT	Lit Brothers.
Do.	3XX	Charles A. Johnson, 5332 Gainor Road.
Providence, R. I.	1YE	New England Radio & Telegraph School, 201 Strand Theatre Building.
Richmond, Calif.	6XBU	R. S. Rheem, R. F. D. No. 1, Box 519.
St. Croix Falls, Wis.	9XBJ	Northern States Power Co.
Salt Lake City, Utah.	6XBW	Latter Day Saints University.
Do.	6ZCF	Everett J. Seely, 540 Ninth Street East.
San Diego, Calif.	6XBT	C. E. Yocum, 2222 Thirty-second Street.
San Francisco, Calif.	6ZCE	J. Wesley Little, 879 Forty-seventh Avenue.
San Mateo, Calif.	6ZCG	Fred J. Ludeman, 311 North C Street.
Southbridge, Mass.	1XAX	John M. Wells, 40 Main Street.
Tampa, Fla.	4XH	Thompson Electric Co., 102 West Lafayette Street.
Villanova, Pa.	3XAU	Villanova College.
Wilkinsburg, Pa.	8XX	Parker E. Wiggin, 714 Ardmore Boulevard.
Wooster, Ohio	8XI	College of Wooster.

Special land stations, grouped by districts

Call signal	District and station
	First district:
1XAW	Medford, Mass.
1XAX	Southbridge, Mass.
1YE	Providence, R. I.
1ZV	Canton, Mass.
1ZW	Medford, Mass.
1ZX	East Boston, Mass.
	Second district:
2XBC	New York, N. Y.
2XBD	New York, N. Y. (portable).
2XBE	Do.
2XBF	Newark, N. J.
	Third district:
3XAT	Philadelphia, Pa.
3XAU	Villanova, Pa.
3XX	Philadelphia, Pa.
	Fourth district:
4XG	Atlanta, Ga.
4XH	Tampa, Fla.
	Fifth district:
5XAX	Galveston, Tex.
5XAY	Dallas, Tex.
5XAZ	Cloudcroft, N. Mex.
5ZAA	Conway, Ark.
5ZF	Galveston, Tex.
5ZL	Oklahoma City, Okla.

Call signal	District and station
	Sixth district:
6XAM	Oakland, Calif.
6XBS	Los Angeles, Calif.
6XBT	San Diego, Calif.
6XBU	Richmond, Calif.
6XBV	Kelseyville, Calif. (portable).
6XBW	Salt Lake City, Utah.
6ZCE	San Francisco, Calif.
6ZCF	Salt Lake City, Utah.
6ZCG	San Mateo, Calif.
6ZCH	Kelseyville, Calif.
6ZCI	Berkeley, Calif.
6ZCJ	Los Angeles, Calif.
6ZCK	Oakland, Calif.
	Eighth district:
8XAA	Morgantown, W. Va.
8XC	Erie, Pa.
8XI	Wooster, Ohio.
8XJ	Columbus, Ohio.
8XM	Defiance, Ohio.
8XT	Oberlin, Ohio.
8XW	Bay City, Mich.
8XX	Wilkinsburg, Pa.
8ZG	Columbus, Ohio.
	Ninth district:
9XBJ	St. Croix Falls, Wis.
9XBK	Cedar Rapids, Iowa.

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, 1923, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

BAYTOWN, TEX.—System, Thordason and Grebe, 240 and composite v. t. telegraph.
BEAUMONT, TEX.—Range, 300; system, Navy, 1000; service, P-communicates only with certain vessels.
CHATHAM, MASS. (WIM).—W. l., 300, *600*, 735.
CLEARWATER, CALIF. (KNR).—W. l., 3332, 3830, 5416.
EL DORADO, KANS.—W. l., add 1578.
FRACKVILLE, PA.—W. l., 135.
FRANKFORT, MICH.—Range, 300; system, composite spark.
HAZLETON, PA.—W. l., add 135.
HIDDEN INLET, ALASKA.—W. l., add 550.
HILLSBORO, OREG. (KGH).—W. l., 4207, 6316, 8896.
LIBBYVILLE, ALASKA.—System, Navy-R. C. A., 1000 and Federal arc; w. l., add 1800; hours, N.
MADISON, WIS.—W. l., 1277–1304.
MARION, MASS. (WCC).—W. l., add 2200, 2300.
PALO ALTO, CALIF.—W. l., 3074, 3596, 4324, 4690, 5805, 7575.
QUINCY, MASS.—Range, 150; system, Navy-Simon and composite v. t. telegraph; service P-communicates with vessels only on trial trips.
ROGERS, MICH.—W. l., add 750.
TULSA, OKLA.—Range, 200; w. l., add 1578.
UNION BAY, ALASKA.—W. l., 300, 500, *600*, 1610.
HAUTO, PA.—W. l., 135.

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, 1923, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

ABANGAREZ.—Range, 300.
ADMIRAL DEWEY.—System, R. C. A. v. t. telephone and R. C. A., 1000; w. l., add 870–870 for telephone service with certain vessels.
AGWIDALE.—W. l., 300, 450, *600*, 706.
ANACONDA.—Hours, X.
AQUIDABAN.—W. l., add 706.
ATLANTIC.—Argonaut Steamship Co. owner of vessel.
AZALEA.—Range, 150; system, R. C. A., 1000; w. l., 300, *600*; rates, 8 cents per word; station operated and controlled by owner of vessel.
BACOI.—Bacoi Steamship Co. owner of vessel.
BALDBUTTE.—Range, 300; system, Navy-Wireless Specialty Apparatus Co., 1000; w. l., 300, 450, *600*, 706; station operated and controlled by S. O. R. S.
BALDHILL.—W. l., add 450, 706; station operated and controlled by S. O. R. S.
BOSTON (WEL).—Hours, N.
BROOKDALE.—William W. Mitchell owner of vessel.
CADARETTA.—Station operated and controlled by owner of vessel.
CALORIA.—Station operated and controlled by I. W. T. Co.
CASTLE WOOD.—System, R. C. A., 1000; w. l., add 706; Charles Nelson Co. owner of vessel; station operated and controlled by F. T. Co.
CHESTERN SUN.—W. l., add 706.
CHINAMPA.—Frank W. Seth owner of vessel.
CITY OF ROME.—System, R. C. A., 1000; w. l., 300, *600*, 706.
CITY OF SEATTLE.—W. l., add 450, 706; hours, X.
CLAVARACK.—W. l., add 706.
CODY.—W. l., add 706.
COLON.—Name changed to Yukon; w. l., 300, *600*, 706; Alaska Steamship Co. owner of vessel.
COSTA RICA.—System, Halcum, 120; hours, N; rates, 8 cents per word; Northern Fisheries (Inc.) owner of vessel.
DANIEL KERN.—B. L. Jones owner of vessel.
DAVID MCKELVY.—W. l., add 706.
EASTERN GLADE.—W. l., add 706, 2100, 2400.
EL OCCIDENTE.—System, R. C. A., 1000.

EL SUD.—Range, 150; system, R. C. A.; 1000.
FREEPORT SULPHUR No. 5.—W. l., add 706.
GEORGE WASHINGTON.—W. l., add 1800.
GULFCOAST.—Range, 200; system, I. W. T. Co., 1000; w. l., add 450, 706.
GULFLIGHT.—W. l., add 450, 706.
GULF OF MEXICO.—Range; 300: system, I. W. T. Co. arc; w. l., 300, *600*, 706, 2100, 2400.
HAGOOD.—Station operated and controlled by I. W. T. Co.
HALCYON.—Range, 200; system, Westinghouse v. t. telegraph; w. l., 300, 450, *600*, 706; rates, 8 cents per word.
HENRY M. FLAGLER.—W. l., 300, *600*, 706.
J. A. MOFFETT.—System, R. C. A. v. t. telegraph and telephone; w. l., add 870–870 for telephone service with certain vessels.
JOHN W. BOARDMAN.—System, composite, v. t. telegraph and R. C. A., 1000.
KADIAK.—Range, 50; system, R. C. A., 240; w. l., 300, *600*; service, PG; hours, X; rates, 8 cents per word; station operated and controlled by owner of vessel.
KAMESIT.—System, Wireless Specialty Apparatus Co., 1000; w. l., 300, 450, *600*, 706.
KATHERINE.—Malaysian Navigation Co. owner of vessel.
KATRINA LUCKENBACH.—W. l., 300, *600*, 706.
KEKOSKEE.—W. l., add 706.
LEVANT ARROW.—W. l., add 706.
LEVIATHAN.—W. l., add 2100, 2400.
LEWIS K. THURLOW.—System, Wireless Specialty Apparatus Co., 1000.
MARY LUCKENBACH.—Luckenbach Steamship Co. owner of vessel.
MATSONIA.—System, R. C. A., 1000 and R. C. A. v. t. telephone; w. l., add 870–870 for telephone service with certain vessels.
MINNESOTAN.—W. l., 300, *600*, 706; station operated and controlled by owner of vessel.
MISSOURIAN.—Station operated and controlled by owner of vessel.
NEWPORT.—W. l., add 706.
NORTH LAND (KJD).—System, R. C. A. v. t. telegraph and R. C.A ., 1000.
OHIOAN.—W. l., 300, *600*, 706; station operated and controlled by owner of vessel.
OTSEGO.—System, Navy-Wireless Specialty Apparatus Co., 1000; w. l., 300, *600*, 706; station operated and controlled by owner of vessel.
PANUCO.—System, R. C. A., 1000; w. l., 300, *600*, 706.
PARISMINA.—W. l., add 706.
PERE MARQUETTE.—Station operated and controlled by owner of vessel.
PERE MARQUETTE 17.—Station operated and controlled by owner of vessel.
PERE MARQUETTE 18.—Station operated and controlled by owner of vessel.
PERE MARQUETTE 19.—Station operated and controlled by owner of vessel.
PERE MARQUETTE 20.—Station operated and controlled by owner of vessel.
PRESIDENT JEFFERSON.—W. l., add 2100, 2400.
PRESIDENT POLK.—W. l., 300, *600*, 706, 2100, 2400; station operated and controlled by F. T. Co.
ROANOKE.—W. l., add 450, 706.
ROBERT J. WALLACE.—W. l., add 706.
SAN JUAN (GKJ).—System, R. C. A., 1000; w. l., 300, 450, *600*, 706; hours, N.
SANTA ANA (WAL).—Rates, 8 cents per word; station operated and controlled by I. W. T. Co.
SANTA FLAVIA.—System, Kilbourne & Clark, 1000; w. l., 300, *600*; station operated and controlled by I. W. T. Co.
SCHENECTADY.—System, Navy-Wireless Specialty Apparatus Co., 1000.
SEA MONARCH.—W. l., add 706.
SIALIA.—System, composite v. t. telephone and telegraph; w. l., 300, 600, *706*, 909, 1875.
SONOMA.—W. l., 300, *600*, 2400.
SPRAY (KFKO).—Range, 300; system, R. C. A., 1000; w. l., 300, *600*, 706.
STANDARD SERVICE.—Range, 150; system, R. C. A., 1000; w. l., 300, *600*, 706; station operated and controlled by R. C. A.
STAR OF ENGLAND.—W. l., add 706.
SUNELSECO.—System, Navy-Liberty, 1000; Electric Boat Co. owner of vessel.
SUNEWARKCO.—Range, 300; system, Navy, 1000; w. l., 300, 450, *600*.
SWIFT ARROW.—New England Oil Steamship Co. owner of vessel.
SWIFTEAGLE.—New England Oil Steamship Co. owner of vessel.
SWIFTLIGHT.—New England Oil Steamship Co. owner of vessel.

SWIFT SCOUT.—Range, 300; system, I. W. T. Co., 1000; w. l., 300, *600*, 706, 2100, 2400; New England Oil Steamship Co. owner of vessel.
TOPILA.—System, R. C. A., 100; w. l., 300, *600*.
TUSCAN.—Range, 150; w. l., 300, *600*, 706.
VENETIA.—Rates, 8 cents per word.
WATERTOWN.—System, Navy, 1000; Cities Service Transportation Co. owner of vessel; station operated and controlled by I. W. T. Co.
W. E. HUTTON.—W. l., add 706.
WEST CANON.—W. L, add 706, 2100, 2400.
WEST CHEROW.—W. l., add 450.
WEST CHESWALD.—System, Navy-Kilbourne & Clark, 1000.
WEST ISLETA.—System, Navy-R. C. A., 1000; w. l., 300, 450, *600*, 706.
WESTPORT.—System, Navy-R. C. A., 1000.
WINIFRED.—W. l., add 450, 706.
WM. ROCKEFELLER.—System, R. C. A., 1000; w. l., add 706.
W. S. PORTER.—System, Federal arc; w. l., add 2400.
ZACAPA.—W. l., 300, *600*, 706.
Strike out all particulars of the following-named vessels: El Capitan (WNB), Great Canton, Invader, La Crosse, Lake Lillian, Narada, Reuce, Tancarville.

COMMERCIAL LAND AND SHIP STATIONS, ALPHABETICALLY BY CALL SIGNALS

KMX, read Yukon; strike out all particulars following the call signals, KDRI, KDWR, KFND, KONM, KUKM, KXUI, WNB, WSR.

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, 1923]

KFDY (Brookings, S. Dak.).—Power, 150.
KFEL (Denver, Colo.).—W. l., 254, frequency, kc 1180.
KFFQ (Colorado Springs, Colo.).—W. l., 286, frequency, kc 1050.
KFGH (Stanford University, Calif.).—W. l., 273, frequency, kc 1100; station operated and controlled by Leland Stanford Junior University.
KFJX (Cedar Falls, Iowa).—W. l., 280, frequency, kc 1070.
KQV (Pittsburgh, Pa.).—W. l., 270, frequency, kc 1110.
KZN (Salt Lake City, Utah).—Call signal changed to KFPT.
WABD (Dayton, Ohio).—Power, 5.
WABO (Rochester, N. Y.).—W. l., 283, frequency, kc 1060.
WABU (Camden, N. J.).—Power, 50.
WBBG (Mattapoisett, Mass.).—Power, 500; w. l., 248, frequency, kc 1210.
WBBL (Richmond, Va.).—Power, 5.
WBBR (Rossville, N. Y.).—W. l., 273, frequency, kc 1100.
WCAG (New Orleans, La.).—Power, 100.
WCAU (Philadelphia, Pa.).—Power, 250.
WCBI (Bemis, Tenn.).—Power, 50; w. l., 240, frequency, kc 1250.
WCBM (Baltimore, Md.).—Station operated and controlled by Charles Schwarz.
WDAP (Chicago, Ill.).—Station operated and controlled by Drake Hotel (Whitestone Co.).
WDBH (Worcester, Mass.).—Power, 100; w. l., 268, frequency, kc 1120.
WEAM (North Plainfield, N. J.).—Power, 150; w. l., 286, frequency, kc 1050.
WEB (St. Louis, Mo.).—Power, 500.
WEW (St. Louis, Mo.).—W. l., 280, frequency, kc 1070.
WGN (Chicago, Ill.).—Call signal changed to WEBH, station operated and controlled by Edgewater Beach Hotel Co.
WHO (Des Moines, Iowa).—Power, 500; w. l., 526, frequency, kc 570.
WIAK (Omaha, Nebr.).—Power, 250.
WIAO (Milwaukee, Wis.).—W. l., 246, frequency, kc 1220.
WJD (Granville, Ohio).—Power, 10.
WKAA (Cedar Rapids, Iowa).—Power, 50.
WKY (Oklahoma, Okla.).—Power, 100.
WLB (Minneapolis, Minn.).—Power, 5.
WMAH (Lincoln, Nebr.).—Power, 100.
WMAK (Lockport, N. Y.).—W. l., 273, frequency, kc 1100.
WMAV (Auburn, Ala.).—Power, 500.
WMU (Washington, D. C.).—Power, 100.
WPAJ (New Haven, Conn.).—Power, 100.

WPAL (Columbus, Ohio).—Power, 500.
WRAF (Laporte, Ind.).—Power, 10.
WRAO (St. Louis, Mo.).—Power, 10.
WRR (Dallas, Tex.).—Power, 30.
WSAX (Chicago, Ill).—Call signal changed to WJAZ.
WTAC (Johnstown, Pa.).—W. l., 275, frequency, kc 1090.
WTAF (New Orleans, La.).—Power, 10.
WTAW (College Station, Tex.).—Power, 250.
WTAY (Oak Park, Ill.).—Station operated and controlled by Oak Leaves Broadcasting Station.
WTG (Manhattan, Kans.).—Power, 50; w. l., 273, frequency, kc 1100.
Strike out all particulars of the following-named stations, KDZQ (Denver, Colo.); KFCH (Billings, Mont.); KFDR (York, Nebr.); KFLP (Cedar Rapids, Iowa); KFLY (Fargo, N. Dak.); WBBE (Syracuse, N. Y.); WBL (Anthony, Kans.); WHAP (Decatur, Ill.); WIAU (Le Mars, Iowa); WMAP (Easton, Pa.); WOAD (Sigourney, Iowa); WPAP (Winchester, Ky.); WTAH (Belvidere, Ill.).

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, 1923, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

CAMP NICHOLS, P. I.—W. l., add *600*.
CAMP STOTSENBURG, P. I.—W. l., add 1350.
CAVITE, P. I.—W. l., add 17330.
CLARK FIELD, P. I.—W. l., add *600*.
FORT DRUM, P. I.—W. l., add *600*.
FORT FRANK, P. I.—W. l., add *600*.
FORT WINT, P. I.—W. l., add *600*.

GOVERNMENT 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, 1923, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

A. MACKENZIE.—W. l., add *600*.
DAN C. KINGMAN.—W. l., add *600*.
W. L. MARSHALL.—W. l., add *600*.
WM. T. ROSSEL.—W. l., add *600*.

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, 1923]

ENID, OKLA. (5XBD).—Station operated and controlled by Whartenby Electric Co., 109 East Randolph Street.
HARTFORD, CONN. (1XAQ).—Changed to Silver Lane, Conn.
Strike out all particulars of the following-named stations, Baltimore, Md. (3XX); Chicago, Ill. (9YL); Gunnison, Colo. (9YAH); Little Rock, Ark. (5ZL); Miami, Fla. (4XT); Pittsburgh, Pa. (8XBG); St. Louis, Mo. (9YK); Salem, Ohio (8ZG); Tuckerton, N. J. (2XD); Waco, Tex. (5ZF).

MISCELLANEOUS

REPORT OF AN INVESTIGATION OF INTERFERENCE CAUSED BY A COTTRELL ELECTRIC PRECIPITATOR

This is a summary of a report of a recent investigation made by the supervisor of radio of San Francisco, Calif., at Globe and Miami, Ariz., on account of a large number of complaints regarding interference caused to receivers.

The inspector arrived in Globe and in Miami and listened to the interference being caused by a smelter which was operating a Cottrell electric precipitator. He found that the reports had not been exaggerated. As a matter of fact, reception was impossible while the precipitator was working. On the following morning he visited the precipitator and found that the rectifier, which was operating on 60,000 volts, 3-phase, 47½-cycle current, was supplying precipitators located approximately 214 meters distant from the rectifier, and as the interference was most serious on a wave length band of 300 to 500 meters, it seemed evident that these extension wires were not oscillating in their own period, because if they had

been the resonance point would be approximately 449 meters, from which it would be deduced that forced oscillations were induced from the discharger and that these were communicated to the surrounding power lines by the wires leading to the precipitator. The resistances had been inserted close to the precipitator and upon inspection it seemed probable that the resistance was giving the effect of an open wire and that the oscillatory current was induced beyond them, causing the interference noted. In remedying the same he moved the resistance just outside the middle wall of the building and inserted an iron core impedence in the line. He next bridged the spark gap with an L C circuit to absorb the energy of the oscillatory current development. When these changes had been made and the auxiliary apparatus installed he cut off the other precipitator and called up both Globe and Miami and asked them to report on the interference. Happily, both cities reported that the interference had disappeared. It was then arranged to run all precipitators on the non interference circuit until additional devices could be procured for the other circuits. The result was most gratifying. Everyone in Globe and Miami appeared to rejoice in the elimination of the interference and for the first time in several months they made arrangements to "listen in" on the evening concert.

The inspector listened with a loud speaker to a concert from one of the local stations, and while there was some interference from the operation of motors in the vicinity early in the evening it cleared up as soon as the coast stations came on and the concerts from both Los Angeles and Oakland were received without any noticeable interruption.

With reference to these precipitators the inspector is quite convinced that if the discharger gap was bridged by a resonance L C circuit that a greater part of the energy contained in the oscillatory increment could be absorbed and that no appreciable interference would result.

While at Miami the inspector received information that considerable interference was being experienced at the mining town, Superior, Ariz., and on his way back to San Francisco he was shown through the local smelting plant by the manager, who expressed a desire to suppress the interference which was being caused. In this installation the discharger was surrounded by an iron cage with a mesh of about 1 inch. After a conference with the manager and the electrical engineer, they agreed to completely screen the discharger with a copper mosquito net screen with a large copper wire soldered around the bottom, which will be effectively grounded. If the energy of the oscillatory current can be absorbed or confined by the copper screening it will afford a simple solution of the matter. The inspector is to be advised by the management of the plant as to the result.

It may be said that a great deal depends upon the character of the resistances. All radio engineers are agreed that the $2\sqrt{\frac{L}{C}}$ formula is accurate; that is, if R is greater than $2\sqrt{\frac{L}{C}}$ the circuit will be non oscillatory. Hence, if the interference maximum is on a wave length of 300 meters with a capacity of 0.0025 microfarads and an inductance of 10 microhenrys, any resistance greater than 126.5 ohms would render the circuit nonoscillatory and hence any additional resistance would tend to further damp out the oscillation.

There is hardly a doubt but that an L C circuit tuned to the frequency of the interference would absorb the oscillatory increment of the current and prevent the radiation. However, the high potential used in connection with these machines render such an arrangement quite difficult.

REPORT OF INVESTIGATION OF POWER LINE INTERFERENCE IN AUGUSTA, GA.

This summary of a report of an investigation made by the supervisor of radio, Atlanta, Ga., accompanied by the superintendent of transmission of the Georgia Railway & Power Co., Atlanta, Ga., is published for the reason that the problem of locating the power line interference was an exceedingly difficult one and is interesting.

A preliminary investigation made by the supervisor of radio for the fourth radio district, when an ordinary loop receiver was employed to detect the source of intereference, indicated that the trouble eminated from one of the nine arc lighting circuits in use, especially arc circuit No. 7. A second investigation made by the superintendent of transmission of the Georgia Railway & Power Co., without the use of any special equipment, indicated that the trouble was due to the 13,000-volt transmission lines arcing and feeding back into these arc lighting circuits.

These two investigations proved that the condition was a general one and not a case of one isolated source of interference. There was, however, one special leakage which was causing a very intense roar in receivers. This exceptionally loud buzz was not prevalent for any length of time during our two previous visits to Augusta. It might be mentioned at this point that the nine arc street lighting circuits referred to are not arc circuits in the true sense of the word, but are old arc circuits in which tungsten lamps have been substituted; an approximate voltage of 1,750 is applied and a sufficient number of lamps employed in series to stand this voltage. An arcing in the circuit at this voltage would, therefore, create considerable interference.

Because of the general condition which prevails in Augusta, it was essential that a loop receiver be constructed and completely shielded, electrostatically and electromagnetically. A three-circuit receiver, employing a detector and one stage of audiofrequency amplification was constructed and the receiver cabinet was lined with tin on all sides, and all telephone and battery leads were fully shielded, to prevent induction from affecting the receiver except through the medium of the loop, which was mounted on top of the receiver. The receiver was not very sensitive but was found to be very directional. It was decided upon arrival in Augusta to locate the point in the city where the interference was strongest by listening in at various residences of broadcast listeners and then endeavoring to locate the exact point by cruising around that locality in an automobile in which this fully shielded loop receiver was installed.

The above-named official of the power company and the inspector arrived in Augusta at 10 o'clock at night and investigated, in an automobile, until 3.30 the following morning. The exceptionally heavy interference, which was intermittent and rendered broadcast reception in most parts of the city absolutely impossible, was not noticed that night. Nothing of special interest developed, but the slight noises detected appeared to be coming from the 13,000-volt line running along Central Avenue and paralleling the No. 7 and No. 8 arc circuits as well as a street car line running to a suburb of Augusta.

During the following day additional tests were made, but only intermittent interruptions were noticed, believed to be due to trees touching high-tension lines. Many low-tension house-lighting circuits were noticed running through trees without any insulation whatsoever. Tests of insulators were made and a careful survey was made of the three 13,000-volt transformers located on Central Avenue.

The investigation was continued that night about 9 o'clock and the exceptionally loud interference was noticed in a large arc in the vicinity of Central Avenue. The point of maximum intensity appeared to be at a certain residence on Central Avenue, where, with a radiofrequency receiver and a loud speaker attached, the roar from this induction could be heard at a distance of two city blocks. Considerable signal strength was noticed on the specially constructed loop receiver mounted in an automobile parked in front of the residence, the loop pointing directly down the street. About four blocks from the residence one of the 13,000-volt transformers was located in the middle of the street on a pole between the street car tracks. The signal strength grew louder as they approached this transformer but by the time the transformer was reached it had decreased and the loop pointed back up the street. The transformers being under suspicion it was endeavored to train the loop toward them, but in each case the loop pointed up or down the middle of one side of the street and by turning it slightly toward the power-line poles in the middle of the street, the signal strength decreased slightly. We therefore abandoned the idea of the interference coming from the transformers and when reaching the point of maximum interference, less than two blocks below the residence referred to above, the inspector got out of the automobile while the power company official was listening in and with a pole tapped a street light suspended directly in front of the automobile which resulted in the interference falling to nearly zero intensity and rising to maximum as the light swung from its support. The above is mentioned to show the exceptionally directional properties of the loop receiver being used, which tended to point directly down the street rather than toward the transformer in the middle of the street. After moving two blocks below this light, the loop swung entirely around, the grid end pointing directly back toward this light. They then went to the right and to the left of this light and in each case the loop turned directly toward it.

This trouble was located about midnight and about an hour later they phoned the city electrician and the superintendent of the Augusta-Aiken Power Co. and his assistant, who immediately came to the residence and were shown the

effect produced in the receiver by swinging the light. Shortly after this the services of a lineman were obtained to cut out the light, but the interference still prevailed. The lineman then climbed the pole in the middle of the street from which the light was suspended and connected to the main circuit and the outlet was entirely jumped and the light completely cut out of the circuit and the interference still prevailed. It was then decided to have the lineman shake the wires on the poles below the 13,000-volt line and found that the interference was interrupted when he moved the guy wire holding the light. The guy wire was found to be lying across the primary of a 2,300-volt circuit and when it was removed the interference was entirely eliminated with the exception of a slight disturbance of less than one-quarter the intensity, apparently coming from some other source. This is mentioned for the reason that a similar trouble experienced with a lighting circuit in Hartford, Conn., as reported in a recent periodical, resulted in eliminating interference by substituting new street lights, but a careful inspection of the lights and fixtures removed failed to show any reason why the fixtures removed should have caused the trouble. In the present case we had every reason to be suspicious of this particular light, but found that the light itself was causing no trouble and its support was touching a high-voltage line. This light, swinging at times in the wind and temporarily moving the guy wire from the high tension line, apparently accounted for the intermittent nature of the interference.

At 2 a. m. the inspectors phoned the power house substation and had them "pull" No. 7 arc circuit, No. 8 arc circuit, the 13,000-volt line and the street car feeders, in the order mentioned, but the slight induction noticed after removal of the guy wire was not removed by cutting off practically everything on that side of the city, indicating further trouble in some other part of the city, evidently causing a feed back to that point. The investigation was discontinued at 3.30 a. m.

It is felt that much was accomplished in the short time available. The greatest source of interference was located and removed and it was proven conclusively that the trouble came from the lines of the power company. It was also proven that the 13,000-volt line was causing no trouble.

INSTRUCTION TO GREAT LAKES RADIO STATIONS FOR HANDLING WEATHER FORECASTS AND REPORTS OF DANGERS TO NAVIGATION

Weather forecasts.—Weather forecasts will be received by Toronto (VBG) from Canadian Meteorological Service at Toronto daily in time to be broadcast from Toronto (VBG) at 10.40 a. m. and p. m. This broadcast will be copied by the other Great Lakes stations.

Reports respecting dangers to navigation.—Reports respecting dangers to navigation will be handled through the Great Lakes stations as follows:

KINGSTON (VBH): This station will receive direct from the superintendent, Dominion lighthouse depot, Prescott, Ontario, reports concerning dangers to navigation in Lake Ontario and the St. Lawrence River as far east at Montreal. On receipt of such reports, Kingston (VBH) will take the following action:

1. Pass them in so far as they refer to Lake Ontario to Toronto (VBG) (conditions between Kingston and Montreal do not come within Toronto's zone and need not be referred to that station).
2. If especially urgent, broadcast immediately to ships in range on 600 meters.
3. File for transmission to vessels as may be requisite.
4. Include the reports in the regular weather forecasts and aid to navigation broadcast transmitted at 11 a. m. and p. m., eastern standard time, on 1,600 meters.

The superintendent, Dominion lighthouse depot, at Prescott, Ontario, will (1) indicate the period over which transmission of the above reports are to be made when he first hands them to Kingston (VBH) or (2) communicate later to Kingston (VBH) the date on which transmission will cease.

TORONTO (VBG): This station will receive from Kingston (VBH) reports concerning dangers to navigation in Lake Ontario. On receipt of such reports Toronto (VBG) will take the following action:

1. If especially urgent, broadcast immediately to ships in range on 600 meters.
2. File for transmission to vessels as may be requisite.
3. Include in message containing weather forecasts broadcast at 10.40 a. m. and p. m., eastern standard time, on 1,600 meters.

Kingston (VBH) will (1) indicate the period over which transmission of the above reports are to be made when he first passes them to Toronto (VBG), or (2) communicate later to Toronto (VBG) the date on which transmission will cease.

PORT BURWELL (VBF): This station will receive from the subagent, department of marine and fisheries, Amherstburg, Ontario, reports concerning dangers to navigation in Lake Erie. This station will take the following action with regard to such reports:

1. If especially urgent, broadcast immediately to ships in range, on 600 meters.
2. File for transmission to ships as may be requisite.
3. Include in message containing weather forecasts broadcast at 11 a. m. and p. m., eastern standard time, on 1,600 meters.

The subagent of marine and fisheries at Amherstberg, Ontario, will (1) indicate the period over which transmission of the above reports are to be made when he first passes them to Port Burwell (VBF), or (2) communicate later to Port Burwell (VBF) the date on which transmission will cease.

POINT EDWARD, ONTARIO (VBE): This station will receive from Midland (VBC) reports concerning dangers to navigation in Lake Huron. Point Edward (VBE) will take the following action with regard to such reports:

1. If especially urgent, broadcast immediately to ships in range on 600 meters.
2. File for transmission to ships as may be requisite.
3. Include in message containing weather forecasts broadcast at 11.10 a. m. and p. m., eastern standard time, on 1,600 meters.

Midland (VBC) will (1) indicate the period over which transmission of the above reports are to be made when he first passes them to Point Edward (VBE) or (2) communicate later to Point Edward (VBE) the date on which transmission will cease.

TOBERMORY (VBD): This station will receive from Midland (VBC) reports concerning dangers to navigation in Georgian Bay and Lake Huron. Tobermory (VBD) will take the following action with regard to such reports:

1. File for transmission to ships as may be requisite.

Midland (VBC) will (1) indicate the period over which the above reports are to be passed to ships when he first passes them to Tobermory (VBD) or (2) communicate later to Tobermory (VBD) the date on which they are to be canceled.

MIDLAND (VBC): This station will receive from the agent, marine and fisheries, at Parry Sound, Ontario, reports concerning dangers to navigation in Georgian Bay, Lake Huron, and Lake Superior. Midland (VBC) will take the following action with regard to such reports:

1. If especially urgent, transmit information concerning Georgian Bay and Lake Huron to ships in range immediately on 600 meters.
2. Transmit information concerning Lake Huron to Point Edward (VBE).
3. Transmit information concerning Georgian Bay and Lake Huron to Tobermory (VBD).
4. Transmit information concerning Lake Superior and Lake Huron to Sault Ste. Marie (VBB).
5. Transmit information concerning Lake Superior to Port Arthur (VBA).
6. File the information referred to in (1) for transmission to ships as may be requisite.
7. Include information referred to in (1) in message containing weather forecasts broadcast at 11.00 a. m. and p. m., eastern standard time, on 1,600 meters.

The agent of marine and fisheries at Parry Sound, Ontario, will (1) indicate the period over which transmission of the above reports are to be made when he first hands them to Midland (VBC) or (2) communicate later to Midland (VBC) the date on which transmission will cease. Midland (VBC) will also follow this procedure with reference to such reports as may be sent to Point Edward (VBE), Tobermory (VBD), Sault Ste. Marie (VBB), and Port Arthur (VBA).

SAULT STE. MARIE (VBB): This station will receive from Midland (VBC) reports concerning dangers to navigation in Lake Huron and Lake Superior. Sault Ste. Marie (VBB) will take the following action with regard to such reports:

1. If especially urgent, broadcast immediately to ships in range on 600 meters.
2. File for transmission to vessels as may be requisite.
3. Include in message containing weather forecasts broadcast at 11.20 a. m. and p. m., eastern standard time, on 1,600 meters.

Midland (VBC) will (1) indicate the period over which transmission of the above reports are to be made when he first passes them to Sault Ste. Marie (VBB) or (2) communicate later to Sault Ste. Marie (VBB) the date on which transmission will cease.

PORT ARTHUR (VBA): This station will receive reports concerning dangers to navigation (1) in Lake Superior, from Midland (VBC) and (2) in Thunder Bay from the subagent, marine and fisheries, Fort William, Ontario. Port Arthur (VBA) will take the following action in regard to such reports:

1. If especially urgent, broadcast immediately to ships within range.

2. File for transmission to vessels as may be requisite.
3. Include in message containing weather forecasts broadcast at 11.30 a. m. and p. m., eastern standard time, on 1600 meters.

Midland (VBC) or the subagent, marine and fisheries, Fort William, will, as the case may be, (1) indicate the period over which transmission of the above reports are to be made when they first hand them to Port Arthur (VBA) or (2) communicate later to Port Arthur (VBA) the date on which transmission will cease.

CHANGES IN FRENCH COMPASS STATIONS

Pen ar Roch, radio compass station (FEO), closed at midnight on April 30, last. Niou Huella, radio compass station (FEU), opened on May 1, last. The position of this station is latitude 48° 27′ 40″ N., longitude 5° 06′ 50″ W. Watch is kept on 600 meters. As in the case of Pen ar Roch station, the bearings will be transmitted by Ushant station (FFU).

CHANGES IN TRANSMISSIONS OF WEATHER BULLETINS AND STORM WARNINGS BY GERMAN STATIONS

The broadcasting by radiotelephone by the Swinemunde station (KAW) on 1,800-meter wave length of weather bulletins and storm warnings has been discontinued. Weather bulletins and storm warnings will continue to be broadcasted by radiotelegraph. The more important notices to mariners will also be broadcasted by radiotelegraph and repeated immediately thereafter on the radiotelephone. Approximate position, latitude 53° 54′ 55″, longitude 14° 16′ 15″ E.

The broadcasting by radiotelephone by the Norddeich station (KAV) on 1,800-meter wave length of weather bulletins and storm warnings has been discontinued. Weather bulletins and storm warnings will continue to be broadcasted by radiotelegraph. The more important notice to mariners will also be broadcasted by radiotelegraph and repeated immediately thereafter on the radiotelephone. Approximate position, latitude 53° 36′ 26″, longitude 7° 08′ 32″ E.

USE OF 450 AND 800 METERS

The 450-meter wave length should not be used for communicating with stations in this country but may be used in foreign waters. The 800-meter wave length should be used for compass work only in this country, but may be used for other traffic with foreign stations if permitted under foreign regulations. All commercial radio operators will please bear this in mind.

CHANGE IN RATE FOR NAVAL STATIONS IN PANAMA CANAL ZONE

Effective July 1, next, the rate for ship-shore traffic through stations located in the Panama Canal Zone will be 12 cents per word for the coastal service and 2 cents per word for the telegraph service—no minimum—to all points in the Republic of Panama. Heretofore the coastal rate of 12 cents per word included the land line charge.

RADIO TIME SIGNAL, CALCUTTA, INDIA

Calcutta radio station, VWC, transmits time signals at the following times: 4h. 27m. 00s. to 4h. 30m. 00s., and 20h. 27m. 00s. to 20h. 30m. 00s., G. M. T. (astronomical), corresponding to 9h. 57m. 00s. to 10h. 00m. 00s., and 1h. 57m. 00s. to 2h. 00m. 00s., Indian standard time (astronomical), respectively.

CHANGE IN RATES FOR BAHAMA ISLANDS

Beginning May 1 last the rate of the coastal stations Bimini and Nassau will be, Bimini, 12 cents per word, no minimum; Nassau 12 cents per word, minimum $1.20.

CHANGE IN TIME FOR SPAIN AND GIBRALTER

The time in Spain and Gibralter has been advanced one hour, beginning April 16 last and ending October 4 next.

GENERAL CALL FOR ALL GERMAN VESSELS

Call letters DEUT is assigned to all German vessels as a general call signal.

SOME METHODS OF TESTING RADIO RECEIVING SETS

At the request of the Bureau of Agricultural Economics of the Department of Agriculture, representatives of radio manufacturing companies, testing laboratories and other organizations, the Bureau of Standards undertook the work of devising methods of testing radio receiving apparatus.

Some methods of measurement of electrical characteristics of a radio receiving set and statements of features which may be learned by an inspection of the electrical and mechanical design of a set are given in a paper which has just been issued. This is Technologic Paper of the Bureau of Standards No. 256, "Some Methods of Testing Radio Receiving Sets," by J. L. Preston and L. C. F. Horle. A copy of this paper may be obtained for 10 cents from the Superintendent of Documents, Government Printing Office, Washington, D. C. The paper includes a summary of data on the sensitivity and selectivity of 28 receiving sets tested in 1922.

IMPROVED TYPE OF FREQUENCY INDICATOR FOR RADIO TRANSMITTING STATIONS

In May, 1923, the Bureau of Standards issued specifications for a radio frequency indicator which may be used in a radio transmitting station to indicate that the transmitting frequency assigned to the station is accurately maintained. An improved type of frequency indicator has since been developed. It is called the Type B, and specifications for its construction have been prepared. The device is essentially a one-point wave meter. The specifications give details for construction of the device for any frequency in the broadcast range. The instrument is more rugged than the earlier design, less subject to possible frequency change, more easily calibrated and set, and is shielded against disturbances from near-by metal objects. Means are provided to permit the final adjustment to resonance by a variation in the frequency indicator rather than in the transmitting set. The specifications give the number of turns of wire needed on the main coil of the device for any frequency. To set the device accurately on the predetermined frequency, final adjustment is made in the amount of wire on a small auxiliary coil. The Bureau of Standards will, for a nominal fee, calibrate or adjust a frequency indicator made according to these specifications when it is to be used to maintain a specific radio transmitting station on its assigned frequency. A copy of the "Specifications for Radio Frequency Indicator, Type B," may be obtained upon application to the Bureau of Standards, Washington, D. C.

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 which reached the degree of constancy shown among the stations upon whose frequencies measurements were made in the bureau's laboratory. There is, of course, no guaranty that the stations named below will maintain the constancy shown. As a means of maintaining constant frequency most of the broadcasting stations listed use frequency indicators (one-point wave meters) and maintain a maximum deflection of the instrument on the frequency indicator throughout the transmission. These broadcasting stations, with rare exceptions, vary not more than 2 kilocycles from the assigned frequency. The transmitted frequencies from these stations can be utilized for standardizing wave meters and other apparatus by the procedure given in Bureau of Standards letter circular No. 92, "Radio Signals of Standard Frequencies and Their Utilization." A copy of this letter circular can be obtained by a person having actual use for it upon application to the Bureau of Standards, Washington, D. C.

Station	Owner	Location	Assigned frequency (kilocycles)	Period covered by measurements (1923–24) [1]	Number of times measured	Greatest deviation from assigned frequency since Apr. 16, 1924	Average deviation from assigned frequency
						Per cent.	*Per cent.*
NSS	U. S. Navy	Annapolis, Md.	17.50	Aug. 26–May 15	75	0.7	0.2
WGG	Radio Corporation of America.	Tuckerton, No. 1, N. J.	18.85	do	94	.2	.2
WII	do	New Brunswick, N. J.	22.04	Oct. 1–May 15	72	.4	.2
WSO	do	Marion, Mass.	25.80	Aug. 21–May 15	83	.5	.2
WWJ	Detroit News	Detroit, Mich.	580	Aug. 27–May 15	36	.2	.1
WCAP	Chesapeake & Potomac Telephone Co.	Washington, D. C.	640	Sept. 11–May 15	52	.2	.1
WRC	Radio Corporation of America.	do	640	Dec. 16–May 15	33	.2	.1
WSB	Atlanta Journal.	Atlanta, Ga.	700	Sept. 14–May 15	49	[2].9	.1
WGY	General Electric Co.	Schenectady, N. Y.	790	June 26–May 15	84	.4	.2
KDKA	Westinghouse Electric & Manufacturing Co.	East Pittsburgh, Pa.	920	Sept. 8–May 15	107	.1	.1

[1] No measurements were made on the high-power stations between Feb. 1 and Mar. 31, inclusive.
[2] This temporary deviation was noted on two different measurements and was caused by storm shifting antenna.

REFERENCES TO CURRENT RADIO PERIODICAL 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 the professional radio engineer which have recently appeared in technical periodicals. 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, circular No. 138, a copy of which may be obtained for 10 cents from the Superintendent of Documents, Government Printing Office, Washington, D. C. Further information about these lists, availabilities of previous lists and of the several periodicals, is contained in the extended statement preceding the early lists as published in the Radio Service Bulletin prior to April, 1923, and also in May and September, 1923.

R000.—*Radio communication*

R000 Nottage, W. H. Record of the development of wireless telegraphy and telephony and interesting items in connection therewith. Yearbook of Wireless Telegraphy and Telephony, pp. 5–20, 1924.

R007 Laws and regulations affecting radiotelegraphy and telephony (all countries). Yearbook of Wireless Telegraphy and Telephony, pp. 43–497, 1924.

R007.5 Experimental transmitting licenses: Postmaster General's important decision. Wireless World and Radio Review, 14, p. 125, April 30, 1924.

R007.9 Report of the proceedings of the preliminary conference for an international agreement on wireless telephony (held in Geneva April, 1924). Wireless World and Radio Review, 14, pp. 170–172, May 7, 1924.

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