

RADIO SERVICE BULLETIN

ISSUED MONTHLY BY BUREAU OF NAVIGATION, DEPARTMENT OF COMMERCE

Washington, June, 1916—No. 18

CONTENTS.

New stations:	Page.	Alterations and corrections—Continued.	Page.
Land stations, by names	2	Special land stations, by call signals	9
Ship stations, by vessels	2	Miscellaneous:	
Land and ship stations, by call signals	3	Transmission of weather reports by naval radio stations	9
Special land stations, by names	3	Transmission of time signals by naval radio stations	11
Special land stations, by call signals	3	Chilean wireless service	12
Abbreviations	3	Notice to amateurs	12
Alterations and corrections:		An amendment to radio regulations	12
Land stations, by names	4	Portuguese censorship	13
Ship stations, by vessels	5		
Land and ship stations, by call signals	8		
Special land stations, by names	8		

WASHINGTON, January 14, 1915.

To collectors of customs, radio inspectors, and others concerned:

This publication is issued monthly by the Bureau of Navigation, Department of Commerce, and distributed to the United States officers engaged in or concerned with the enforcement of the radio laws for their guidance and instruction, and to those concerned with the operation of Government and commercial radio stations for their information.

The *Radio Service Bulletin* supersedes the quarterly supplements to the List of Radio Stations of the United States and contains information concerning Government, commercial, and special stations only. Information regarding amateur stations appears only in the annual edition of the List of Radio Stations of the United States.

The bulletin contains tables of new stations, alterations, and corrections under headings, so that the List of Radio Stations of the United States and the List of Radiotelegraph Stations, published by the international bureau at Berne, may be brought up to date. Additions, alterations, and corrections should be entered in these two publications promptly on receipt of the bulletin.

Amendments to or changes in the Radio Laws and Regulations of the United States (edition of July 27, 1914) are printed in this bulletin in such a manner that they may be clipped and pasted in their proper places in that publication.

Items of general interest concerning the enforcement of the radio laws are printed in the bulletin from time to time, as occasion warrants.

E. T. CHAMBERLAIN,
Commissioner of Navigation.

Approved:
E. F. SWEET,
Acting Secretary.

NEW STATIONS.

LAND STATIONS, ALPHABETICALLY BY NAMES OF STATIONS.

[Additions to the List of Radio Stations of the United States, edition of July 1, 1915, and to the International List of Radiotelegraph Stations published by the Berne bureau.]

Station.	Call signal.	Range.	Wave length.	Service.	Hours.	Station controlled by--
Conneaut Harbor, Ohio. ¹	WEV	200	300, 475, 540, 600	PR	X	Marquette & Bessemer Dock & Navigation Co.
Davenport, Iowa ²	WPT	300	500	(3)	X	Western Flour Mill Co. (International Milling Co.).
New Prague, Minn. ⁴ ...	WPU	300	500	(3)	X	New Prague Flouring Mill Co. (International Milling Co.).

¹ G. loc., approximate, O 80° 36' 00", N. 41° 57' 00"; system, Kilbourne & Clark; 240; rates, 3 c. per word 30 c. minimum per radiogram. Note, The station is restricted to communication with the vessels *Marquette & Bessemer No. 1* and *Marquette and Bessemer No. 2*.

² G. loc., approximate, O 90° 35' 10", N. 41° 31' 26"; system, Marconi.

³ Service, limited commercial. Note, The station communicates with stations of the International Milling Co. on business of the company.

⁴ G. loc., approximate, O 93° 31' 12", N. 44° 32' 39"; system, Marconi.

SHIP STATIONS, ALPHABETICALLY BY NAMES OF VESSELS.

[Additions to the List of Radio Stations of the United States, edition of July 1, 1915, and to the International List of Radiotelegraph Stations published by the Berne bureau.]

Vessel.	Call signal.	System.	Wave length.	Owner of vessel.
Bayamon.....	KDX	Marconi.....	300, 600	Vacuum Oil Co.
Henry J. Biddle.....	WOW	Kilbourne & Clark.....	300, 600	Columbia Contract Co.
Bramell Point.....	KRO	Marconi.....	300, 600	Vacuum Oil Co.
Campana ¹	KOM	Marconi, 1,000.....	300, 450, 600	Standard Oil Co. of New Jersey.
Edgar F. Luckenbach ²	KGK	Kilbourne & Clark, 1,000.....	300, 450, 530, 600	Luckenbach Co. (Inc.).
Gov. Forbes ³	WJA	Halcum, variable.....	300, 600	Ynchanti Co.
Harry Luckenbach ⁴	KGX	Marconi, 1,000.....	300, 450, 600	Edgar F. Luckenbach.
Hiram B. Everest.....	KRS	Marconi.....	300, 600	Vacuum Oil Co.
Mooremack.....	WCLdo.....	300, 600	Moore & McCormick Co. (Inc.).
Navahoe ⁵	KORdo.....	300, 600	R. Lawrence Smith (Inc.).
El Capitan (name formerly Oliver J. Olsen). ⁶	WNB	Marconi, 480.....	300, 600	Standard Oil Co. of New Jersey.
Samson.....	WOS	Kilbourne & Clark.....	300, 600	Columbia Contract Co.
Vigilant ⁷	KPG	Marconi.....	300, 600	Clinchfield Navigation Co.

¹ Range, 200; service, PG; hours, X; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram. Note, Radio station operated and controlled by Marconi Co.

² Range, 250; service, PG; hours, X; rates, 8 c. per word 80 c. minimum per radiogram. Note, Radio station operated and controlled by Luckenbach Co. (Inc.), owner of vessel.

³ Range, 200; service, PG; hours, X; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram. Note, Radio station operated and controlled by Ynchanti Co., owner of vessel.

⁴ Range, 200; service, PG; hours, X; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram. Note, Radio station operated and controlled by Marconi Co.

⁵ Note, Radio station operated and controlled by Marconi Co.

⁶ Range, 200; service, PG; hours, X; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram. Note, Radio station operated and controlled by Marconi Co.

⁷ Service, PG; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram. Note, Radio station operated and controlled by Marconi Co.

LAND AND SHIP STATIONS, ALPHABETICALLY BY CALL SIGNALS.

[b=ship station; c=land station.]

Call signal.	Name.	Call signal.	Name.
KDX	Bayamon..... b	WCL	Mooremack..... b
KGK	Edgar F. Luckenbach..... b	WEV	Conneaut Harbor, Ohio..... c
KGX	Harry Luckenbach..... b	WJA	Gov. Forbes..... b
KOM	Campana..... b	WNB	El Capitan..... b
KOR	Navahoe..... b	WOS	Samson..... b
KPG	Vigilant..... b	WOW	Henry J. Biddle..... b
KRO	Bramell Point..... b	WPT	Davenport, Iowa..... c
KRS	Hiram B. Everest..... b	WPU	New Prague, Minn..... c

SPECIAL LAND STATIONS, ALPHABETICALLY BY NAMES OF STATIONS.

[Additions to the List of Radio Stations of the United States, edition of July 1, 1915, only.]

Station.	Call signal.	Wave length.	Service.	Hours.	Station controlled by—
Cambridge, Mass. (1XU).....	1XU	609, Variable.	P	X	Cutting & Washington (Inc.).
Cleveland, Tenn.....	5ZH	425	P	X	W. O. Horner.
Denver, Colo. (9ZF).....	9ZF	425, 550, 800	P	X	Company A, Signal Corps, National Guard of Colo- rado.
Elmira, N. Y.....	8ZE	200, 425	P	X	Harry E. Fitch.
Ithaca, N. Y. (8XT).....	8XT	Variable.	P	X	Cornell University.
Oil City, Pa.....	8YW	200, 450	P	X	Clarence M. Wickes.
Pittsburgh, Pa. (8YZ).....	8YZ	200, 450	P	X	Charles C. Dunning (Pea- body High School).
Shreveport, La.....	5ZS	200, 425	P	X	Willie E. Antony.
Springfield, Mass.....	1ZS	200, 300, 425, 600.	P	X	George U. Readio.

SPECIAL LAND STATIONS GROUPED BY DISTRICTS.

Call signal.	District and station.	Call signal.	District and station.
1XU	First district: Cambridge, Mass. (1XU).	8XT	Eighth district: Ithaca, N. Y. (8XT).
1ZS	Springfield, Mass.	8YW	Oil City, Pa.
5ZH	Fifth district: Cleveland, Tenn.	8YZ	Pittsburgh, Pa. (8YZ).
5ZS	Shreveport, La.	8ZE	Elmira, N. Y.
		9ZF	Ninth district: Denver, Colo. (9ZF).

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.

G. loc. =Geographical location: O=west longitude, N=north 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.

P=private.

O=Government business exclusively.

Hours =Hours of operation:

N=Continuous service.

X=No regular hours.

m=a. m. (12m=midday).

s=p. m. (12s=midnight).

Rates =Ship or coast charges, in cents: c=cents. (The rates in the international list are given in francs and centimes. For approximate purposes, 1 franc equals 20 cents and 5 centimes equal 1 cent.)

Notes =Refer to notes in the Berne list.

OTHER ABBREVIATIONS.

Marconi Co.=Marconi Wireless Telegraph Co. of America.

ALTERATIONS AND CORRECTIONS.

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 July 1, 1915, and to the International List of Radiotelegraph Stations published by the Berne bureau.]

AKUTAN, ALEUTIAN ISLANDS, ALASKA.—Range, 50; system, composite, 500; W. L., 300, 525, 600; service, limited commercial. Note, The station is restricted to correspondence of a private nature with the United States naval station at Dutch Harbor, Alaska.

ANCHORAGE, ALASKA.—G. loc., approximate, O 149° 50' 00'', N. 61° 16' 00''; range, 150; system, Kilbourne & Clark, 1,000; W. L., 300, 600, 750, 1,000; service, O; hours, X.

ASTORIA, OREG.—G. loc., approximate, O 123° 51' 00'', N. 46° 11' 00''; range, 300; W. L., 300, 600. Strike out the following note: The long wave lengths are used for limited public service with Ketchikan, Alaska; rates, for commercial business, \$1.25 for 10 words (10 word minimum) and 12 c. for each additional word, domestic count. For press despatches, 3 c. per word.

BROOKLYN, N. Y.—Range, 500; system, Fessenden, 1,000; W. L., 300, 550, 600, 1,650, 2,000; hours, 4m-8m; 5s-9s, time of the meridian 75° west of Greenwich. Note, Radio station operated and controlled by National Electric Signaling Co.

FORT MILLS, CORREGIDOR ISLAND, MANILA BAY, P. I.—G. loc., E 120° 34' 40''. N. 14° 22' 52''; Range, 35; system, U. S. Army, 1,000; W. L., 600, 825. Note, Radio station operated and controlled by United States War Department.

HILLCREST, DALY CITY, CAL.—System, Marconi, 520.

JUALIN, ALASKA.—W. L., 300, 500, 600, 1,980; service, PG; hours, 8.30m-8.45m; 1.30s-1.45s; 7.30s-7.45s; rates, PG service with ships, 6 c. per word 60 c. minimum per radiogram. Note, The station also conducts private correspondence with the Marconi station at Juneau, Alaska.

KAUNAKAKAI, ISLAND OF MOLOKAI, T. H.¹—Range, 30; W. L., 300, 450, 600; hours, 7m-12m; 1s-5:30s. Note, The station is restricted to communication with Lahaina.

KAWAIHAE, ISLAND OF HAWAII, T. H.¹—W. L., 300, 575, 600; service, limited commercial; hours, 7m-12m; 1s-5:30s. Note, The station is restricted to communication with Wahiawa, Lahaina, and Lihue.

LAHAINA, ISLAND OF MAUI, T. H.¹—W. L., 300, 575, 600; service, limited commercial; hours, 7m-12m; 1s-5:30s. Note, The station is restricted to communication with Wahiawa, Kawaihae, Kaunakakai, and Lihue.

LIHUE, ISLAND OF KAUAI, T. H.¹—System, Marconi, 565; W. L., 300, 575, 600; service, limited commercial; hours, 7m-12m; 1s-5:30s. Note, The station is restricted to communication with Wahiawa, Kawaihae, and Lahaina.

¹ Rates for interisland messages: Ordinary messages, per word, 15 c.; minimum charge, \$1.50; address and signature counted; press messages, per word, 7½ c.; minimum charge, \$1; address and signature counted; cipher or code messages, origin and destination Hawaiian Islands, per word 50 c.; minimum charge, \$1.50; address and signature counted. Cablegrams or trans-Pacific wireless messages in cipher, code, foreign, or English will be accepted and forwarded at ordinary rates plus the forwarding charges of the cable or wireless company, when such messages are to be delivered to them for forwarding; no minimum charge to apply. Double-rush messages will be charged for at double rate. Messages filed in other than English will be charged for at the code rate. A night letter of 25 words, including address and signature, from any point in the Hawaiian Islands to any other point in the Hawaiian Islands, \$1.50; each additional word above twenty-five, 5 c.

- NAKENEK, ALASKA (KMK).**—System, Composite, 400; W. L., 300, 500, 600; service, limited commercial. Note, The station is limited to correspondence with stations of the Red Salmon Canning Co., and the U. S. naval stations at St. George and St. Paul (Pribilof Islands) and Kodiak, Alaska.
- PORT ARTHUR, TEX.**—Hours, 6: 30m–12m; 12: 30s–6s; 6: 30s–8: 30s.
- ROCHE HARBOR, WASH.**—W. L., 300, 600, 1,800.
- SAYVILLE, L. I.**—G. loc., 73° 06' 12", N. 40° 14' 46"; range, 4,500; W. L., 3,900, 4,700, 5,200, 6,300, 7,800, 9,400; rates, transoceanic service, 25 c. per word. Notes, Radio station temporarily operated and controlled by United States Naval Radio Service, Radio, Va.; accounts handled by Atlantic Communication Co., 47 West Street, New York, N. Y. The station communicates with Nauen, Germany.
- TUCKERTON, N. J.**—Range, 4,000; system, Goldschmidt and arc; W. L., 8,600; service, PR; hours, N; rates, transoceanic service, 25 c. per word. Notes, Radio station temporarily operated and controlled by United States Naval Radio Service, Radio, Va. The station communicates with Eilvese, Germany.
- UGASHIK, ALASKA.**—W. L., 300, 500, 600; service, limited commercial. Note, The station is limited to correspondence with station of the Naknek Packing Co., Naknek, Alaska (KMK).
- WAHIAWA, ISLAND OF OAHU, T. H.^{1,2}**—O. 158° 02' 37", N. 21° 29' 28"; W. L., 300, 575, 600; service, PG; hours, PG service continuous; special interisland service, 7m–12m; 1s–5: 50s. Note. The station also conducts special service, communicating with Kawaihae, Lahaina, and Lihue (Hawaii), Apia (Samoa), and Papeete (Tahiti).

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 July 1, 1915, and to the International List of Radiotelegraph Stations published by the Berne bureau.]

- ACUSHNET.**—W. L., 300, 600.
- ADELIN SMITH.**—Range, 150; system, Marconi, 480.
- ALOHA.**—Note, Radio station operated and controlled by Arthur Curtiss James, owner of vessel.
- AMAZONIA.**—Range, 200; system, Marconi, 1,000; W. L., 300, 450, 600; service, PG; hours, X.
- AROLINE.**—System, Marconi, 480.
- ATLAS (WTT).**—System, Marconi, 1,000; W. L., 300, 450, 600. Note, Standard Oil Co. of California, owner of vessel.
- BAY STATE.**—Range, 200; system, Marconi, 480.
- BEAR (WWD).**—Range, 150.
- BERLIN.**—System, Marconi, 400.
- BOSTON.**—System, Fessenden, 260; W. L., 300, 550, 600.
- BRADFORD.**—Range, 200; system, Marconi, 1,000; W. L., 300, 450, 600; service, PG; hours, X; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram. Note, Radio station operated and controlled by Marconi Co.
- BREAKWATER.**—Range, 150; system, Marconi, 400; hours, N. Note, Southern Pacific Co., owner of vessel.
- C. A. CANFIELD.**—Range, 100; system, Marconi, 300; service, PG; hours, X; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram.

¹ Rates for interisland messages: Ordinary messages, per word, 15 c.; minimum charge, \$1.50; address and signature counted; press messages, per word, 7½ c.; minimum charge, \$1; address and signature counted; cipher or code messages, origin and destination Hawaiian Islands, per word 50 c.; minimum charge, \$1.50; address and signature counted. Cablegrams or trans-Pacific wireless messages in cipher, code, foreign, or English will be accepted and forwarded at ordinary rates plus the forwarding charges of the cable or wireless company, when such messages are to be delivered to them for forwarding; no minimum charge to apply. Double-rush messages will be charged for at double rate. Messages filed in other than English will be charged for at a code rate. A night letter of 25 words, including address and signature, from any point in the Hawaiian Islands to any other point in the Hawaiian Islands, \$1.50; each additional word above twenty-five, 5 c.

² Rate to Apia and Papeete, 50 c. per word; no minimum.

- CADDO.**—System, Marconi, 1,000; W. L., 300, 450, 600; hours, X. Note, Radio station operated and controlled by Marconi Co.
- CAPTAIN A. F. LUCAS.**—Range, 150; system, Marconi; W. L., 300, 450, 600.
- CAPTAIN A. M. WETHERILL.**—System, United States Army, 1,000; W. L., 400; hours, X. Note, Radio station operated and controlled by United States War Department, owner of vessel.
- CAPTAIN BARRETT.**—System, United States Army, 1,000; W. L., 400; hours, X. Note, Radio station operated and controlled by United States War Department, owner of vessel.
- CAPTAIN CHAS. W. ROWELL.**—System, United States Army, 1,000; W. L., 400; hours, X. Note, Radio station operated and controlled by United States War Department, owner of vessel.
- CAPTAIN JAMES FORNANCE.**—System, United States Army, 1,000; W. L., 400; hours, X. Note, Radio station operated and controlled by United States War Department, owner of vessel.
- CELILO.**—Range, 150.
- CITY OF ROCKLAND.**—System, Marconi, 400.
- CITY OF SOUTH HAVEN.**—System, Marconi, 480.
- COALINGA.**—Range, 150; system, Federal-Poulsen arc, 250; W. L., 300, 600, 1,800.
- COL. E. L. DRAKE.**—System, Marconi, 1,000; W. L., 300, 450, 600.
- CROOK.**—Range, 200 during day, 900 at night; system, United States Army, 1,000; W. L., 300, 600. Note, Radio station operated and controlled by United States War Department, owner of vessel.
- CURACAO.**—Range, 150; system, Marconi, 400; service, PG; hours, N.
- DADE.**—Range, 200; system, Marconi, 1,000; W. L., 300, 450, 600; service, PG; hours, N; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram.
- DAWNLITE.**—Service, PG; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram. Note, Radio station operated and controlled by Marconi Co.
- DAYLITE.**—Service, PG; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram. Note, Radio station operated and controlled by Marconi Co.
- DE SOTO.**—Range, 150; system, Marconi, 1,000; service, PG; hours, X; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram.
- EOCENE.**—System, Telefunken, 1,000; W. L., 300, 600; service, PG; hours, 9m-12m; 2s-5s; 8s-10; 30s; rates 4 c. per word 40 c. minimum per radiogram. Note, Standard Transportation Co., owner of vessel.
- FLORENCE LUCKENBACH.**—Note, Luckenbach Co., Inc., owner of vessel.
- FRED'K LUCKENBACH.**—Range, 200; system, Marconi, 240; service, PG; hours, X.
- GENERAL A. M. RANDOL.**—System, United States Army, 1,000; W. L., 400; hours, X. Note, Radio station operated and controlled by United States War Department, owner of vessel.
- GENERAL E. O. C. ORD.**—Range, 100; system, United States Army, 1,000; hours, X. Note, Radio station operated and controlled by United States War Department, owner of vessel.
- GENERAL HARVEY BROWN.**—System, United States Army, 1,000; W. L., 400; hours, X. Note, Radio station operated and controlled by United States War Department, owner of vessel.
- GENERAL HENRY J. HUNT.**—Range, 100; system, United States Army, 1,000; W. L., 600; hours, X. Note, Radio station operated and controlled by United States War Department, owner of vessel.
- GENERAL HENRY KNOX.**—Range, 100; system, United States Army, 1,000; W. L., 600; hours, X. Note, Radio station operated and controlled by United States War Department, owner of vessel.
- GENERAL R. B. AYRES.**—Range, 100; system, United States Army, 1,000; W. L., 600; hours, X. Note, Radio station operated and controlled by United States War Department, owner of vessel.

- GENERAL ROBERT ANDERSON.**—System, United States Army, 1,000; W. L., 400; hours, X. Note, Radio station operated and controlled by United States War Department, owner of vessel.
- GENERAL ROYAL T. FRANK.**—Range, 100; system, United States Army, 1,000; W. L., 600; hours, X. Note, Radio station operated and controlled by United States War Department, owner of vessel.
- GENERAL S. N. MILLS.**—System, United States Army, 1,000; W. L., 600; hours, X. Note, Radio station operated and controlled by United States War Department, owner of vessel.
- GEORGIANA.**—Range, 150; system, Marconi, 120; W. L., 300, 600; service, PG; hours, X; rates, North and South American service 4 c. per word 40 c. minimum per radiogram; transoceanic service 8 c. per word 80 c. minimum per radiogram.
- GLOUCESTER (KQG).**—System, Marconi, 1,000; W. L., 300, 450, 600; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram; transoceanic service, 8 c. per word 80 c. minimum per radiogram.
- HAMILTON.**—System, Marconi, 1,000; W. L., 300, 450, 600; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram; transoceanic service, 8 c. per word 80 c. minimum per radiogram.
- HATTIE LUCKENBACH.**—Note, Luckenbach Co., Inc., owner of vessel.
- INCO No. 1.**—Range, 150; system, Marconi, 1,000; W. L., 300, 450, 600; service, PG; hours, X.
- J. A. CHANSLOR.**—System, Federal-Poulsen arc, 300; W. L., 300, 600, 1,800. Note, Radio station operated and controlled by Federal Telegraph Co.
- J. A. MOFFETT.**—W. L., 300, 600, 1,800.
- JEFFERSON (KOD).**—System, Marconi, 1,000; W. L., 300, 450, 600; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram.
- J. L. LUCKENBACH.**—Note, Luckenbach Co. (Inc.), owner of vessel.
- KENTRA.**—Rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram.
- KOREA.**—System, Marconi, 480.
- KVICHAK.**—W. L., 300, 400, 500, 600.
- LAKELAND.**—System, Marconi, 480.
- LAKEPORT.**—Range, 100; system, Marconi, 480; service, PG; hours, X.
- LAKWOOD.**—Range, 100; system, Marconi, 480; service, PG; hours, X.
- LANSING.**—Range, 150; system, Federal-Poulsen arc, 250; W. L., 300, 600, 1,800; hours, X. Note, Radio station operated and controlled by Federal Telegraph Co.
- LEWIS LUCKENBACH.**—Note, Luckenbach Co. (Inc.), owner of vessel.
- L. ROSCOE.**—Range, 150; system, Kilbourne & Clark, 1,000; W. L., 300, 600, 750; service, O; hours, X. Note, Alaska Engineering Commission, owner of vessel.
- MATINICOCK.**—Range, 200; system, Marconi, 1,000; W. L., 300, 450, 600; service, PG; hours, X.
- MEXICANO.**—System, Marconi, 400; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram.
- MOONLITE.**—Service, PG; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram. Note, Radio station operated and controlled by Marconi Co.
- MORRILL.**—W. L., 300, 600.
- MUNPLACE.**—Range, 200; system, Marconi, 1,000; W. L., 300, 450, 600; hours, X.
- NEBRASKAN.**—Name changed to *Rockingham*.
- NUSHAGAK.**—W. L., 300, 400, 500, 600.
- OLEUM.**—System, Federal-Poulsen arc, 250.
- PAMLICO.**—W. L., 300, 600.
- PAN-AMERICAN.**—System, Marconi, 1,000; W. L., 300, 450, 600; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram.
- PAVLOF.**—Strike out all particulars.
- PETROLITE.**—W. L., 300, 450, 600; hours, X.
- POLARINE.**—W. L., 300, 450, 600; hours, X.

- REPUBLIC.**—Range, 150; system, Marconi, 480; W. L., 300, 600; service, PG; hours, X; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram. Note, Radio station operated and controlled by Marconi Co.
- RICHARD.**—Strike out all particulars.
- ROANOKE.**—Strike out all particulars.
- ROCKINGHAM.**—(Name formerly *Nebraskan*); system, Marconi, 1,000; W. L., 300, 450, 600. Note, Radio station operated and controlled by Marconi Co.; Garland Steamship Corporation, owner of vessel.
- ST. HELENS.**—Strike out all particulars.
- SAN JOSE.**—System, Marconi, 480.
- SANTA CLARA (WBA).**—System, Marconi, 480; hours, X.
- SATSUMA.**—Note, Barber & Co. (Inc.), owner of vessel.
- SIBERIA.**—Note, International Mercantile Marine Co., owner of vessel.
- SNOHOMISH.**—W. L., 300, 600.
- SOMERSET (KQS).**—System, Marconi, 1,000; W. L., 300, 450, 600; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram. Note, Radio station operated and controlled by Marconi Co.
- STARLITE.**—Service, PG; rates, North and South American service 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram. Note, Radio station operated and controlled by Marconi Co.
- SUNLITE.**—Service, PG; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram. Note, Radio station operated and controlled by Marconi Co.
- TAMESI.**—Range, 200; system, Marconi, 480; service, PG; hours, X.
- THE LIMIT.**—Range, 100; system, Marconi, 480; W. L., 300, 600; service, PG; hours, X; rates, 2 c. per word 20 c. minimum per radiogram. Note, Radio station operated and controlled by Marconi Co.
- TWILITE.**—Service, PG; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram. Note, Radio station operated and controlled by Marconi Co.
- VANADIS.**—W. L., 300, 600.
- VENETIA.**—Range, 100; system, Marconi, 1,000; W. L., 300, 600; service, P; hours, X.
- VIRGINIA (WFH).**—System, Marconi, 480.
- VIRGINIA (WKV).**—Hours, X.
- WALLULA.**—System, Marconi, 120.
- WASHTEAW.**—Strike out all particulars.
- WHITTIER.**—Range, 150; system, Federal-Poulsen arc, 250; W. L., 300, 600, 1,800; hours, X; rates, North and South American service, 4 c. per word 40 c. minimum per radiogram, transoceanic service, 8 c. per word 80 c. minimum per radiogram. Note, Radio station operated and controlled by Federal Telegraph Co.
- WM. F. HERRIN.**—Range, 150; system, Federal-Poulsen arc, 300; W. L., 300, 600, 1,800. Note, Radio station operated and controlled by Federal Telegraph Co.

LAND AND SHIP STATIONS, ALPHABETICALLY BY CALL SIGNALS.

Strike out all the particulars following the call signals: WLG, WNO, WNY, WRR, WTH.

SPECIAL 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 July 1, 1915, only.]

FAYETTEVILLE, ARK.—Call, 5YM.

IOWA CITY, IOWA.—500, variable under 600 and over 1,600.

LINCOLN, NEBR.—Strike out all the particulars.

ST. LOUIS, Mo. (9YR).—Change to St. Louis, Mo. (9XY).

SPECIAL LAND STATIONS, ALPHABETICALLY BY CALL SIGNALS.

Strike out all the particulars following the call signal: 9XT.

MISCELLANEOUS.

TRANSMISSION OF WEATHER REPORTS BY NAVAL RADIO STATIONS.

Through cooperation with local offices of the United States Weather Bureau, weather forecasts are sent broadcast to sea through naval coast radio stations at certain times, varying with the locality. Coast stations are generally prepared to give local forecasts to passing vessels without charge, on request. Storm warnings are sent whenever received and the daily weather bulletins are distributed by the naval radio stations at Arlington, Va., and Key West, Fla., a few minutes after the 10 p. m. time signal. These bulletins consist of two parts.

The first part contains code letters and figures which express the actual weather conditions at 8 p. m., seventy-fifth meridian time, on the day of distribution, at certain points along the eastern coast of North America, one point along the Gulf of Mexico, and one at Bermuda.

The second part of the bulletin contains a special forecast of the probable winds to be experienced a hundred miles or so off shore, made by the United States Weather Bureau, for distribution to shipmasters. The second part of the bulletin also contains warnings of severe storms along the coasts, as occasions for such warnings may arise.

Immediately following this bulletin, a weather bulletin for certain points along the Great Lakes is sent broadcast by the naval radio station at Arlington, Va., consisting of two parts. The first part contains code letters and figures which express the actual weather conditions at 8 p. m., seventy-fifth meridian time, on the day of distribution, at certain points along the Lakes. The second part of the bulletin contains a special forecast of the probable winds to be experienced on the Lakes during the season of navigation—about April 15 to December 10.

The points for which weather reports are furnished are designated as follows: *For Atlantic coast and Gulf points*, S=Sydney, T=Nantucket, DB=Delaware Breakwater, H=Hatteras, C=Charleston, K=Key West, P=Pensacola, and B=Bermuda; *for points on the Great Lakes*, Du=Duluth, M=Marquette, U=Sault Ste. Marie, G=Green Bay, Ch=Chicago, L=Alpena, D=Detroit, V=Cleveland, and F=Buffalo.

All bulletins begin with the letters U. S. W. B. (United States Weather Bureau) and the weather conditions follow. The first three figures of a report represent the barometric pressure in inches (002=30.02); the next figure, the fourth in sequence, represents the direction of the wind to the eight points of the compass: 1=north, 2=northeast, 3=east, 4=southeast, 5=south, 6=southwest, 7=west, 8=northwest, and 0=calm. The fifth figure represents the force of the wind on the Beaufort scale, on page following.

BEAUFORT SCALE OF WIND FORCE.

Number and designation.	Statute miles per hour.	Nautical miles per hour.
0 Calm.....	0 to 3	0 to 2.6
1 Light air.....	4	6.9
2 Light breeze.....	7	11.3
3 Gentle breeze.....	10	15.6
4 Moderate breeze.....	13	20.0
5 Fresh breeze.....	17	24.3
6 Strong breeze.....	22	29.5
7 Moderate gale.....	28	34.7
8 Fresh gale.....	35	41.6
9 Strong gale.....	44	48.6
10 Whole gale.....	54	56.4
11 Storm.....	65	65.1
12 Hurricane.....	75 and over.	78.1 and over.

In order to simplify the code, no provision has been made for wind force greater than 9, strong gale, on the Beaufort Scale. Whenever winds of force greater than 9 occur, the number representing them is given in words instead of figures, thus: Ten, eleven, etc.

EXAMPLES OF CODE.

U S W B S 96465 T 91674 DB 94686 H 99886 C 01214
K 02622 P 03613 B 00065.

Translation.

United States Weather Bureau.

Station.	Pressure.	Wind.	
		Direction.	Force. ¹
Sydney.....	29.64	SW	5
Nantucket.....	29.16	W	4
Delaware Breakwater.....	29.46	NW	6
Hatteras.....	29.98	NW	6
Charleston.....	30.12	N	4
Key West.....	30.26	NE	2
Pensacola.....	30.36	N	3
Bermuda.....	30.00	SW	5

¹ See Beaufort Scale.

U S W B Du 95826 M 97635 U 00443 G 96046 Ch 95667
L 00644 D 00842 V 01054 F 01656

Translation.

United States Weather Bureau.

Station.	Pressure.	Wind.	
		Direction.	Force. ¹
Duluth.....	29.58	NE	6
Marquette.....	29.76	E	5
Sault Ste. Marie.....	30.04	SE	3
Green Bay.....	29.60	SE	6
Chicago.....	29.56	SW	7
Alpena.....	30.06	SE	4
Detroit.....	30.08	SE	2
Cleveland.....	30.10	S	4
Buffalo.....	30.16	S	6

¹ See Beaufort Scale.

TRANSMISSION OF TIME SIGNALS BY NAVAL RADIO STATIONS.

The transmission of time signals to vessels at sea by means of radiotelegraphy was first accomplished in the United States in 1905, and this service, enlarged and extended, has continued to the present time. This service is of the greatest value to mariners, as it furnishes a means by which the time, as given by the transmitted signals, may be compared with a ship's chronometer and the error of the chronometer found. Similar comparisons over a number of days enable data to be obtained by which not only the error may be found, but also the chronometer rate; that is, the rate at which it is gaining or losing.

The noontime signals on the Atlantic coast are sent out through the coast radio stations by connection with Western Union telegraph lines from the United States Naval Observatory at Washington, D. C. By the operation of proper relays in electrical circuits, the beats of the seconds of a standard clock in the observatory are sent out broadcast as a series of radio dots, commencing five minutes before the time of the final signal. By omitting certain dots in a series, the comparison between the dots and the beats of the chronometer seconds can be checked until the instant of local noon (seventy-fifth meridian time) is reached. This is marked by a longer dot, which gives the time of exact noon. A comparison with the chronometer time at that instant gives its error referred to the seventy-fifth meridian time. Applying the difference in longitude, namely, five hours, between the seventy-fifth meridian and Greenwich, which is the standard meridian (or 0° longitude), the error of the chronometer referred to Greenwich time is determined.

Time signals are now sent out on the Atlantic coast only through the radio stations at Arlington, Key West, and New Orleans. Signals from Arlington, which reach a zone formerly served by other coast stations, are sent out every day in the year twice a day, viz, at noon and 10 p. m., seventy-fifth meridian time. Time signals from Key West and New Orleans are sent out daily, including Sundays and holidays, commencing at 11.55 a. m., seventy-fifth meridian time, and ending at local noon.

In case of failure of the Arlington high-power station, the signals are sent out by the small set in the same station, and the stations at Boston, Newport, Norfolk, and Charleston are notified, and they each send the signals broadcast.

On the Pacific coast the time signals are sent broadcast to sea through the naval radio stations at Mare Island, Eureka, Point Arguello, and San Diego, Cal., and at North Head, Wash. The controlling clock for each station is in the naval observatory at the Mare Island Navy Yard. Signals from Mare Island are sent out every day from 11.55 to noon, and from 9.55 to 10 p. m., one hundred and twentieth meridian standard time. Those from North Head, Eureka, and San Diego are sent out daily, excluding Sundays and holidays, from 11.55 to noon, one hundred and twentieth meridian standard time.

To get the maximum clearness of signals, the receiving circuit should be tuned to that of the sending station. Arlington and Mare Island send on a 2,500-meter wave length, North Head and San Diego on a 2,000-meter wave length, Eureka on a 1,400-meter wave

length, and Key West and New Orleans on a 1,000-meter wave length. On the completion of the new radio station at the training station, Great Lakes, time signals will be transmitted from that station for the benefit of shipping on the Great Lakes, as well as the weather reports for that region, now transmitted by Arlington after the Atlantic coast weather bulletin, following the 10 p. m. time signals.

CHILEAN WIRELESS SERVICE.

The Bureau has been informed by the Chilean Administration, through the Bureau of the International Telegraphic Union, Radiotelegraphic Service, Berne, Switzerland, of the opening to public service early in April of the radiotelegraphic stations Valparaiso, Llanquihue, Frutillar, and Punta Arenas.

NOTICE TO AMATEURS.

The new list of "Radio Stations of the United States," edition of July 1, 1916, will contain the names, addresses, and call letters of all licensed amateurs of record in the Bureau on June 30, 1916, and where applications for station licenses are received after June 30, the names will not be published until the 1917 list is issued.

All amateurs who desire to have their names listed in the 1916 book should make an effort to have their licenses renewed without delay.

AN AMENDMENT TO RADIO REGULATIONS.

[To be cut out and pasted in your copy.]

Insert the following regulation which is made pursuant to the act of August 13, 1912, following paragraph 152, page 66, of the Radio Laws and Regulations of the United States:

Paragraph 152-a, page 66.

Holders of commercial extra first-grade radio operators' licenses may be issued renewal of such licenses without examination, provided the service records on the backs of the licenses properly certify to 12 months' satisfactory service in a land or ship station open to general public service, at least 6 months of which must have been served during the last 12 months of the license period.

However, holders of commercial extra first-grade licenses now employed as radio inspectors, radio instructors, or similar occupations requiring exceptional qualifications where the duties require the testing, or demonstrating, or otherwise using commercial radio apparatus and the telegraph codes, may be issued renewals of their licenses without reexamination, provided, in addition to the above, they can show satisfactory evidence of such service covering a period of 18 months out of the two-year license period. Where the applicant has not used regularly the telegraph codes, he will be given the code examination required in the original examination or, if he has used only one code, he will be examined in the code not used.

The service record shown on the licenses must be transcribed on Form 756.

The license may be marked "Expired" in red across the face and returned to the operator, if desired. The action taken should be noted on Form 756.

Where the record on the reverse side of the license does not show the service performed, the evidence submitted as proof of such service must be transmitted to the Bureau with Form 756.

Transcriptions of code tests must be submitted to the Bureau.

PORTUGUESE CENSORSHIP.

The Bureau has been informed through the International Telegraphic Bureau at Berne that beginning May 1 the Portuguese colonies will admit for transmission by their lines only private telegrams and radiograms which are worded in clear Portuguese, French, or English, and containing the signature of the sender. However, the use of divers codes established by special arrangement is maintained for commercial telegrams. The telegrams are accepted only at the risk and peril of the sender, and they are submitted to censorship, which may entail delay, and no request for reimbursement will be considered.

The use of the Italian language is admitted in correspondence between the Portuguese colonies and Italy, Lybia, and the Italian possessions in oriental Africa.

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