

# DEPARTMENT OF COMMERCE

# RADIO SERVICE BULLETIN

ISSUED MONTHLY BY BUREAU OF NAVIGATION

Washington, October 30, 1926—No. 115

## CONTENTS

	Page		Page
Abbreviations.....	1	Miscellaneous—Continued.	
New stations.....	2	Gale warnings broadcast by Daventry	9
Alterations and corrections.....	5	(England) station by radiophones.....	9
Miscellaneous:		Notices regarding foreign stations.....	10
Changes in radio-beacon stations.....	9	Standard frequency stations.....	11
Naval station at Marshfield, Oreg. to be		Constant frequency stations.....	11
closed.....	9	Radio signal transmissions of standard fre-	
Radio publications distributed by Navy		quency, November to April.....	12
and War Departments.....	9	References to current radio literature.....	13

## ABBREVIATIONS

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

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

RADIO SERVICE BULLETIN

NEW STATIONS

Commercial land stations, alphabetically by names of stations

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

Station	Call signal	Wave lengths	Service	Hours	Station controlled by—
Big Creek (Camp #2), Calif. <sup>1</sup>	KXU	1585, 1625, 1675...	FX	X	Southern California Edison Co.
Dearborn, Mich. <sup>2</sup>	WBO	44.02	FX	X	Ford Motor Co.
Do. <sup>3</sup>	WFO	1284	AB	X	Do.
Highland Park, Ill. <sup>4</sup>	WBW	45.02	FX	N	Wireless Telegraph & Communication Co.
Hoonah, Alaska <sup>5</sup>	KFO	600, 1610	FX		John P. Flagg.
Los Angeles, Calif. <sup>6</sup>	KEUF	45.02	FX	X	Pacific Air Transport.
Menominee, Mich. <sup>7</sup>	WDM	715, 675, 1660	PG		Ann Arbor R. R. Co.

<sup>1</sup> Loc. (approximately) 0 319° 02' 00", N 87° 19' 00"; range, 100; system, De Forest v. t. telegraph.  
<sup>2</sup> Loc. (approximately) 0 83° 14' 00", N 41° 18' 00"; range, 150; system, composite v. t. telegraph.  
<sup>3</sup> Loc. (approximately) 0 63° 14' 00", N 41° 18' 00"; range, 300; system, composite v. t. telegraph.  
<sup>4</sup> Loc. (approximately) 0 87° 02' 30", N 82° 12' 00"; system, composite v. t. telegraph.  
<sup>5</sup> Loc. (approximately) 0 138° 27' 00", N 86° 07' 00"; range, 300; system, composite, 1,000; hours, 7 a. m. to 7 p. m. daily except Sundays and holidays.  
<sup>6</sup> Loc. (approximately) 0 118° 09' 00", N 34° 10' 00"; range, 500; system, composite v. t. telegraph.  
<sup>7</sup> Loc. (approximately) 0 87° 30' 00", N 45° 43' 00"; range, 100; system, R. O. A. v. t. telegraph; hours, 8 a. m. to 11.30 a. m. and 2 to 5 p. m.; rates, ship service 10 cents per word.

Commercial ship stations, alphabetically by names of vessels

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

Name of vessel	Call signal	Rates	Service	Hours	Owner of vessel	Station controlled by—
Amoleo	KMB	8	PG	X	Boston Melanes Co.	
Ann Arbor No. 8	WDL				Ann Arbor R. R. Co.	
Argus <sup>1</sup>	KGCZ		PG	X	Interlake Steamship Co.	
Castana	KDFF	8	PG	X	United States Tank Ship Corporation.	R. C. A.
Charles G. Black	KGDD	8	PG	X	Standard Oil Co. of New Jersey	Do.
Fan Kwa <sup>2</sup>	KGCW		P	X	R. H. Rogers	Owner of vessel.
Hybert <sup>3</sup>	KDCA	8	PG	X	U. S. Shipping Board	R. C. A.
Manana <sup>4</sup>	KGDC		P	X	W. R. Seale	Owner of vessel.
Regulus <sup>5</sup>	KGDB		PG	X	Interlake Steamship Co.	
Republic <sup>6</sup>	WSU	8	PG	X	Chile Steamship Co.	L. W. T. Co.
Samson	KGUU				George F. Pettison	
Syros <sup>7</sup>	KDEC	8	PG	X	U. S. Shipping Board	R. C. A.

<sup>1</sup> Rates, Great Lakes service, 4 cents per word.  
<sup>2</sup> Range, 50; system, composite v. t. telephone and telegraph; w. l., 100-120, 600.  
<sup>3</sup> Range, 300; system, Navy-Marconi, 1,000; w. l., 600, 700, 800.  
<sup>4</sup> Range, 100; system, composite v. t. telephone and telegraph; w. l., 110, 600.  
<sup>5</sup> Range, 150; system, Cutting & Washington, 1,000; w. l., 600, 700, 800.  
<sup>6</sup> 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
KDCA	Hybert.....	b	Charles G. Black.....
KDEC	Syros.....	b	Amoleo.....
KDFF	Castana.....	b	KXU.....
KEU	Los Angeles, Calif.....	c	Big Creek (Camp #2), Calif.....
KFO	Hoonah, Alaska.....	c	Dearborn, Mich.....
KGCW	Fan Kwa.....	b	Ann Arbor No. 8.....
KGDC	Manana.....	b	Menominee, Mich.....
KGUU	Samson.....	b	WFO.....
KGCZ	Argus.....	b	WBW.....
			Dearborn, Mich.....
			Highland Park, Ill.....

**RADIO SERVICE BULLETIN**

*Broadcasting stations, alphabetically, by names of States and cities*

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

State and city	Call signal	State and city	Call signal
California: Santa Ana.....	KWTC	New Jersey:	
Florida: Orlando.....	WOCH	Lakewood.....	WCGU
Illinois:		North Bergen.....	WBMS
Chicago.....	WEDC	New York:	
Do.....	WOBB	Auburn.....	WKBR
Galesburg.....	WKBS	Buffalo.....	WEBW
Indiana: Brookville.....	WKBV	Ohio: Youngstown.....	WKBN
Kansas: Milford.....	KFKB	Pennsylvania: Danville (portable).....	WBYB
Massachusetts:		South Dakota: Dell Rapids.....	KGDA
Somerville.....	WAGS	Texas: Dallas.....	KRLD
Wollaston.....	WRES	Washington:	
Michigan: Detroit.....	WDXL	Seattle.....	KRSC
Minnesota: Barrett.....	KGDE	Do.....	KXRO
Montana: Vida.....	KGCX	Wisconsin: Milwaukee.....	WGWB

*Broadcasting stations, alphabetically, by call signals*

Call signal	Location of station (address)	Owner of station
KFKB	Milford, Kans.....	J. R. Brinkley, M. D.
KGCX	Vida, Mont.....	First State Bank of Vida.
KGDA	Dell Rapids, S. Dak.....	Home Auto Co. (J. R. Nelson).
KGDE	Barrett, Minn.....	Jaren Drug Co.
KRLD	Dallas, Tex., 208 North St. Paul Street.....	Dallas Radio Laboratories.
KRSC	Seattle, Wash., 1222 Fifth Avenue.....	Radio Sales Corporation.
KWTC	Santa Ana, Calif., 1101 North Ross Street.....	Dr. John W. Hancock.
KXRO	Seattle, Wash., 609 Washington Boulevard.....	Brott Laboratories.
WAGS	Somerville, Mass., 131 Willow Avenue.....	Willow Garages (Inc.) (W. E. Hartwell and J. Smith Dodge).
WBMS	North Bergen, N. J., 837 Thirty-fourth Street.....	George J. Schworer.
WCGU	Lakewood, N. J., New Pearl House.....	Charles G. Unger.
WDXL	Detroit, Mich., 5769 Stanton Avenue.....	DXL Radio Corporation.
WEDC	Chicago, Ill., 3865 Ogden Avenue.....	Emil Denmark Broadcasting Station.
WGWB	Milwaukee, Wis., 144 Broadway.....	Radiconst Corporation of Wisconsin.
WKBN	Youngstown, Ohio, 26 Auburndale Avenue.....	Radio Electric Service Co. (W. P. Williamson, jr.).
WKBR	Auburn, N. Y., 55 Frances Street.....	Charles J. Heiser.
WKBS	Galesburg, Ill., 227 Duffield Avenue.....	Fernil N. Nelson.
WKBV	Brookville, Ind.....	Knorr Battery & Electric Co.
WKBW	Buffalo, N. Y.....	Coatsworth & Diebold.
WBYB	Danville, Pa. (portable).....	Fernwood Quick.
WOBB	Chicago, Ill., 127 North Dearborn Street.....	Longacre Engineering & Construction Co.
WOCH	Orlando, Fla., 19 South Main Street.....	Orlando Broadcasting Co.
WRES	Wollaston, Mass., 335A Newport Avenue.....	Harry L. Sawyer.

NOTE.—The publication of wave lengths and power of broadcasting stations has been temporarily discontinued.

*Government 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 length	Service	Hours	Station controlled by—
Fort Proble, Me. <sup>1</sup> .....	WUAS	1414	FX	X	U. S. Army.

<sup>1</sup> Loc. (approximately) O 70° 15' 00", N 43° 57' 00"; range, 60; system, U. S. Army v. t. telegraph.

4

## RADIO SERVICE BULLETIN

*Government ship stations, alphabetically, by names of stations*

[Additions to the List of Radio Stations of the United States, edition of June 30, 1924, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Station	Call signal	Wave length	Service	Hours	Station controlled by—
Beaulieu.....	NURR		O	X	Bureau of Fisheries, Department of Com- merce.
Willets Point <sup>1</sup> .....	WYCX	500	O	X	U. S. Army.

<sup>1</sup> System, United States Army v. l. telegraph.*Government 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—
PN 10 No. 1.....	NIRB		O	X	U. S. Navy.
PN 10 No. 2.....	NIRC		O	X	Do.

*Government land and ship stations, alphabetically, by call signals*

(b, ship station; c, land station)

Call signal	Name of station	Call signal	Name of station
NIRB	PN 10 No. 1 (airship).....	WUAB	Fort Preble, Me.....
NIRC	PN 10 No. 2 (airship).....	WYCX	Willets Point.....
NURR	Beaulieu..... b		

*Special land stations, alphabetically, by names of stations*

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

Station	Call signal	Station controlled by—
Chicago, Ill.....	9XT	Stewart-Warner Speedometer Corporation, 1620 Diversey Parkway.
Los Angeles, Calif.....	6XAI	Los Angeles Radio Club (Jay Peters), 2908½ South Main Street.
Do.....	6XL	Fred L. Dewey, 3440 Glen Albyn Drive.
Montana (portable).....	7XR	Great Northern Railway Co.
New York, N. Y.....	2EAB	Radio Corporation of America, 3177 Knox Place.
Rocky Point, N. Y.....	2XBC	Radio Corporation of America.
Do.....	2XT	Do.
Villanova, Pa.....	3EAV	Villanova College.
Whitefish, Mont.....	7EAL	Great Northern Railway Co.
Yonkers, N. Y.....	2XAJ	Radio Corporation of America.
Do.....	2XW	Do.
Orust (tugboat).....	2XN	Bell Telephone Laboratories, 463 West Street, New York, N. Y.

## RADIO SERVICE BULLETIN

5

## Special land stations, grouped by districts

Call signal	District and station	Call signal	District and station
2XAB 2XAJ 2XN 2XT 2XBC 2XW 3XAU	Second district: New York, N. Y. Yonkers, N. Y. Onrust (tugboat). Rocky Point, N. Y. Do. Yonkers, N. Y. Third district: Villanova, Pa.	6XAI 6XL 7XAL 7XR 9XT	Six district: Los Angeles, Calif. Do. Seventh district: Whitefish, Mont. Montana (portable). Ninth district: Chicago, Ill.

## 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]

- BOLINAS, CALIF. (KEL).—System, R. C. A. v. t. telegraph.  
 BOWLING GREEN, KY.—Owner of station, Indian Pipe Line Co.  
 CHATHAM, MASS. (WIM).—W. l., 600, 744.  
 CHEBOYGAN, MICH.—System, composite v. t. telephone and telegraph.  
 CLEARWATER, CALIF. (Los Angeles-KOK).—W. l., 600, 706.  
 CLEVELAND, OHIO (WTL).—Loc. (approximately) O 81° 41' 30", N 41° 30' 00".  
 EAST HAMPTON, N. Y.—Loc. O 72° 12' 33", N 40° 57' 29".  
 ENSENADA, P. R.—Range, 300; system, Navy—R. C. A., 1000 and I. W. T. Co. arc; w. l., 600, 1800, 1900, 2100, 2400.  
 EVERETT, WASH.—System, I. R. T. Co. v. t. telegraph; w. l., add 875.  
 FORT WORTH, TEX.—Owner of station, Carter Publications (Inc.).  
 FRANKFORT, MICH.—System, R. C. A. v. t. telegraph.  
 HIDDEN INLET, ALASKA.—System, Marconi, 1000.  
 IRON MOUNTAIN, MICH.—W. l., strike out 140.  
 LAWRENCEVILLE, ILL.—System, De Forest v. t. telegraph; owner of station, Indian Pipe Line Co.  
 MANISTIGUE, MICH.—System, R. C. A. v. t. telegraph.  
 MANITOWOC, WIS.—System, R. C. A. v. t. telegraph.  
 MEMPHIS, TENN.—System, add composite v. t. telegraph.  
 MOBILE, ALA. (WPP).—System, F. T. Co. arc and Marconi spark, 1000.  
 NEW BRUNSWICK, N. J. (WIR).—Changed to Rocky Point, N. Y.; loc. (approximately) O 72° 56' 30", N 40° 55' 30"; system, General Electric v. t. telegraph.  
 NEW YORK, N. Y. (KUVS).—W. l., 600, 735.  
 NEW YORK, N. Y. (WCG).—W. l., 600, 680, 2250, 2478.  
 NEW YORK, N. Y. (Borough of Brooklyn-WNY).—Loc. O 74° 00' 15", N 40° 39' 23".  
 NUSHAQAK, ALASKA (KLJ).—System, Navy—K. & C., 1000.  
 OWENSBORO, KY.—Owner of station, Indian Pipe Line Co.  
 PHILADELPHIA, PA. (WNW).—Hours, 6 a. m. to 6 p. m.  
 ROCKY POINT, N. Y. (WQM).—Loc. O 72° 56' 15" N 40° 55' 20"; system, R. C. A. v. t. telegraph.  
 SELDOVIA, ALASKA.—W. l., 600, 625.  
 TAMPA, FLA.—W. l., 600, 695.  
 WHEELWRIGHT, KY.—Name changed to Bypro, Ky.  
 WILMINGTON, CALIF.—System, R. C. A. v. t. telegraph.  
 Strike out all particulars of the following-named stations, Belfast, Me. (WGU); Pearl Creek Dome, Cold Bay Oil District, Alaska, Schenectady, N. Y.

## 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]

- AFEL.—System, Navy, 1000; w. l., 600, 706, 800.  
 ALABAMA (WFB).—Hours, N.  
 ATENAS.—W. l., 600, 706, 800.  
 ARA.—System, English Marconi v. t. telegraph and English Marconi spark.

- AVALON (KIZL).**—W. l., 600, 706, 800.  
**BEACONOIL.**—Owner of vessel, Beacon Transport Co.  
**BENSON FORD.**—W. l., 715, 800, 875, 1575.  
**BOHEMIA.**—System, add R. C. A. v. t. telephone, w. l., add 870.  
**BOSTON.**—Range, 300; system, R. C. A. v. t. telegraph, telephone, and spark, 1000; w. l., 600, 706, 800, 1250, 1800.  
**BRAVE COEUR.**—W. l., 600, 706, 800.  
**BRUNSWICK.**—Owner of vessel, New England, New York & Texas S. S. Corporation.  
**CADARETTA.**—Station controlled by owner of vessel.  
**CALORIA.**—W. l., 600, 706, 800.  
**CARDONIA.**—W. l., 600, 706, 800.  
**CARLTON.**—W. l., 600, 706, 800.  
**CARPLAKA.**—W. l., strike out 450.  
**CASEY.**—W. l., 600, 706, 800.  
**CECIL COUNTY.**—Owner of vessel, Oil Transport Co.  
**CHARLES M. EVEREST.**—System, R. C. A. v. t. telegraph; w. l., 600, 706, 750, 800, 900.  
**CHESTER SUN.**—W. l., 600, 706, 800.  
**CHESTER VALLEY.**—Station controlled by I. W. T. Co.  
**CITY OF FLINT.**—W. l., 600, 706, 800.  
**CLAVARACK.**—W. l., 600, 706, 800; station controlled by R. C. A.  
**COAXET.**—Station controlled by I. W. T. Co.  
**COLORADON.**—Correct orthography Coloradoan; range, 300; system, Marconi; 1000; w. l., 600, 706, 800; station controlled by owner of vessel.  
**COCS BAY.**—System, Navy-Lowenstein, 1000; station controlled by owner of vessel.  
**COPPENAME.**—Range, 200; system, W. S. A. Co., 1000; w. l., 600, 706, 800.  
**CRISFIELD.**—Station controlled by R. C. A.  
**CULBERSON.**—W. l., add 800, 2000.  
**DANIEL J. MORRELL.**—Range, 200; system, Navy-Simon, 1000; w. l., 715, 800, 875; station controlled by I. R. T. Co.  
**DEER LODGE.**—W. l., 600, 706, 800.  
**DEGO.**—Name changed to Sea.  
**DELTAINE.**—W. l., 600, 706, 715, 800, 900.  
**DEUEL.**—W. l., 600, 706, 800, 2000, 2100, 2400.  
**DIXIE ARROW.**—W. l., 600, 706, 800.  
**EASTERN CROWN.**—Range, 200; system, Navy, 1000; w. l., 600, 706, 800; owner of vessel, Meteor S. S. Co.  
**EASTERNER.**—W. l., add 800.  
**EASTERN SEA.**—Station controlled by R. C. A. (U. S. L.).  
**EDITOR.**—W. l., 600, 706, 800; station controlled by R. C. A. (U. S. L.).  
**EDWARD Y. TOWNSEND.**—Range, 200; system, Navy-Simon, 1000; w. l., 715, 800, 875; station controlled by I. R. T. Co.  
**EDWIN CHRISTENSON.**—System, Navy-Marconi, 1000.  
**EELBECK.**—W. l., strike out 750.  
**EGLANTINE.**—Station controlled by I. W. T. Co.  
**ENDICOTT.**—System, Navy-K. & C., 1000; w. l., 600, 706, 800.  
**ENSLEY CITY.**—W. l., add 800.  
**ETMAN ALLEN.**—System, add Navy, 1000; w. l., 600, 706, 800, 2100, 2400.  
**EURANA.**—System, R. C. A. v. t. telegraph; w. l., 600, 706, 750, 800, 900.  
**FONTANA.**—W. l., 715, 800.  
**FRANK SEITHER.**—W. l., 715, 800, 875; station controlled by I. R. T. Co.  
**GRACE DOLLAR.**—W. l., strike out 450; station controlled by owner of vessel.  
**GREATER DETROIT.**—W. l., 600, 715, 875, 1058, 1800.  
**GULFOIL.**—W. l., 600, 706, 800.  
**GULFSTAR.**—W. l., 600, 706, 800.  
**HAMPTON ROADS (KESR).**—Owner of vessel, Oil Transport Co.  
**HENRY G. DALTON.**—System, R. C. A. v. t. telegraph.  
**HEREDIA.**—W. l., add 800.  
**H. H. ROGERS.**—W. l., add 900.  
**HOMESTEAD.**—W. l., 600, 706, 800.  
**HOVEN.**—Owner of vessel, Beacon Oil Co.  
**HUGH KENNEDY.**—W. l., 715, 800, 875.  
**INDIANA (KGBL).**—Range, 150; system, R. C. A. v. t. telephone; w. l., add 870; service. P.: hours. X.

## RADIO SERVICE BULLETIN

7

JOHN A. DONALDSON.—W. l., 715, 800, 875; station controlled by I. R. T. Co.  
 J. M. DANZIGER.—W. l., add 900.  
 J. N. PEW.—W. l., 600, 706, 800.  
 KERHONKSON.—W. l., 600, 706, 800.  
 LAKE CAPENS.—Owner of vessel, Mobile, Miami & Gulf S. S. Co.  
 LAKE FLATONIA.—Owner of vessel, New England, New York & Texas S. S. Corporation.  
 LAKE GIDDINGS.—Owner of vessel, New England, New York & Texas S. S. Corporation.  
 LAVADA.—W. l., 600, 706, 800, 1800, 2000, 2100, 2400.  
 LIBERTY.—W. l., 600, 706, 800.  
 LIBERTY GLO.—W. l., 600, 706, 800.  
 LIO.—Owner of vessel, Standard Transportation Co.  
 L. J. DRAKE.—W. l., 600, 706, 800, 1800, 1900, 2000, 2100, 2400.  
 LORRAINE CROSS.—System, Navy-Lowenstein, 1000; w. l., 600, 706, 800.  
 LOS ALAMOS.—Owner of vessel, Standard Transportation Co.  
 MANGORE.—W. l., 600, 706, 800.  
 MICHAEL GALLAGHER.—W. l., 715, 800, 875.  
 MINEOLA.—Owner of vessel, New Orleans & South American S. S. Co.  
 MINNESOTA.—Range, 300; system, Navy-Lowenstein, 1000; w. l., 600, 1100; owner of vessel, Inland Waterways Corporation.  
 MOSELLA.—Station controlled by R. C. A.  
 MUNLEON.—Station controlled by I. W. T. Co.  
 MUHOMA.—W. l., 109, 600.  
 NEBRASKAN.—Owner of vessel, North American Coal Corporation.  
 NELSON.—W. l., 600, 706, 800.  
 NEVADAN.—Name changed to Oakley L. Alexander; owner of vessel, Pocahontas S. S. Co.  
 NOYO.—W. l., 600, 706, 800.  
 OAKMAN.—Station controlled by I. W. T. Co.  
 OCEANIA VANCE.—Range, 300; system, R. C. A. v. t. telegraph; w. l., 600, 706, 750, 800; service, PG; hours, X.; rates, 8 cents per word.  
 ORCUA.—W. l., 600, 706, 800; station controlled by R. C. A.  
 ORIENT.—W. l., 600, 706, 800.  
 PACIFIC.—W. l., add 800.  
 PANAY (KPUA).—W. l., 715, 875.  
 PENNSYLVANIA SUN.—System, R. C. A. v. t. telegraph; w. l., 600, 706, 750, 800, 900.  
 PETALUMA.—W. l., 109, 600.  
 PETER H. CROWELL.—W. l., add 800.  
 PRESIDENT MONROE.—System, Navy-Marconi, 1,000; w. l., strike out 450.  
 PRISCILLA (KFSE).—Owner of vessel, Tide Water Associated Oil Co.  
 P. W. SHERMAN.—Name changed to E. G. Mathiott.  
 ROBADOE.—Range, 300; system, R. C. A. v. t. telegraph; w. l., 600, 706, 750, 800, 900, 1800, 1900, 2000, 2100, 2400.  
 ROTONO.—Range, 50; system, composite v. t. telegraph; w. l., 120; service, P., hours, X.; station controlled by owner of vessel.  
 SAN DIEGO.—W. l., 600, 706, 800.  
 SANDMASTER.—Range, 150; system, Navy-Lowenstein, 1000; w. l., 715, 800, 875.  
 SAUGERTIES.—W. l., 600, 706, 800.  
 SOCONY 90.—W. l., 600, 706.  
 SONOMA.—W. l., 600, 706, 800, 1800, 2400.  
 STANDARD ARROW.—W. l., 600, 706, 750, 800, 900.  
 STANLEY.—Station controlled by R. C. A. (U. S. L.).  
 STEPHEN M. CLEMENT.—W. l., 715, 800, 875.  
 SUMAR (KGAQ).—Range, 300; system, R. C. A. v. t. telegraph; w. l., 600, 706, 750, 800, 900, 1800, 1900, 2000, 2100, 2400; rates, 8 cents per word.  
 SUSCOLANCO.—W. l., 600, 706, 800.  
 TACHIRA.—W. l., add 800.  
 TANANA.—System, Navy-Marconi, 1000; w. l., 600, 706, 800.  
 THE OLD TIMER No. 3.—Range, 25; w. l., 109 only.  
 TRADER.—Owner of vessel, Max Bernstein.  
 TUSCALOOSA CITY.—W. l., 600, 706, 800.  
 VENTURA.—W. l., 600, 706, 800, 2100, 2400.  
 WALTER D. MUNSON.—System, Marconi, 1000.  
 WEST CANON.—Owner of vessel, Ocean Transport Co.

**WEST CELINA.**—Station controlled by R. C. A. (U. S. L.).

**WESTERN GLEN.**—Hours, X.

**WEST MAHOMET.**—W. L., 600, 700, 800.

**WESTERN PLAINS.**—Station controlled by I. W. T. Co.

**WESTMORELAND.**—W. L., 600, 700, 800.

**WILLIAM P. SNYDER.**—Name changed to Elton Hoyt II; w. l., add 800.

**WILPNE.**—Range, 200; system, Navy-Simon, 1000; w. l., 715, 800, 875; owner of vessel, Pioneer S. S. Co.; station controlled by I. R. T. Co.

**WISCONSIN.**—W. l., 715.

**W. W. MILLS.**—System, R. C. A. v. t. telegraph; w. l., 600, 700, 750, 800, 900.

**YORBA LINDA.**—W. l., add 800.

Strike out all particulars of the following-named vessels: Caracas, Lackawanna Valley, Skylark II, Storm King (KDJM).

#### COMMERCIAL LAND AND SHIP STATIONS, ALPHABETICALLY, BY CALL SIGNALS

**KFUB,** read E. G. Mathiott; **KFWE,** read Sea; **KGBO,** read Elton Hoyt II; **KGCS,** read Colorado; **WFF,** read Oakley L. Alexander; **WIR,** read Rocky Point, N. Y.; **WLG,** read Bypro, Ky.; strike out all particulars following the call signals, **KDB, KDJM, KFTU, KFU, KIXD, WBQ, WGU.**

#### 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]

**KFIZ** (Fond du Lac, Wis.).—Owner of station, Fond du Lac Commonwealth Reporter.

**KFQD** (Anchorage, Alaska).—Owner of station, Anchorage Radio Club.

**KFQW** (North Bend, Wash.).—Changed to Seattle, Wash.

**KGBU** (Ketchikan, Alaska).—Owner of station, Alaska Radio & Service Co.

**KGCI** (San Antonio, Tex.).—Owner of station, Searcy M. Rhodes, 716 Gramercy Street.

**KPO** (San Francisco, Calif.).—Owner of station, Hale Bros. and The Chronicle.

**WBBS** (New Orleans, La.).—Call signal changed to WKBT.

**WBDC** (Grand Rapids, Mich.).—Call signal changed to WASH; owner of station, Baxter Launderers & Cleaners.

**WFBH** (New York, N. Y.).—Call signal changed to WPCB.

**WGBR** (Marshfield, Wis.).—Strike out all particulars.

**WGHP** (Detroit, Mich.).—Changed to Mount Clemens, Mich.

**WSWB** (Wooddale, Ill.).—Changed to Batavia, Ill.; owner of station, Richmond Harris & Co. (Illinois Broadcasting Co.).

#### 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 Marine Bureau]

**FAIRHANKS, ALASKA.**—Owner of station, United States Army (U. S. L.).

Strike out all particulars of the following-named stations, Fort Levett, Mo., Shanghai, China.

#### GOVERNMENT LAND AND SHIP STATIONS, ALPHABETICALLY BY CALL SIGNALS

Strike out all particulars following the call signals **NPJ, WUAV.**

#### 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]

**CAMBRIDGE, MASS. (IXM).**—Owner of station, Massachusetts Institute of Technology Radio Society.

Strike out all particulars of the following-named stations: Buffalo, N. Y. (portable-8XAG); Cazenovia, N. Y. (8XH); Ithaca, N. Y. (8XU); Wyandotte.





There is a silent interval of half a second between each letter. The signal is also transmitted daily from 11.30 to 12.00, G. M. T.

*Port Mahon, Balearic Islands (Mediterranean).*—A radio compass station has been established at this port in latitude 39° 53' 43" N., longitude 4° 16' 05" E.; call signal EBAX; wave length 450 meters. Until January 1, 1927, the service will be provisional, after which, when any errors have been rectified, a permanent public service will be instituted.

*Kobe, Japan.*—Weather bulletins and storm signals are transmitted from the Kalyo Meteorological observatory on 2,650 meters c. w.

*Helder, Netherlands.*—A radio-compass station has been established at Helder (Texel Zeegat), call signal PCWO, in latitude 52° 57' 06" N., longitude 4° 46' 19" E. The station operates on 800 meters, but as the service is still experimental no charge is made for bearings for the present. This station may also be used in combination with the station at Maassluis (PCMS) and the station at Ymuiden (PCI). The procedure for the three stations is as follows: Vessels requiring bearings should call Scheveningen (PCH) on 600 meters, sending QTE, followed by the call signal of each station from which bearings are desired. As soon as the radio-compass station is ready, Scheveningen answers on 800 meters, sending the letter K (—, —). The ship will then signal CT PCH, followed by repetitions of the ship's own call signal, repeated slowly for 1 minute, with prolonged dashes. The result of the observations will be signaled from Scheveningen on 600 meters, as follows: QTE. Group of three figures giving the true bearing in degrees of the ship from the radio-compass station (000-north, 270-west). Time of bearing. The authorities will accept no responsibility for any inaccuracy in the bearings supplied.

## STANDARD FREQUENCY STATIONS

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

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

Station	Owner	Location	Frequency (kilo-cycles)	Period covered by measurements (months)	Number of times measured	Deviations from assigned frequencies noted in measurements	
						Average	Greatest since Sept. 23, 1926
NBS	United States Navy	Annapolis, Md.	17.50	5	25	Per cent 0.2	Per cent 0.3
WCI	Radio Corporation of America	Tuckerton, N. J.	17.95	20	92	.1	.1
WQQ	Do.	Tuckerton, No. 1, N. J.	18.65	38	209	.1	.1
WII	Do.	New Brunswick, N. J.	21.80	16	120	.1	.3
WVA	United States Army	Annapolis, Md.	100	19	100	.2	.2
NAA	United States Navy	Arlington, Va.	112	12	60	.2	.3
WEAF	American Telephone & Telegraph Co.	New York, N. Y.	610	22	137	.0	.0
WRC	Radio Corporation of America	Washington, D. C.	640	34	163	.1	.0
WJZ	Do.	Bound Brook, N. J.	660	5	16	.1	.1
NAA	United States Navy	Arlington, Va.	690	5	20	.0	.1
WGY	General Electric Co.	Schenectady, N. Y.	750	40	180	.1	.1
WBZ	Westinghouse Electric & Manufacturing Co.	Springfield, Mass.	900	25	81	.1	(?)
KDKA	Do.	East Pittsburgh, Pa.	970	5	26	.1	.3
KDKA	Do.	do.	4,711	5	16	.1	.1

## RADIO SERVICE BULLETIN

II

## CONSTANT FREQUENCY STATIONS

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

The fundamental requirement of a broadcasting station for inclusion in the following list is the employment of a special device for controlling or checking the frequency, the calibration of such a device to be in agreement with the bureau's frequency standards. The special device may be automatic piezo control, a piezo oscillator, piezo resonator, or frequency indicator.

Stations not included in this list which use one of the special devices for frequency regulation are invited to communicate with the Bureau of Standards. The letter should be accompanied by a request for a copy of "Requirements of constant frequency stations," which is a statement in detail of the requirements for inclusion in the list of constant frequency stations.

Descriptions of two of the devices mentioned above, namely, the piezo oscillator and the frequency indicator, are given, respectively, in Bureau of Standards Letter Circulars 186 and 180. Those publications give specifications for the construction of the devices and describe their use in checking the station frequency. They are entitled, respectively, "Specifications for portable piezo oscillator, Bureau of Standards Type N," and "Specifications for frequency indicator, Bureau of Standards Type B, for use in radio-transmitting stations." Either letter circular may be obtained by a person having actual use for it upon application to the Bureau of Standards.

Station	Owner	Location	Frequency (kcycles)	Wave length (meters)	Apparatus for frequency regulation
KFRU	Stephens College	Columbia, Mo.	600	492.7	Frequency indicator.
WOC	Palmer School of Chiropractic	Davenport, Iowa	620	483.0	Piezoscillator.
WTIC	Travelers Insurance Co.	Hartford, Conn.	630	475.9	Do.
WMAQ	Chicago Daily News	Chicago, Ill.	630	475.5	Frequency indicator, type B.
KLDS	Reorganized Church of Jesus Christ of Latter Day Saints	Independence, Mo.	660	452.9	Frequency indicator.
KYO	Hale Bros. and the Chronicle	San Francisco, Calif.	700	428.3	Do.
WLW	Crosby Radio Corporation	Harsburg, Ohio	710	422.2	Frequency indicator and piezoscillator.
WCCO	Washburn-Crosby Co.	St. Paul-Minneapolis, Minn.	720	416.4	Piezoscillator.
WTAM	Willard Storage Battery Co.	Cleveland, Ohio	730	410.4	Do.
WEAR	New Adlington Hotel Co.	Hot Springs, Ark.	800	374.8	Frequency indicator, type B.
ETHS					Piezoscillator.
WJJD	Loyal Order of Moose	Moneahart, Ill.	810	370.2	Do.
EGG	General Electric Co.	Oakland, Calif.	820	364.2	Do.
WJAD	Frank P. Jackson	Waco, Tex.	850	352.7	Frequency indicator, type B.
WWJ	Detroit News	Detroit, Mich.	850	352.7	Do.
WLS	Sears, Roebuck & Co.	Croft, Ill.	870	346.8	Piezoscillator.
KFAB	Nebraska Buick Auto Co.	Lincoln, Neb.	880	343.7	Frequency indicator, type B.
WKAQ	Radio Corporation of Puerto Rico	San Juan, P. R.	880	343.7	Do.
EOA	General Electric Co.	DeVeer, Colo.	930	322.4	Piezoscillator.
WEAO	Ohio State University	Columbus, Ohio	1,000	293.9	Frequency indicator, type B.
KWOR	Harry F. Paas	Cedar Rapids, Iowa	1,050	287.0	Piezoscillator.
WFBG	Wm. F. Goble Co.	Altoona, Pa.	1,080	277.0	Frequency indicator.
KFLA	Colorado State Teachers College	Greeley, Colo.	1,100	272.0	Piezoscillator.
WBAA	Purdue University	West Lafayette, Ind.	1,100	272.0	Do.

Station	Owner	Location	Frequency (kilocycles)	Wave length (meters)	Apparatus for frequency regulation
WOI	Iowa State College.....	Ames, Iowa.....	1,110	270.1	Automatic piezo control (checked with type B frequency indicator).
KPH	Hotel Larsen (Rigby-Gray Hotel Co.).....	Wichita, Kans.....	1,120	267.7	Frequency indicator, type B.
WENR	All American Radio Corporation.....	Chicago, Ill.....	1,130	265.5	Piezoscillator.
WCAD	St. Lawrence University.....	Canton, N. Y.....	1,140	263	Frequency indicator, type B.
WAAM	I. R. Nelson.....	Newark, N. J.....	1,140	263	Piezoscillator.
WOWO	Main Auto Supply Co.....	Fort Wayne, Ind.....	1,330	227.1	Do.
WBBM	Atlas Investment Co.....	Chicago, Ill.....	1,330	225.4	Do.
WEBQ	Tate Radio Co.....	Harrisburg, Ill.....	1,330	225.4	Piezoscillator, type N.
KFVS	Hirsch Battery & Radio Co.....	Cape Girardeau, Mo.....	1,340	223.7	Frequency indicator, type B.
WOK	Neutrowound Radio Manufacturing Co.....	Homewood, Ill.....	1,850	161.3	Piezoscillator.
WPDQ	Hiram L. Turner.....	Buffalo, N. Y.....	1,460	205.4	Frequency indicator, type B.

## RADIO SIGNAL TRANSMISSIONS OF STANDARD FREQUENCY, NOVEMBER TO APRIL

The standard frequency transmissions from station WWV of the Bureau of Standards are being made once each month. The schedule through the month of April, 1927, is given below. These transmissions are of definitely announced frequencies and are for use by the public in standardizing frequency meters (wave meters) and transmitting and receiving apparatus. The transmissions are by continuous-wave radiotelegraphy. The signals have a slight modulation on 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) 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 station. 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 frequency meter calibration as desired by the method of generator harmonics, information on which is given in the letter circular.

*Schedule of frequencies in kilocycles*  
[Approximate wave lengths in meters in parentheses]

Eastern standard time	Nov. 20	Dec. 20	Jan. 20, 1927	Feb 21	Mar. 21	Apr. 20
10 to 10.05 p. m.....	1,500 (200)	3,000 (100)	125 (2,400)	500 (1,000)	3,000 (100)	550 (545)
10.12 to 10.20 p. m.....	1,650 (182)	3,300 (91)	133 (2,254)	315 (932)	3,300 (91)	630 (476)
10.24 to 10.32 p. m.....	1,800 (167)	3,600 (83)	143 (2,097)	345 (869)	3,600 (83)	730 (411)
10.36 to 10.44 p. m.....	2,000 (150)	4,000 (75)	155 (1,934)	375 (800)	4,000 (75)	850 (353)
10.48 to 10.56 p. m.....	2,200 (136)	4,400 (68)	165.5 (1,800)	425 (705)	4,400 (68)	980 (306)
11 to 11.05 p. m.....	2,450 (122)	4,900 (61)	205 (1,467)	500 (600)	4,900 (61)	1,130 (265)
11.12 to 11.20 p. m.....	2,700 (111)	5,400 (55)	250 (1,155)	600 (500)	5,400 (55)	1,300 (231)
11.24 to 11.32 p. m.....	3,000 (100)	6,000 (50)	315 (900)	666 (450)	6,000 (50)	1,500 (200)

## RADIO SERVICE BULLETIN

13

## 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. 133, 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.

## R000.—Radio communication

- R070 McLachlan, N. W. How problems are attacked by the worker and development engineer. *Wireless World and Radio Review*, 18, pp. 479-480, October 6, 1926.

## R100.—Radio principles

- R110 Lodge, O. Waves and wave lengths. *Popular Radio*, 23, pp. 641-645, November, 1926.  
 R111 Free, E. K. Are there "ether waves" after all? *Popular Radio*, 23, pp. 635-637, November, 1926.  
 R113.3 Sutton, W. M. Aurora and its effect upon radio signals. *QST*, 18, pp. 23-24, October, 1926.  
 R114.7 Meissner, A. Hat das Erdfeld einen Einfluss auf die Wellenambrelungsvorgänge? *Elektrisch-Nachrichten Technik*, 3, pp. 321-324, September, 1926.  
 R115.7 Heising, R. A.; Schellberg, J. C.; Southworth, G. O. Some measurements of short-wave transmission. *Proc. Inst. of Radio Eng.*, 14, pp. 613-647, October, 1926.  
 R114 Acosta, L. W. Long distance radio receiving measurements and atmospheric disturbances at the Bureau of Standards in 1925. *Proc. Inst. of Radio Eng.*, 14, pp. 663-673, October, 1926.  
 R120 Lang, G. W. The length of the Hertz antenna. *QST*, 18, p. 15, October, 1926.  
 R120 Levin, S. A., and Young, C. J. Field distribution and radiation resistance of a straight vertical unloaded antenna radiating at one of its harmonics. *Proc. Inst. of Radio Engrs.*, 14, pp. 674-683, October, 1926.  
 R124 Burk, E. Frame aerial for wireless telegraphy and telephony. United States Patent No. 1602926, issued October 12, 1926.  
 R125.1 Hooper, S. C. Naval development of radio direction finding equipment. *Radio Age*, pp. 9-12, November, 1926.  
 R125.5 Taylor, A. H. Radio receiving circuit. United States Patent No. 1596036, issued August 17, 1926.  
 R134 Smith, L. P. Theory of detection in a high vacuum thermionic tube. *Proc. Inst. of Radio Engrs.*, 14, pp. 649-682, October, 1926.  
 R134.75 Eltz, G. J. A short wave superheterodyne receiver. *Radio Broadcast*, 18, pp. 54-63, November, 1926.  
 R134.75 Armstrong, H. M. An improved shielded superheterodyne. *Radio (San Francisco)*, 8, pp. 19-22, October, 1926.  
 R134.75 Schottky, W. On the origin of the superheterodyne method. *Proc. Inst. of Radio Engrs.*, 14, pp. 683-698, October, 1926.  
 R140 Roberts, W. van B. A method for maximization in circuit calculation. *Proc. Inst. of Radio Engrs.*, 14, pp. 689-693, October, 1926.  
 R142.3 Loflin, E. H., and White, S. Y. Combined electromagnetic and electrostatic coupling and some aspects of the combination. *Proc. Inst. of Radio Engrs.*, 14, pp. 605-611, October, 1926.  
 R171 Ashbrook, R. H., and Wight, R. W. Radio interference (man-made interferences largely controlled—test equipment described by Southern California Edison Co.). *Electrical World*, 88, pp. 851-853, October 23, 1926.  
 R171 Goldsmith, A. N. Reduction of interference in broadcast reception. *Proc. Inst. of Radio Engrs.*, 14, pp. 675-683, October, 1926.

## R200.—Radio measurements and standardization

- R213 Jolliffe, C. B., and Hazen, Grace. Establishment of radio standards of frequency by the use of harmonic amplifier. Bureau of Standards Scientific Paper No. 530, Government Printing Office, Washington, D. C., 1926. Price, 10 cents per copy.  
 R251 Howe, G. W. O. A very sensitive valve galvanometer. *Experimental Wireless (London)*, 3, p. 634, October, 1926.  
 R263 Medham, W. H. The thermionic voltmeter. *Experimental Wireless (London)*, 3, pp. 629-633, October, 1926.  
 R270 Gilbert, G. D. Discussion on "Portable receiving sets for measuring field strengths at broadcasting frequencies," by A. G. Jensen. *Proc. Inst. of Radio Engrs.*, 14, pp. 609-705, October, 1926.  
 R290 Round, H. J. A method of calibrating microphones and loud speakers. *Experimental Wireless (London)*, 3, pp. 604-605, October, 1926.

## R300.—Radio apparatus and equipment

- R321 Lafour, M. Aerial for wireless telegraphy and telephony purposes. United States Patent No. 1602108, issued October 5, 1926.  
 R325.6 Rice, C. W., and Kuehrogg, E. W. Radio receiving system. United States Patent No. 1602065, issued October 5, 1926.  
 R331 Thompson, M. The life testing of small thermionic valves. *Jour. Inst. of Elec. Engrs. (London)*, 64, pp. 927-933, September, 1926.  
 R342.15 Williams, P. W. Low frequency interval transformers. *Jour. Inst. of Elec. Engrs. (London)*, 64, pp. 1025-1033, October, 1926.

[Return to Radio Service Bulletins Index](#)