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:
FX = Point-to-point (fixed service).
PG = General public.
PR = Limited public.
RC = Radio compass.
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. C. = Independent Wireless Telegraph Co.
K. & C. = Kilbourne & Clark Manufacturing Co.
R. C. A. = Radio Corporation of America.
T. R. T. Co. = Tropical Radio Telegraph Co.
U. R. Corp. = Universal Radio Corp.
W. S. A. Co. = Wireless Specialty Apparatus Co.
C. w. = Continuous wave.
I. c. w. = Interrupted continuous wave.
Kc. = Kilocycles.
Fy. = Frequency.
A. c. = Alternating current.
V. t. = Vacuum tube.
U. S. L. = Applies only to the list of Commercial and Government Radio Stations of the United States.

NEW STATIONS

Commercial land stations, alphabetically, by names of stations

[Additions to the List of Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Station	Call signal	Wave lengths	Service	Hours	Station controlled by—
Belfast, Calif.[1]	KLL	21.55	FX	N	R. C. A.
Do[2]	KSS KPSS	14.40, 28.80	FX	N	Do.
California (portable)[3]	KUGQ	109.4	FX	X	Shell Company of California.
Ocean Township, N. J.[4]	WND	13.98, 14.35, 22.13, 32.69, 40.48.	FX	N	American Telephone & Telegraph Co.
Rocky Point, N. Y.[5]	WDS WEDS	15.86, 31.73	FX	N	R. C. A.
Do[5]	WBM WEBM	16.41, 32.84	FX	N	Do.
Do[5]	WFX WEFX	15.79, 31.59	FX	N	Do.
Do[5]	WHR WEHR	15.93, 31.90	FX	N	Do.
Do[5]	WOP WEOP	21.57, 43.14	FX	N	Do.
Do[5]	WPE WEPE	21.63, 43.33	FX	N	Do.
Do[5]	WQA WEQA	14.13, 28.26	FX	N	Do.
Do[5]	WQB WEQB	16.71, 33.42	FX	N	Do.
Do[5]	WQC WEQC	16.78, 33.57	FX	N	Do.
Do[7]	WQX WEQX	14.86, 29.71	FX	N	Do.
Do[7]	WQY WEQY	14.91, 29.81	FX	N	Do.
Wilmington, Calif.[8]	KNI	113.6	P	X	Wilmington Transportation Co.

[1] Range, 4,000; system, R. C. A. v. t. telegraph.
[2] Range, 4,000; system, General Electric v. t. telegraph.
[3] System, composite v. t. telephone and telegraph.
[4] Loc. 74° 01' 31" W., 40° 15' 32" N., range, 4,000; system, Western Electric v. t. telephone.
[5] Loc. (approximately) 72° 56' 30" W., 40° 56' 45" N.; range, 4,000; system, Westinghouse v. t. telegraph.
[6] Loc. (approximately) 72° 56' 30" W., 40° 56' 45" N.; range, 4,000; system, R. C. A. v. t. telegraph.
[7] Loc. (approximately) 72° 56' 30" W., 40° 56' 45" N.; range, 4,000; system, General Electric v. t. telegraph.
[8] Range, 50; 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, 1927, 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—
Aloma	WPRN				Anthony J. Drexel, Jr.	Owner of vessel.
Casco[1]	WPBR		P	X	Richard W. Seabury	I. W. T. Co.
Eastern Temple	KDEZ	8	PG	X	High Seas Transportation Co.	
Lake Allen	KLKI				Ford Motor Co.	
Lake Crystal	KLAO				do	
Lake Hemlock	KLOE				do	
Lake Kyille	WCOU				do	
Lake Louise	KGGK				do	
Muriska	WPBX				Maj. F. D. Ownby	Do.
Marsodak	WPBP	8	PG	X	Charles Nelson Co.	Owner of vessel.
Mimi[2]	WOBZ		P	X	Bernard S. Shields	I. W. T. Co.
Osprey[3]	KUJN	8	PG	X	Charles Schmidt	Owner of vessel.
Osprey III[4]	WPBV		P	X	Carmen R. Runyon, Jr.	I. T. Co.
Pat Doheny (RC)	WPBQ	8	PG	X	Petroleum Securities Corporation.	Owner of vessel.
Stella (RC)[5]	WFY		PG	X	A. M. Andrews	Do.
West Texas[6]	KUMX	8	PG	X	Southern S. S. Co.	R. C. A.
Willburo	KURM	8	PG	X	American Merchant Marine S. S. Corporation.	

[1] Range, 50; system, composite v. t. telegraph; w. l., 109.
[2] System, composite v. t. telephone and telegraph; w. l., 111.
[3] Range, 300; system, I. W. T. Co., 1000; w. l., 600, 700, 800.
[4] Range, 50; system, composite v. t. telegraph; w. l., 109.
[5] Range, 300; system, composite v. t. telegraph; w. l., 600, 700, 800, 2100.
[6] Range, 300; system, Navy-Marconi, 1000; 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	
KDEZ	Eastern Temple	b	WEQB	Rocky Point, N. Y.	c
KGGK	Lake Louise	b	WEQC	do	c
KGGQ	California (portable)	c	WEQX	do	c
KLAC	Lake Crystal	b	WEQY	do	c
KLEI	Lake Allen	b	WFX	do	c
KLOE	Lake Hemlock	b	WFY	Stella	b
KNI	Wilmington, Calif.	c	WHR	Rocky Point, N. Y.	c
KUJN	Osprey	b	WND	Ocean Township, N. J.	c
KUMX	West Texas	b	WOBZ	Mimi	b
WCOU	Lake Kyttle	b	WOP	Rocky Point, N. Y.	c
KLL	Bolinas, Calif.	c	WPBN	Aloma	b
KES8	do	c	WPBP	Marsedak	b
KS8	do	c	WPBQ	Pat Doheny	b
KURM	Willhero	b	WPBR	Casco	b
WDS	Rocky Point, N. Y.	c	WPBX	Mariska	b
WEDS	do	c	WPE	Rocky Point, N. Y.	c
WEEM	do	c	WPBV	Osprey III	b
WEFX	do	c	WQA	Rocky Point, N. Y.	c
WEHR	do	c	WQB	do	c
WEM	do	c	WQC	do	c
WEOP	do	c	WQX	do	c
WEPE	do	c	WQY	do	c
WEQA	do	c			

Broadcasting stations, alphabetically, by names of States and cities

[Additions to the List of Radio Stations of the United States, edition of June 30, 1927]

State and city	Call signal	Wave length	Frequency (kilocycles)	Power (watts)
Hawaii: Honolulu	KQHB	227	1,320	250
New York: Saranac Lake	WNBZ	348.6	860	10

Broadcasting stations, alphabetically, by call signals

Call signal	Location of station (address)	Owner of station	Power (watts)	Wave length	Frequency (kilocycles)
KQHB	Honolulu, Hawaii, 1227 South Beretania St.	Radio Sales Co.	250	227	1,320
WNBZ	Saranac Lake, N. Y.	Smith and Mace	10	348.6	860

Special land stations, alphabetically, by names of stations

[Additions to the List of Radio Stations of the United States, edition of June 30, 1927]

Station	Call signal	Wave length (meters)	Frequency (kilocycles)	Power (watts)	Station controlled by—
California:					
Bolinas	6XI	5-100	59,964-2,998	50,000	R. C. A.
Los Angeles	6XF	37.01	8,100	250	Calvin J. Smith, 334 North Serrano Ave.
Oakland	6XG	Variable	Variable	12,500	General Electric Co.
Florida: Hialeah	4XG	do	do	Variable.	T. R. T. Co.
Hawaii: Kahuku	6XO	5-100	59,964-2,998	50,000	R. C. A.
Louisiana:					
Burrwood	5XE	Variable	Variable	Variable.	T. R. T. Co.
New Orleans	5XH	do	do	do	Do.
Massachusetts: Medford	1XAW	Variable to 600.	Variable to 499.7.	500	Tufts College Radio Society.
Michigan: Detroit	8XAO	32	9,370	75	WJR (Inc.), 2914 Book Cadillac Hotel.

Special land stations, alphabetically, by names of stations—Continued

Station	Call signal	Wave length (meters	Frequency (kilocycles)	Power (watts)	Station controlled by—
New Jersey: Mountain Lakes.	3XQ	37.95, 75.9, 151.8	7,900, 3,950, 1,975.	250.....	Stuart Ballantine, 267 Boulevard West.
New York:					
New York.....	2XBB	1-5.....	299,820-59,964	1,000.....	R. C. A.
Do.....	2XN	5-80.....	59,964-3,748..	150.....	Do.
Rocky Point.....	2XBC	5.35-18.74....	56,000-16,000	50,000....	Do.
Do.....	2XBI	1-15.....	299,820-19,985.	10,000....	Do.
Do.....	2XS	10-15,000....	29,982-1,999..	50,000....	Do.
Ohio: Dayton.....	8XAG	31.01.....	9,660.....	50-75.....	E. T. Flewelling, Springboro Road.
Texas: Port Arthur.....	5XK	15-80.....	19,988-3,748..	150.....	Gulf Refining Co.
Portable:					
California.....	6XAS	37.45.....	8,000.....	15.....	Culver City Radio Electric Co., 9715 Washington Boulevard, Culver City, Calif.
Trifford (airplane).....	8XAB	73.13.....	4,100.....	65.....	Ford Motor Co.

[1] Relay broadcast station.

Special land stations, grouped by districts

Call signal	District and station	Call signal	District and station
1XAW	First district: Medford, Mass.		Sixth district:
	Second district:	6XAS	California (portable).
2XBB	New York, N. Y.	6XF	Los Angeles, Calif.
2XBC	Rocky Point, N. Y.	6XO	Oakland, Calif.
2XBI	Do.	6XI	Bolinas, Calif.
2XN	New York, N. Y.	6XO	Kakuku, Hawaii.
2XS	Rocky Point, N. Y.		Eighth district:
3XQ	Third district: Mountain Lakes, N. J.	8XAB	Trifford (airplane).
4XG	Fourth district: Hialeah, Fla.	8XAG	Dayton, Ohio.
	Fifth district:	8XAO	Detroit, Mich.
5XE	Burrwood, La.		
5XH	New Orleans, La.		
5XK	Port Arthur, Tex.		

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, 1927, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

BOLINAS, CALIF. (KUN–KWE).—Call signals changed to KWE and KEWE; w. l., 14.08, 28.15.

CLEARWATER, CALIF. (Los Angeles–KOK).—Station controlled by Mackay Radio & Telegraph Co.

CLEARWATER, CALIF. (Los Angeles–KNR).—Loc. 118° 09′ 40″ W., 33° 53′ 43″ N.; system, add F. T. Co. v. t. telegraph; w. l., add 29.5, 49.15; station controlled by Mackay Radio Telegraph Co.

HILLSBORO, ORE. (Portland–KEK).—Station controlled by Mackay Radio & Telegraph Co.

HILLSBORO, OREG. (Portland–KGH).—System, add F. T. Co. v. t. telegraph; w. l., add 36.52, 46.99; hours, 7 a. m.–11 p. m.; station controlled by Mackay Radio & Telegraph Co.

PALO ALTO, CALIF., near (KFS).—Loc. 122° 09′ 49″ W., 37° 26′ 23″; station controlled by Mackay Radio & Telegraph Co.

PALO ALTO, CALIF. (KWT).—Loc. 122° 09′ 49″ W., 37° 26′ 23″ N.; system, add F. T. Co. v. t. telegraph; w. l., 34.86, 48.05, 49.97, 58.10, 3075, 3575, 4350, 4745, 5805, 7811; hours, 7 a. m.–11 p. m.; station controlled by Mackay Radio & Telegraph Co.

SAN JUAN, P. R. (WGT).—Call signal WEGT assigned in addition to WGT; w. l., add 65.3.

ROCKY POINT, N. Y. (WAJ).—Call signal WEAJ assigned in addition to WAJ; w. l., 22.24, 44.48.

ROCKY POINT, N. Y. (WLL).—Call signal WELL assigned in addition to WLL; w. l., 16.49, 32.98.

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, 1927, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

A. C. BEDFORD.—Owner of vessel, Standard Shipping Co.
ALBERT JEFFRESS.—Name changed to Calmar; owner of vessel, Calmar S. S. Corporation.
ALTAIR.—Station controlled by I. W. T. Co. (U. S. L.)
AMERICAN BANKER.—Station controlled by R. C. A.
AMERICAN TRADER.—Station controlled by I. W. T. Co. (U. S. L.).
ARCADIA.—Station controlled by R. C. A. (U. S. L.).
ASHBEE.—Owner of vessel, Ashbee Motor Ship Corporation.
AXTEL J. BYLES (WPBJ).—Station controlled by R. C. A.
AXTELL J. BYLES (KDSR).—Name changed to William F. Humphrey.
BANNACK.—Station controlled by R. C. A.
BARRYTOWN.—Station controlled by R. C. A. (U. S. L.).
BENJAMIN BREWSTER.—Owner of vessel, Standard Shipping Co.
CADDO.—Owner of vessel, Standard Shipping Co.
CAPE HENLOPEN.—Name changed to Winifred O'Donnell; owner of vessel, California Petroleum S. S. Corporation.
CARACAS.—Station controlled by R. C. A.
CHARLES G. BLACK.—Owner of vessel, Standard Shipping Co.
CHARLES PRATT.—Owner of vessel, Standard Shipping Co.
CITY OF FREEPORT.—Name changed to Pueblo; owner of vessel, Petroleum Navigation Co.
COLLIER COUNTY.—Station controlled by owner of vessel.
COMMODORE.—Station controlled by I. W. T. Co.
DODECA.—Station controlled by owner of vessel.
EASTERLING.—Station controlled by R. C. A. (U. S. L.).
EASTERN VICTOR.—Owner of vessel, Dimon S. S. Corporation.
E. J. SADLER.—Owner of vessel, Standard Shipping Co.
E. M. CLARK.—Owner of vessel, Standard Shipping Co.
E. T. BEDFORD.—Owner of vessel, Standard Shipping Co.
ETHEL M. STERLING.—Owner of vessel, Fairbanks, Morse & Co.
FISHER.—Station controlled by I. W. T. Co.
F. Q. BARSTOW.—Owner of vessel, Standard Shipping Co.
FRED W. WELLER.—Owner of vessel, Standard Shipping Co.
GLENPOOL.—Owner of vessel, Standard Shipping Co.
GEO. H. JONES.—Owner of vessel, Standard Shipping Co.
GEORGE ALLEN.—Name changed to Penmar; owner of vessel, Calmar S. S. Corporation.
HELEN VINMONT.—Owner of vessel, California Petroleum S. S. Corporation.
H. H. ROGERS.—Owner of vessel, Standard Shipping Co.
INSPECTOR.—Name changed to Dora; owner of vessel, Kobul S. S. Corporation.
IPSWICH.—Owner of vessel, Lancaster S. S. Corporation.
IROQUOIS.—Station controlled by I. W. T. Co.
J. A. BOSTWICK.—Owner of vessel, Standard Shipping Co.; station controlled by R. C. A.
JAMES MCGEE.—Owner of vessel, Standard Shipping Co.
J. A. MOFFETT, jr.—Owner of vessel, Standard Shipping Co.
JOHN D. ARCHBOLD.—Owner of vessel, Standard Shipping Co.
JOHN M. CONNELLY.—Name changed to Point Breeze; owner of vessel, Atlantic Refining Co.
JOHN WORTHINGTON.—Owner of vessel, Standard Shipping Co.
LAKE FARBER.—Station controlled by I. W. T. Co.
LIVINGSTONE ROE.—Owner of vessel, Standard Shipping Co.
L. J. DRAKE.—Owner of vessel, Standard Shipping Co.
MAHOE.—Station controlled by owner of vessel.
MARGARET F. STERLING.—Owner of vessel, Arcade Shipping Co.
MYSTIC.—Station controlled by I. W. T. Co.
NEBRASKAN (KXT).—Name changed to Black Point; owner of vessel, Black Point S. S. Co.
N. & K. No. 2.—Station controlled by R. C. A.
OAKRIDGE.—Station controlled by I. W. T. Co. (U. S. L.).
ONEIDA (KYP).—Station controlled by I. W. T. Co.
OREGON (WLJ).—Name changed to Willbabco; station controlled by R. C. A.
ORMIDALE.—Station controlled by owner of vessel.
O. T. WARING.—Owner of vessel, Standard Shipping Co.

PANAMAN.—Station controlled by owner of vessel (U. S. L.).
PIONEER (KIG).—Owner of vessel, Standard Shipping Co.
POLARINE.—Owner of vessel, Standard Shipping Co.
PRINCETON.—Owner of vessel, Standard Shipping Co.
RELAY.—Station controlled by owner of vessel.
REPUBLIC (WSU).—Station controlled by owner of vessel.
RUSHVILLE.—Name changed to Commercial Mariner.
S. B. HUNT.—Owner of vessel, Standard Shipping Co.
SCHOHARIE.—Station controlled by I. W. T. Co. (U. S. L.).
SEINER.—Station controlled by I. W. T. Co.
SHAWNEE.—Station controlled by I. W. T. Co.
SOUTH SEAS.—Owner of vessel, Lykes Bros. S. S. Co.
SPRAY.—(KDWJ).—Station controlled by owner of vessel.
STANDARD.—Owner of vessel, Standard Shipping Co.
STANLEY.—Station controlled by I. W. T. Co.
SUTHERLANDS.—Owner of vessel, Charles Nelson Co.
SUDBURY.—Name changed to Munbeaver.
TAMPA (KVK).—Station controlled by owner of vessel.
TECOMATE.—Station controlled by owner of vessel.
THOMAS H. WHEELER.—Owner of vessel, Standard Shipping Co.
T. J. WILLIAMS.—Owner of vessel, Standard Shipping Co.
TUXPANOIL.—Name changed to Herman Falk.
VEGA.—Station controlled by owner of vessel.
WALLINGFORD.—Station controlled by owner of vessel.
WALTER JENNINGS.—Owner of vessel, Standard Shipping Co.
WALTER D. MUNSON.—Station controlled by owner of vessel.
W. C. TEAGLE.—Owner of vessel, Standard Shipping Co.
WEST CAPE.—Station controlled by I. W. T. Co.
WESTERN GLEN.—Owner of vessel, American Intercoastal S. S. Corporation.
WEST ERRAL.—Owner of vessel, Pillsbury Curtis (Inc.).
WESTMEAD.—Owner of vessel, Babcock S. S. Corporation.
WESTMOUNT.—Owner of vessel, Dimon S. S. Corporation.
W. H. TILFORD.—Owner of vessel, Standard Shipping Co.
WILLIAM A. LYDON.—Station controlled by R. C. A.
W. J. HANNA.—Owner of vessel, Standard Shipping Co.
WM. G. WARDEN.—Owner of vessel, Standard Shipping Co.
WILLIAM PERKINS.—Owner of vessel, Calmar S. S. Corporation.
WM. ROCKEFELLER.—Owner of vessel, Standard Shipping Co.

Strike out all particulars of the following-named vessels: Arcturus (KFXV), Challamba, Coslinga, David C. Meyer, Freeport Sulphur No. 1, Homestead, Muroma, Northland (WGJ), Palatka, Persian, Sagami, Surge.

The vessels named hereunder, formerly controlled by the Federal Telegraph Co., are now controlled by The Mackay Radio & Telegraph Co., Claus Spreckels Building, San Francisco, Calif.: Admiral Dewey, Admiral Evans, Admiral Farragut, Admiral Fiske, Admiral Peary, Admiral Rodman, Admiral Rogers, Admiral Schley, Admiral Sebree, Admiral Watson, Astoria, Barbara C., Boobyalla, Calawaii, Cathwood, C. D. Johnson III, Charles Christenson, Colombia, Corinto, Culburra, Chracao, District of Columbia, Dorothy Alexander, Ecuador, Edwin Christenson, El Abeto, El Cedro, El Cieuta, Eldorado, Emma Alexander, E. R. Sterling, Frank H. Buck, Hannawa, Harvard, H. F. Alexander, Jane Nettleton, J. C. Fitzsimmons, La Brea, Lansing, La Purisima, Laurel, Lio, Los Angeles, Lubrico, Mala, Malama, Maliko, Mana, Maunalei, Maunawili, Newport, Oleum, Phyllis, Point Bonita Point Fermin, Point Judith, Point Lobos, Point Montara, Point Reyes, Point Sur, Queen, Radiant, Robert Johnson, Ruth Alexander, Samoa, Santa Inez, Santa Maria, Sierra, Solana, Sonoma, Stanwood, Tillamook, Tulsagas, Utacarbon, Venezuela, Ventura, Warwick, Washtenaw, West Katan, West Keats, West Mingo, West Montop, Wm. F. Herrin, W. R. Chamberlin, jr., Yale, Yorba Linda.

COMMERCIAL LAND AND SHIP STATIONS, ALPHABETICALLY, BY CALL SIGNALS

KDBY, *read* Calmar; KDPQ, *read* Herman Falk; KDSR, *read* William F. Humphrey; KESV, *read* Pueblo; KEWE, *read* Bolinas, Calif.; KJEI, *read* Point Breeze; KRZ, *read* Munbeaver; KUDS, *read* Commercial Mariner; KUNF, *read* Penmar; KXT, *read* Black Point; WEAJ, *read* Rocky Point, N. Y.; WEGT, *read* San Juan, P. R.; WELL, *read* Rocky Point, N. Y.; WTUO, *read* Winifred O'Donnell; strike out all particulars following the call signals, KEKR, KFNK, KFUF, KFXO, KFXV, KORJ, KQX, KRA, WFN, WGJ, WNBB, WOT.

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, 1927]

KDKA (EAST PITTSBURGH, PA.).—Power, 50,000.
KELW (BURBANK, CALIF.).—Power, 1,000 day, 500 night.
KFDM (BEAUMONT, TEX.).—W. l., 483.6, fy. kc., 620.
KFKX (HASTINGS, NEBR.).—Changed to Chicago, Ill.
KFQB (FORT WORTH, TEX.).—W. l., 325.9, fy. kc., 920.
KGGH (CEDAR GROVE, LA.).—Owner of station, Bates Radio & Electric Co.; w. l., 212.6, fy. kc., 1410.
KICK (ANITA, IOWA).—Changed to Atlantic, Iowa; w. l., 475.9, fy. kc., 630.
KLDS (INDEPENDENCE, MO.).—Call signal KMBC assigned in addition to KLDS, which is to be used when programs are broadcast by the Midland Broadcasting Co.
KOB (STATE COLLEGE, N. MEX.).—Power, 7,500 day, 5,000 night.
KSCJ (SIOUX CITY, IOWA).—Power, 1,000 day, 500 night.
KWCH (CEDAR RAPIDS, IOWA).—W. l., 352.7, fy. kc., 850.
KYW (CHICAGO, ILL.).—Power, 2,500 from 6 a. m. to 10 p. m., 5,000 after 10 p. m.
WABO (ROCHESTER, N. Y.).—This station consolidated with station WHEC; both call signals to be used; owner Hickson Electric Co.; power, 500 day, 250 night.
WAFD (DETROIT, MICH.).—W. l., 243.8, fy. kc., 1,230.
WAGS (SPRINGFIELD, MASS.).—Changed to Lexington, Mass., call signal changed to WLEX.
WAPI (AUBURN, ALA.).—W. l., 319, fy. kc., 940.
WARS (BROOKLYN, N. Y.—BRIGHTON BEACH).—This station consolidated with station WSDA; both call signals to be used; owner, Amateur Specialty Co.; power, 500.
WBBM (CHICAGO, ILL.).—Changed to Glenview, Ill., R. F. D. 1; power, 5,000.
WBRL (TILTON, N. H.).—W. l., 461.3, fy. kc., 650.
WCRW (CHICAGO, ILL.).—Address, 2756 Pine Grove Ave.
WCSH (PORTLAND, ME.).—W. l., 428.3, fy. kc., 700.
WOWK (FORT WAYNE, IND.).—W. l., 214.2, fy. kc., 1,400; power, 250.
WFBM (INDIANAPOLIS, IND.).—W. l., 275.1, fy. kc., 1,090.
WFBR (BALTIMORE, MD.).—W. l., 243.8, fy. kc., 1,230.
WFDF (FLINT, MICH.).—W. l., 374.8, fy. kc., 800.
WGY (SOUTH SCHENECTADY, N. Y.).—Power, 50,000.
WHAD (MILWAUKEE, WIS.).—W. l., 270.1, fy. kc., 1,110.
WHEC (ROCHESTER, N. Y.).—This station consolidated with station WABO; both call signals to be used; power, 500 day, 250 night.
WHPP (NEW YORK, N. Y.).—Address, 150 Delancey Street.
WJAM (CEDAR RAPIDS, IOWA).—W. l., 352.7, fy. kc., 850; power, 250.
WJBR (OMRO, WIS.).—Changed to Appleton, Wis.; owner, Irving Zuelke Music Studio.
WKBF (INDIANAPOLIS, IND.).—W. l., 275.1; fy. kc., 1,090.
WKBJ (TOCCOA FALLS, GA.).—Call signal changed to WTFI; w. l., 209.7, fy. kc., 1,430.
WKEN (BUFFALO, N. Y.—KENMORE).—Address, Delaware Avenue and Sheridan Drive; w. l., 204, fy. kc., 1,470; power, 250.
WMAL (WASHINGTON, D. C.).—Power, 250.
WMBB (CHICAGO, ILL.).—Power, 5,000.
WNAX (YANKTON, S. DAK.).—Power, 500 day, 250 night.
WOC (DAVENPORT, IOWA).—W. l., 374.8, fy. kc., 800.
WOR (NEWARK, N. J.).—Changed to Kearny, N. J., Lincoln Highway.
WORD (BATAVIA, ILL.).—W. l., 389.4, fy. kc., 770.
WOWO (FORT WAYNE, IND.).—Power, 5,000 day, 2,500 night.
WPCH (BROOKLYN, N. Y.).—Changed to Hoboken, N. J., Delaware, Lackawanna & Western R. R. Terminal.
WRHF (WASHINGTON, D. C.).—Address, Annapolis Hotel.
WRSC (CHELSEA, MASS.).—W. l., 211.1, fy. kc., 1,420; power, 100.
WSDA (NEW YORK, N. Y.).—Changed to Brooklyn, N. Y. (Brighton Beach); this station consolidated with station WARS; both call signals to be used; owner of station, Amateur Radio Specialty Co.; power, 500.
WSKC (BAY CITY, MICH.).—W. l., 374.8, fy. kc., 800.
WTAS (ELGIN, ILL., near).—Changed to Hanover Township, Ill., Villa Olivia; w. l., 288.3, fy. kc., 1,040; power, 1,500.
WWJ (DETROIT, MICH.).—W. l., 352.7, fy. kc., 850.

Strike out all particulars of the following-named stations: WCBH (Oxford, Miss., near); WMBU (Pittsburgh, Pa.); WMBY (Bloomington, Ill.); WREO (Lansing, Mich.).

COMMERCIAL AIRPLANE 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, 1927, and to the International List of Radiotelegraph Stations, published by the Berne Bureau]

OLD GLORY (WRHP).—Strike out all particulars.

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, 1927, and to the International List of Radiotelegraph Stations, published by the Berne Bureau]

Page 93, Cape Elizabeth, fourth column, "RB1" should read "RC1." (U. S. L.).
Page 97, Port Angeles, first column, "Section base 3" should read "Section base 13." (U. S. L.).
Page 97, Poyners Hill, second column, "NSX" should read "NDX." (U. S. L.).
Page 98, State Island, first column, "State" should read "Staten." (U. S. L.).

GOVERNMENT SHIP STATIONS, ALPHABETICALLY, BY NAMES OF STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations, published by the Berne Bureau]

Page 90, Babbitt (RC), third column, should read "U. S. Navy." (U. S. L.).
Page 104, 0-6, second column, "NAMB" should read "NANB." (U. S. L.).

GOVERNMENT LAND AND SHIP STATIONS, ALPHABETICALLY, BY CALL SIGNALS

Page 111, NEV, Savannah, last column, "b" should read "c." (U. S. L.).
Page 114, NND, Kanawah, should read "Kanawha." (U. S. L.).
Page 114, ESG, Biloxi, "ESG" should read "NSG." (U. S. L.).

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, 1927]

Strike out all particulars of the following-named stations: San Diego, Calif. (6XBE); Savannah, Ga. (4XX); Seattle, Wash. (7XK); White Haven, Pa. (8XAX).

MISCELLANEOUS

Vessels equipped with a radio compass

Name	Call signal	Owner
Aladdin	KDQM	Standard Transportation Co.
Astral	KIQ	Do.
Berkshire	KFIR	Merchants & Miners Transportation Co.
B. F. Affleck		Pittsburgh S. S. Co.
Bylayl	KEOU	Pocahontas S. S. Co.
Cerro-Azul	KDQY	Pan-American Petroleum & Transport Co.
Cerro-Ebano	KDQS	Do.
Chatham	KGAN	Merchants & Miners Transportation Co.
Crampton Andersen	KDOH	Pan-American Petroleum & Transport Co.
Eagle	KIR	Standard Transportation Co.
Edward N. Saunders, jr		Calumet Transportation Co.
Elisha Walker	KDQQ	Pan-American Petroleum & Transport Co.
Empire Arrow	KDUG	Standard Transportation Co.
Frederic R. Kellogg	WIQ	Pan-American Petroleum & Transport Co.
Freeman	WMM	Pocahontas S. S. Co.
Harold Walker	WIX	Pan-American Petroleum & Transport Co.
Herbert F. Black		Donner S. S. Co.
India Arrow	KDHP	Standard Transportation Co.
J. J. Turner		Calumet Transportation Co.
Leonard C. Hanna		Mahoning S. S. Co.
Levant Arrow	KDVD	Standard Transportation Co.
Norman Bridge	WIG	Pan-American Petroleum & Transport Co.
Oscar D. Bennett	WIV	Do.
Pat Doheny	WPBQ	Petroleum Securities Corp.
Pelagine	KOI	Standard Oil Co. of New Jersey.
Powell Stackhouse		Mahoning S. S. Co.
R. L. Agnew		Calumet Transportation Co.
William H. Donner		Mahoning S. S. Co.

CHANGE IN UMATILLA REEF LIGHTSHIP RADIOBEACON

This beacon now transmits every 180 seconds, groups of 1 dot and 1 dash for 60 seconds, silent 120 seconds, thus:

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

Radio operator will stand watch on 600 meters (500 kilocycles) during the first 15 minutes of each hour from 8 a. m. to 8.15 p. m., one hundred and twentieth meridian time.

RADIOBEACON ESTABLISHED AT RACE ROCK LIGHT STATION, CANADA

This beacon, located at Race Rock Light Station, San Juan Strait, British Columbia, in latitude 48° 17′ 54″ N., longitude 123° 31′ 50″ W., transmits during thick and foggy weather on 1,000 meters every 150 seconds, groups of 1 dot and 3 dashes for 60 seconds, silent 90 seconds, thus:

—··· —··· etc.	Silent
60 seconds	90 seconds

Call signal, VCY.

RADIOBEACON ESTABLISHED AT SOUTHEAST SHOAL LIGHTHOUSE, LAKE ERIE, CANADA

This beacon, located in latitude 41° 49′ 40″ N., longitude 82° 27′ 40″ W., transmits during thick and foggy weather on 1,000 meters every 150 seconds, groups of 1 dot and 3 dashes for 60 seconds, silent 90 seconds, thus:

·——— ·——— etc.	Silent
60 seconds	90 seconds

RADIOBEACON ESTABLISHED AT LUNDY ISLAND, NORTH LIGHTHOUSE, ENGLAND

This beacon, located in latitude 51° 12′ 03″, N., longitude 4° 40′ 34″ W., has been established temporarily for experimental purposes to test the suitability of the station. Normally the signal will operate continuously, but during the course of the experiments it may at times be intermittent. The wave length is 1,000 meters. The signal will be transmitted for a period of 1 minute, every 5 minutes; each transmission will comprise two consecutive series, each occupying 30 seconds, consisting of groups of the Morse letters GGJ transmitted at the rate of approximately 15 words per minute for a period of 20 seconds, followed by a continuous dash of 10 seconds, thus:

—·— —·— ·——— —·— —·— ·——— etc.	
20 seconds	
10 seconds	
—·— —·— ·——— —·— —·— ·——— etc.	
20 seconds	
10 seconds	Silent
	4 minutes

Masters of vessels equipped with a radiocompass intercepting this signal are particularly requested to forward reports as to its general effectiveness and the correctness of its character and radio bearing to the Secretary, Trinity House, London, England, E. C. 3. Reports should give the date, time, geographical bearing of, and distance from the beacon at which each observation was made.—*Admiralty Notice to Mariners, London.*

LOCATION OF BAR LIGHT VESSEL, LIVERPOOL BAY, ENGLAND, CHANGED AND RADIOBEACON ESTABLISHED

This light vessel is now located in latitude 53° 32′ N., longitude 3° 20′ W. (approximately). The radiobeacon which has been established on the vessel transmits on 1,000 meters, i. c. w., and has a range of 50 miles. The signal will be transmitted during thick and foggy weather for 1 minute every 4 minutes continuously, and will consist of the call signal GGM (—. —. —.) at the rate of 15 words per minute, repeated for approximately 50 seconds, a long dash (——————) of approximately 10 seconds duration, and the Morse letters GGM made once (the whole transmission to take exactly 60 seconds); then follows a silent interval of 3 minutes. During clear weather the Morse letters GGM will be transmitted for 1 minute at 0, 4, 8, 28, 32, and 36 minutes past each clock hour. Although the beacon is to be permanent, it should be considered as being experimental during October and November, during which time the signals may be subject to temporary interruption.

BUTCHER ISLAND (BOMBAY), INDIA, WAVE LENGTHS CHANGED FOR TRANSMISSION OF WEATHER REPORTS

The radio station on this island has ceased transmitting on 600 meters. Ordinary communication with ships on 600 meters is being carried out on a small temporary installation near Santa Cruz (about 10 miles northwestward of Butcher Island) pending completion of a permanent installation at that station. In the near future the wave length used for broadcasting weather bulletins, storm signals, and navigational warnings at 0900 and 1700 G. M. T. will be changed to 1,000 meters (spark). These transmissions will be made from the new station near Santa Cruz. Vessels are warned not to take bearings by radio from the Bombay station until the exact position has been ascertained.

TIME SIGNALS FROM STONECUTTERS ISLAND, CHINA, DISCONTINUED

Time signals formerly transmitted from this station located in the harbor of Hong Kong have been discontinued.

SYLT ISLAND, GERMANY, COMPASS STATION MOVED

The compass station on this island has been moved to latitude 55° 01′ 25″ N., 8° 26′ 28″ E.

NEW PROCEDURE OF TRANSMITTING DISTRESS SIGNALS BY BRITISH VESSELS

The attention of operators is drawn to the merchant shipping (wireless telegraphy) rules, 1927, British, which will come into force on October 1, 1927. It should be observed, however, that as these rules may be adopted in advance by a number of ships, the new distress procedure contained in this notice is to be adopted forthwith.

The main provisions in the rules which require special attention are those relating to the "alarm signal" and the used of approved automatic apparatus for registering the "alarm signal," described in the rules as "autoalarms." Two types of autoalarm have been approved and will probably be fitted very shortly in a number of ships.

The attention of operators is specially drawn to the undermentioned new procedure, to be followed when an operator is instructed by the master to send out a distress call.

The "alarm signal" consists of a series of 12 dashes sent in 1 minute. The duration of each dash is 4 seconds and the duration of the space separating each dash from the following dash is 1 second.

The "alarm signal" is for the purpose of attracting the attention of ships equipped with the autoalarm, and is to be used only in conjunction with the distress signal.

The "distress signal" consists of S O S made as one sign and repeated for half a minute.

The "distress call" consists of the alarm signal followed by the distress signal, followed by the word "de" and the call signal of the ship in distress sent twice. The distress call indicates that a ship is in imminent danger; that it requires immediate assistance and demands complete silence for the distress message.

The "distress message" consists of S O S made as one sign sent twice, the word de, the call signal of the ship in distress sent twice, its name, its position, the nature of its distress, and the kind of assistance required.

The attention of all operators is called to the great importance of obtaining absolute cessation of all other signalling in the region of the distress signal at the earliest possible moment. The greatest discretion and brevity should be used by all concerned when repeating a distress call or in asking or giving information regarding it.

It is particularly important that the alarm signal should be used only in a distress call, and that at all other times any transmission likely to approximate to the dashes and spaces of the alarm signal should be carefully avoided. Attention is called to Schedule II, paragraph 3 (b) (ii) of the rules in which it is stated that any three consecutive dashes of the alarm signal are capable of actuating the autoalarm device. In this connection there is no possibility of a TTT signal actuating the device unless intentionally and incorrectly made at the abnormally slow rate of about three words per minute. It is also important that the alarm signal should be sent as accurately as possible, and opeerators should practice the sending of the signal by means of the buzzer. The following procedure is recommended for use when sending the alarm signal:

As the markings on the seconds dial of a watch or clock give a definite mark at every fifth second (0″, 5″, 10″, . . . 50″, 55″) the singaling of dashes of 4 seconds' duration is most easily assured if one of these marks is taken as the commencing period of the dash. When the seconds hand coincides with a long mark ot a figure on the dial, depress the signaling key until the seconds hand is just approaching the next figure or long mark, then raise the key and depress it again when the hand and long mark or figure coincide. Doing this 12 times in succession will result in a series of 12 dashes being made, each dash of approximately 4 seconds' duration and each space between dashes of approximately 1 second's duration.

In ships fitted with an autoalarm there will be three bells, or other means of audible warning; namely, in the wireless room, in the wireless operator's cabin, and on the bridge. Only one switch for stopping the warning will be provided, and this will be in the wireless room. The autoalarm will also be capable of being tested by a buzzer.

The wireless operator is required to test the autoalarm when going off watch and report to the master or officer on watch whether it is in working order. A record of these tests must be kept. Where a key for disconnecting the bridge bell during testing is fitted, this circuit must be tested at least once in every 24 hours and a record made of the test. Attention is also called to the record of the batteries which is required to be kept.—*Admiralty List of Wireless Signals, 1927, London* (as amended).

Relay broadcast stations by wave lengths

Station	Call signal	Wave length (meters)	Frequency (kilocycles)	Power (watts)	Station controlled by—
East Pittsburgh, Pa	8XK	Variable	Variable	40,000	Westinghouse Electric & Manufacturing Co.
Winter Park, Fla	4XE	Variable to 200.	Variable to 1,499.	250	Wm. Justice Lee, USNR.
East Pittsburgh, Pa	8XP	10-150	29,982 to 1,999.	500	Westinghouse Electric & Manufacturing Co.
Cotaysville, N. J	2XAL	30.91	9,700	500	Experimenters Publishing Co.
Alma (Holy City), Calif. (portable).	6XBil	31, 53, 63, 105.6.	9,672, 5,657, 4,759, 2,810.	50	W. E. Riker.
San Francisco, Calif. (portable).	6XAR	32	9,369	50	Julius Brunton & Sons Co.
Detroit, Mich	8XAO	32	9,370	75	WJR (Inc.).
Los Angeles, Calif	6XBR	40 and 106	7,496 and 2,855.	50	Warner Bros. Motion Picture Studios.
Harrison, Ohio	8XAL	52.05	5,760	300	Crosley Radio Corporation.
Portland, Oreg	7XAO	53.54	5,600	100	Wilbur Jerman (Inc.).
Coney Island, N. Y. (Brooklyn).	2XBH	54.02	5,550	150	Charles G. Unger.
Columbus, Ohio	8XJ	54.02	5,550	50-250	Ohio State University.
Bound Brook, N. J	3XL	59.56	5,000	30,000	R. C. A.
Council Bluffs, Iowa	9XU	61.35	4,910	500	Mona Motor Oil Co.
Newark, N. J	2XBA	65.18	4,600	50	WAAM (Inc.).
Do	2XAQ	65.4	4,610	50	L. Bamberger & Co.
Los Angeles, Calif	6XAI	66.04	4,540	50	Los Angeles Radio Club.
Cleveland, Ohio	8XF	66.04	4,540	500	Radio Air Service Corporation.
Los Angeles, Calif	6XAU	104.1	2,880	50	Times Mirror Co.
Venice, Calif	6XBX	105	2,855	50	McWhinnie Electric Co.
Omaha, Nebr	9XAB	105	2,855	50	R. J. Rockwell.

Relay broadcast stations by wave lengths—Continued

Station	Call signal	Wave length (meters)	Frequency (kilocycles)	Power (watts)	Station controlled by—
Tilton, N. H.	1XY	105, 109	2,855, 2,751	50-250	Booth Radio Laboratories.
Seattle, Wash.	7XC	105.2	2,850	5-250	Northwest Radio Service Co.
MU-1 (yacht portable)	2XAO	105.9	2,830	100	Atlantic Broadcasting Co.
Los Angeles, Calif.	6XAN	105.9	2,830	250	Freeman Lang.
Spokane, Wash. (portable)	7XAB	105.9	2,830	50	Symons Investment Co.
San Diego, Calif. (portable).	6XAZ	106	2,828	30	Nelson Radio.
Los Angeles, Calif.	6XA	107.1	2,800	100	Los Angeles Evening Express.
Eureka, Calif.	6XAK	108.2	2,770	50	F. Wellington Morse.
Los Angeles, Calif.	6XBA	108.2	2,770	250	Echolene Manufacturing Co.
Do	6XAL	108.2	2,770	50	L. E. Taft.
Do	6XAF	108.2	2,770	100	Clarence B. Juneau.
Providence, R. I.	1XAA	200	1,499	7.5	Stanley N. Read.
Richmond Hill, N. Y.	2XE	236.1 and 106.	1,270-2,828	50	Atlantic Broadcasting Co.
Bellmore, N. Y.	2XZ	491.5	610	50,000	National Broadcasting Co.

Relay broadcast stations, by States and cities

State and city	Call signal	Wave length (meters)	Frequency (kilocycles)	Power (watts)	Station controlled by—
California:					
Alma (Holy City) (portable).	6XBH	31, 53, 63, 106.	9,672, 5,657, 4,739 2,810.	50	W. E. Riker.
Eureka	6XAK	108.2	2,770	50	F. Wellington Morse.
Los Angeles	6XA	107.1	2,800	100	Los Angeles Evening Express.
Do	6XAF	108.2	2,770	100	Clarence B. Juneau.
Do	6XAI	60.04	4,540	50	Los Angeles Radio Club.
Do	6AXL	108.2	2,770	50	L. E. Taft.
Do	6AXN	105.9	2,830	250	Freeman Lang.
Do	6XAU	104.1	2,880	50	Times Mirror Co.
Do	6XBA	108.2	2,770	250	Echolene Manufacturing Co.
Do	6XBR	105 and 40	2,855 and 7490.	50	Warner Bros. Motion Picture Studios.
San Diego (portable)	6XAZ	106	2,828	30	Nelson Radio.
San Francisco (portable).	6XAR	32	9,369	50	Julius Brunton & Sons Co.
Venice	6XBX	105	2,855	50	McWhinnie Electric Co.
Florida: Winter Park	4XE	Variable to 200.	Variable to 1,499.	250	Wm. Justice Lee, USNR.
Iowa: Council Bluffs	9XU	61.06	4,910	500	Mona Motor Oil Co.
Michigan: Detroit	8XAO	32	9,370	75	WJR (Inc.).
Nebraska: Omaha	9XAB	105	2,855	50	R. J. Rockwell.
New Hampshire: Tilton	1XY	105, 109	2,855, 2,751	50-250	Booth Radio Laboratories.
New Jersey:					
Bound Brook	2XL	59.96	5,000	30,000	R. C. A.
Coteysville	2XAL	30.91	9,700	500	Experimenters Publishing Co.
Newark	2XAQ	65.4	4,610	50	L. Bamberger & Co.
Do	2XBA	65.18	4,600	50	WAAM (Inc.).
New York:					
Bellmore	2XZ	491.5	610	50,000	National Broadcasting Co.
Coney Island (Brooklyn).	2XBH	54.02	5,550	100	Charles G. Unger.
Richmond Hill	2XE	236.1 and 106.	1,270-2,828	50	Atlantic Broadcasting Co.
Ohio:					
Cleveland	8XF	66.04	4,540	500	Radio Air Service Corporation.
Columbus	8XJ	54.02	5,550	50-250	Ohio State University.
Harrison	8XAL	62.05	5,760	500	Crosley Radio Corporation.
Oregon: Portland	7XAO	53.54	5,600	100	Wilbur Jerman (Inc.).
Pennsylvania:					
East Pittsburgh	8XP	10-150	29,982-1,999	500	Westinghouse Electric & Manufacturing Co.
Do	8XK	Variable	Variable	40,000	Do.
Rhode Island: Providence.	1XAA	200	1,499	7.5	Stanley N. Read.
Washington:					
Seattle	7XC	105.2	2,850	5-250	Northwest Radio Service Co.
Spokane (portable)	7XAB	105.9	2,830	50	Symons Investment Co.
Portable: MU-1 (yacht)	2XAO	105.9	2,830	100	Atlantic Broadcasting Co.

RADIO PUBLICATIONS FOR DISTRIBUTION

The radio publications hereunder described may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the prices mentioned.

Commercial and Government Radio Stations of the United States, 15 cents. Contains lists of all commercial land and ship stations, Government land and ship stations, experimental and technical and training school stations, giving location, call signals, wave lengths, nature of service, hours of operation, and owners. Also contains three lists of the broadcasting stations, one by call signals, one by wave lengths, and the other by States and cities. The broadcasting lists also show the power of the stations. Published annually as of June 30.

Amateur Radio Stations of the United States, 25 cents. Contains lists of all amateur, experimental, and technical and training school stations. Published annually as of June 30.

Radio Service Bulletin, 5 cents per copy; subscription price, 25 cents per year. Monthly supplement to the list of Commercial and Government Radio Stations of the United States. Contains lists of new commercial, Government, broadcasting, experimental, and technical and training school stations, alterations and corrections, regulations governing the operation of stations, and short articles of interest to owners and operators of stations, but does not include lists of new amateur stations. Published on the last day of each month.

Radio Act of 1927, 5 cents.

Air Line Distances in Statute Miles, 5 cents. Contains distances between 50 cities of the United States.

The rules of the Government Printing Office require that remittances, payable to Superintendent of Documents, Government Printing Office, Washington, D. C., must be made in advance of shipment. Remit by coupons, postal-money order, express order, or New York draft. Do not send postage stamps, mutilated coin, or foreign money. Remittance in currency will be at sender's risk. The prices quoted are for delivery within the United States, which includes Alaska, Guam, Hawaii, Philippine Islands, Porto Rico, Samoa, or to Canada, Cuba, or Mexico. For delivery to all foreign countries add postage amounting to one-third of the total cost. Foreign orders should be accompanied by international money order or New York draft. Publications may be sold without limit as to the number of copies to any one applicant who agrees not to resell or distribute them at a profit. (Pub. Res. 57, 67th Cong.)

RADIO SIGNAL TRANSMISSIONS OF STANDARD FREQUENCY, OCTOBER, 1927, TO APRIL, 1928

The Bureau of Standards announces a new schedule of radio signals of standard frequencies for use by the public in standardizing frequency meters (wave meters) and transmitting and receiving apparatus. The signals are transmitted from the bureau's station WWV, Washington, D. C. It is to be noted that a number of the individual frequencies differ somewhat from those used in previous transmissions.

The transmissions are by continuous-wave radio telegraphy. The signals have a slight modulation of high pitch, which aids in their identification. A complete frequency transmission includes a "general call" and "standard frequency signal" and "announcements." The "general call" is given at the beginning of the eight-minute period and continues for about two minutes. This includes a statement of the frequency. The "standard frequency signal" is a series of very long dashes with the call letter (WWV) intervening. This signal continues for about four 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 four-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 up to 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 by applying to the Bureau of Standards, Washington, D. C. Even though only a few frequency 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. The schedule of standard frequency signals is as follows:

Schedule of frequencies, in kilocycles

[Approximate wave length, in meters, in parentheses]

Eastern standard time	Oct. 20	Nov. 21	Dec. 20	Jan. 20	Feb. 20	Mar. 20	Apr. 20
10 to 10.08 p. m.	550 (545)	1,500 (200)	3,000 (100)	550 (545)	125 (2,400)	300 (999)	3,000 (100)
10.12 to 10.20 p. m.	633.3 (473)	1,650 (182)	3,300 (91)	650 (461)	150 (1,999)	325 (923)	3,300 (91)
10.24 to 10.32 p. m.	733.3 (409)	1,800 (167)	3,600 (83)	750 (400)	175 (1,713)	350 (857)	3,600 (83)
10.36 to 10.44 p. m.	850 (353)	2,000 (150)	4,000 (75)	900 (333)	200 (1,499)	375 (799)	4,000 (75)
10.48 to 10.56 p. m.	975 (308)	2,250 (133)	4,500 (66)	1,050 (286)	225 (1,333)	400 (750)	4,500 (66)
11 to 11.08 p. m.	1,125 (266)	2,500 (120)	4,900 (61)	1,200 (250)	250 (1,199)	450 (666)	4,900 (61)
11.12 to 11.20 p. m.	1,300 (231)	2,750 (109)	5,400 (56)	1,350 (222)	275 (1,050)	500 (600)	5,400 (56)
11.24 to 11.32 p. m.	1,500 (200)	3,000 (100)	6,000 (50)	1,500 (200)	300 (999)	550 (545)	6,000 (50)

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 those stations will maintain the constancy shown, but the data indicate the high degree of confidence that can be placed in them. The transmitted frequencies from the standard frequency stations can be utilized for calibrating frequency meters and other apparatus by the procedure given in Bureau of Standards Letter Circular No. 171, which may be obtained by a person having actual use for it upon application to the Bureau of Standards, Department of Commerce, Washington, D. C.

Station	Owner	Location	Assigned frequency	Period covered by measurements	Number of times measured	Deviations from assigned frequencies noted in measurements	
						Average	Greatest since Aug. 25, 1927
			Kilocycles	*Months*		*Per cent*	*Per cent*
NSS	United States Navy	Annapolis, Md.	17.60	16	70	0.1	0.0
WCI	Radio Corporation of America.	Tuckerton, N. J.	17.95	30	121	.1	.1
WSS	do	Rocky Point, N. Y.	19.60	12	42	.1	.1
WII[1]	do	New Brunswick, N. J.	21.80	28	149		
WVA	United States Army	Annapolis, Md.	100.00	29	205	.2	.2
NAA	United States Navy	Arlington, Va.	112.00	23	108	.2	.1
WEAF	National Broadcasting Co.	New York, N. Y.	610.00	33	179	.0	.0
WRC	Radio Corporation of America.	Washington, D. C.	640.00	45	215	.1	.1
WJZ	do	Bound Brook, N. J.	660.00	16	68	.2	.3
WGY	General Electric Co.	Schenectady, N. Y.	790.00	51	230	.1	.1
WBZ	Westinghouse Electric & Manufacturing Co.	Springfield, Mass.	900.00	39	105	.1	0.0
KDKA	do	East Pittsburgh, Pa.	960.00	16	66	.1	.1
WBAL	Consolidated Gas, Electric Light & Power Co.	Glen Morris (Baltimore), Md.	1,050.00	6	14	.0	.0

[1] Not measured since Aug. 25, 1927.

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 but not of the constant frequency stations. Each station included in the following list employs a special device for controlling or checking the frequency, the calibration of the device being in agreement with the bureau's frequency standards. The special device may be automatic piezocontrol, a piezooscillator, piezoresonator, or frequency indicator. Stations not included in this list nor in the list of standard frequency stations, which use one or more of the special devices for frequency regulation, are invited to communicate with the Bureau of Standards requesting a copy of Letter Circular 214, requirements of Constant Frequency Stations.

Station	Owner	Location	Frequency	Wave length	Apparatus for frequency regulation
			Kilocycles	*Meters*	
WMAQ	Chicago Daily News	Chicago, Ill.	670	447.5	Frequency indicator, type B, and piezooscillator.
WJAD	Frank P. Jackson	Waco, Tex.	670	447.5	Frequency indicator, type B.
WCCO	Washburn-Crosby Co.	St. Paul-Minneapolis, Minn.	740	405.3	Piezooscillator.
WTAM WEAR	Willard Storage Battery Co.	Cleveland, Ohio	760	394.8	Do.
WBBM	Atlass Investment Co.	Chicago, Ill.	770	389.4	Do.
KGO	General Electric Co.	Oakland, Calif.	780	384.4	Do.
KTHS	The Arlington Hotel	Hot Springs, Ark.	780	384.4	Do.
WCAD	St. Lawrence University	Canton, N. Y.	830	365.6	Frequency indicator, type B.
WJJD	Loyal Order of Moose	Mooseheart, Ill.	830	365.6	Piezooscillator.
WLS	Sears, Roebuck & Co.	Crete, Ill.	870	344.6	Do.
WSM	National Life & Accident Insurance Co.	Nashville, Tenn.	880	340.7	Do.
WKAQ	Radio Corporation of Porto Rico.	San Juan, Porto Rico	880	340.7	Frequency indicator, type B.
KOA	General Electric Co.	Denver, Colo.	920	325.9	Piezooscillator.
KFAB	Nebraska Buick Auto Co.	Lincoln, Nebr.	970	309.1	Do.
WBAA	Purdue University	West La Fayette, Ind.	1,100	272.6	Do.
WHK	The Radio Air Service Corporation.	Cleveland, Ohio	1,130	265.3	Do.
WMBI	Moody Bible Institute of Chicago.	Chicago, Ill.	1,140	263.0	Do.
WABQ	Keystone Broadcasting Co.	Philadelphia, Pa.	1,150	260.7	Do.
WEBJ	Third Avenue Railway Co.	New York City	1,170	256.3	Do.
KWUC	Western Union College	Le Mars, Iowa	1,220	245.8	Do.
KFVS	Hirsch Battery & Radio Co.	Cape Girardeau, Mo.	1,340	223.7	Frequency indicator, type B.

REFERENCES TO CURRENT RADIO LITERATURE

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

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OBITUARY

The division deeply regrets to announce the death of Robert E. Earle, who for a number of years was connected with the Chicago office of this service.

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