

# RADIO SERVICE BULLETIN

U. S.

ISSUED MONTHLY BY BUREAU OF NAVIGATION, DEPARTMENT OF COMMERCE

Washington, April, 1915—No. 4

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DEPARTMENT OF COMMERCE,  
BUREAU OF NAVIGATION,  
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 instructions, 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 will contain information concerning Government, commercial, and special stations only. Information regarding amateur stations will appear 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) will be 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 will be printed in the bulletin from time to time, as occasion warrants.

E. T. CHAMBERLAIN,  
*Commissioner of Navigation.*

Approved:  
E. F. SWEET,  
*Acting Secretary.*

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Collected set.

## ABBREVIATIONS.

## INTERNATIONAL ABBREVIATIONS USED IN THIS LIST.

## Nature of service:

PG=General public.

PR=Limited public or limited commercial.

P=Private.

O=Government business exclusively.

## Hours of operation:

N=Continuous service.

X=No regular hours.

m=a. m.

s=p. m.

12 m=Midday.

12 s=Midnight.

fr.=Franc (francs).

c.=Cents.

## OTHER ABBREVIATIONS.

Name =Name of station.

G. loc. =Geographical location (O=west longitude, N=north latitude).

Call =Radio call letters.

System=Radio system used and sparks per second.

Range =Normal range in nautical miles.

W. L. =Wave lengths.

Service=Nature of service.

Hours =Hours of operation.

Rates =Ship or coast charges in francs and dollars.

Notes =Refers to notes in the Berne list.

Co. =Company.

## NEW STATIONS.

## LAND STATIONS, ALPHABETICALLY BY NAMES OF STATIONS.

[Additions to the list of Radio Stations of the United States, edition of July 1, 1914, and to the International List of Radiotelegraph Stations published by the Berne bureau.]

Station.	Call signal.	Range.	System.	Wave lengths.	Service.	Hours.
Brownsville, Tex.*	WUZ	250	U. S. Army, 500...	1000	O	X
Fort Barrancas, Fla.*	WZD	125	U. S. Army, 500...	1200	O	X
Fort Crockett, Tex.*	WUX	30	U. S. Army, 500...	1200	O	X
Fort Howard, Md.*	WZB	50	U. S. Army, 60...	1200	O	X
Fort Morgan, Ala. (WUR)*	WUR	30	U. S. Army, 500...	1200	O	X
Fort Rosecrans, Cal.*	WUS	30	U. S. Army, 500...	1200	O	X
Fort San Jacinto, Tex.*	WUY	30	U. S. Army, 500...	1200	O	X
Fort Screven, Ga.*	WZA	30	U. S. Army, 500...	1200	O	X
Fort Whitman, Wash.*	WZC	100	U. S. Army, 120...	1200	O	X
Port Royal, S. C. <sup>1</sup>	NAV	.....	U. S. Navy.....	.....	O	N
Victor, Colo. <sup>2, 3</sup>	KIW	160	Composite, 600....	600	(*)	{9m-11.30m. 7.30s-11s.
Yerba Buena, Cal. <sup>1, 5</sup>	NPG	.....	U. S. Navy.....	.....	O	N

\*Radio station operated and controlled by the United States Signal Corps, War Department, Washington, D. C.

<sup>1</sup> Radio station operated and controlled by the United States Naval Radio Service, Radio, Va.

<sup>2</sup> Radio station operated and controlled by the Ajax Gold Mining Co.

<sup>3</sup> G. loc., 0 105° 07' 00"-N. 38° 40' 00". (Approximate.)

<sup>4</sup> The station is limited to correspondence with a station at Denver, Colo.

<sup>5</sup> G. loc., 0 122° 22' 02"-N. 37° 43' 30."

SHIP STATIONS, ALPHABETICALLY BY NAMES OF VESSELS.

[Additions to the list of Radio Stations of the United States, edition of July 1, 1914, and to the International List of Radiotelegraph Stations published by the Berne bureau.]

Name.	Call signal.	System.	Range.	Wave lengths.	Service.	Hours.
Col. Geo. Armistead* <sup>1</sup>	WYG	U. S. Army, 500	150	600	O	X.
Cordova <sup>2</sup>	WAR	Kilbourne & Clark		300, 600		
Evangeline <sup>3, 4, 5</sup>	KII	Marconi		300, 600		
Genl. R. H. Jackson* <sup>6</sup>	WYW	U. S. Army, 500	30	400	O	X.
Genl. Robt. Swartout* <sup>6</sup>	WYU	U. S. Army, 500	30	400	O	X.
Genl. S. B. Holabird* <sup>6</sup>	WYV	U. S. Army, 500	30	400	O	X.
J. A. Moffett <sup>7, 8</sup>	WRE	Marconi		300, 600		
Lieut. A. H. Cushing* <sup>9</sup>	WYX	U. S. Army, 500	30	400	O	X.
Lieut. Geo. M. Harris* <sup>9</sup>	WYR	U. S. Army, 500	30	400	O	X.
Mexicano <sup>10</sup>	KGM					
Muskogee <sup>10</sup>	KIB			300, 600		
Security <sup>3, 4, 10</sup>	KSJ	Marconi				
Tatoosh <sup>4, 11</sup>	WPE	Kilbourne & Clark				
Ulysses <sup>12</sup>	KPU					
Zara <sup>3, 4, 12</sup>	KZI	Marconi				

\*Radio station operated and controlled by the United States Signal Corps, War Department, Washington, D. C.

<sup>1</sup> Army mine planter.

<sup>2</sup> Alaska Steamship Co., owner of vessel.

<sup>3</sup> Radio station operated and controlled by the Marconi Wireless Telegraph Co. of America.

<sup>4</sup> Rates, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram.

<sup>5</sup> Alonzo W. Perry, owner of vessel.

<sup>6</sup> Army tug.

<sup>7</sup> Standard Oil Co. of California, owner of vessel.

<sup>8</sup> Pierce Oil Corporation, owner of vessel.

<sup>9</sup> Standard Oil Co. of New Jersey, owner of vessel.

<sup>10</sup> Standard Oil Co. of New York, owner of vessel.

<sup>11</sup> Radio station operated and controlled by the Puget Sound Tug Boat Co., owner of vessel.

<sup>12</sup> Maryland Steel Co., owner of vessel.

<sup>13</sup> F. J. Littlefield, owner of vessel (yacht).

LAND AND SHIP STATIONS, ALPHABETICALLY BY CALL SIGNALS.

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

Call signal.	Name.	Call signal.	Name.
KGM	Mexicano.....b	WUX	Fort Crockett, Tex.....c
KIB	Muskogee.....b	WUY	Fort San Jacinto, Tex.....c
KII	Evangeline.....b	WUZ	Brownsville, Tex.....c
KIW	Victor, Colo.....c	WYG	Col. Geo. Armistead.....b
KPU	Ulysses.....b	WYR	Lieut. Geo. M. Harris.....b
KSJ	Security.....b	WYU	Genl. Robt. Swartout.....b
KZI	Zara.....b	WYV	Genl. S. B. Holabird.....b
NAV	Port Royal, S. C.....c	WYW	Genl. R. H. Jackson.....b
NPG	Yerba Buena, Cal.....c	WYX	Lieut. A. H. Cushing.....b
WAR	Cordova.....b	WZA	Fort Screven, Ga.....c
WPE	Tatoosh.....b	WZB	Fort Howard, Md.....c
WRE	J. A. Moffett.....b	WZC	Fort Whitman, Wash.....c
WUR	Fort Morgan, Ala.....c	WZD	Fort Barrancas, Fla.....c
WUS	Fort Rosecrans, Cal.....c		

SPECIAL LAND STATIONS, ALPHABETICALLY BY NAMES OF STATIONS.

[Additions to the List of Radio Stations of the United States, edition of July 1, 1914, only.]

Station.	Call signal.	Wave lengths.	Service.	Hours.	Station controlled by—
Auburn, N. Y.....	8YA	300, 440, 500, 600...	P	9-9.30m 2-2.30s 7-7.30s	Edward L. Colby (Colby's Telegraph School).
Beeville, Tex.....	5ZN	200, 450.....	P	X	Ed. Nettleton.
Buffalo, N. Y.....	8ZB	200, 300, 425, 600...	P	X	Nelson E. Holt.
Burlington, Iowa.....	9XL	200 to 650 variable.	P	X	Leslie W. Lyon.
Iowa City, Iowa.....	9YA	355.....	P	X	State University of Iowa.
Kane, Pa.....	8ZK	200, 425.....			John Fleming.
Schenectady, N. Y.....	2ZB	200, 300, 400, 600...	P	X	Wallace L. Brooks.

## SPECIAL LAND STATIONS, GROUPED BY DISTRICTS.

Call signal.	District and station.	Call signal.	District and station.
2ZB	Second district: Schenectady, N. Y.	8ZB	Eighth district—continued. Buffalo, N. Y.
5ZN	Fifth district: Beeville, Tex.	8ZK	Kane, Pa.
8YA	Eighth district: Auburn, N. Y.	9XL	Ninth district: Burlington, Iowa.
		9YA	Iowa City, Iowa.

## 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, 1914, and to the International List of Radiotelegraph Stations published by the Berns bureau.]

ARLINGTON, RADIO, VA.—Notes, Radio station operated and controlled by the United States Naval Radio Service, Radio, Va. The station sends time signals twice daily for five minutes on the wave length of 2,500 meters, commencing at 11.55m and 9.55s, Sundays and holidays included. Final signals at 12m and 10s (time of the meridian 75° west of Greenwich). Every tick of the standard clock of the Naval Observatory, Washington, D. C., is transmitted as a dot, omitting the twenty-ninth second of each minute, the last five seconds of each of the first four minutes, and finally the last 10 seconds of the last minute. The 12m and 10s signal is a dash.

BENTON HARBOR (WBN), MICH.—Strike out all particulars.

BOLINAS, CAL.—G loc. (exact) O 122° 43' 33", N. 37° 54' 48".

CAPE MAY, N. J.—Range, 150; W. L., 300, 550, 600.

EL PASO, TEX.—Strike out all particulars.

EUREKA (KPM), CAL.—Range, 200; system, Marconi; 226; W. L., 300, 600; hours, 8.30m-6s, 7.30s-5m.

EUREKA (NPW), CAL.—Notes, Radio station operated and controlled by the United States Naval Radio Service, Radio, Va. The station sends time signals daily at noon (time of the meridian 120° west of Greenwich), Sundays and holidays excluded, on the wave length of 1,400 meters. Signals same as for Arlington, Radio, Va. Time furnished by Observatory at Navy Yard, Mare Island, Cal.

FORT OMAHA, NEBR.—Strike out all particulars.

FORT WORTH, TEX.—Strike out all particulars.

GRAND MARAIS, MINN.—Notes, Radio station operated and controlled by the Marconi Wireless Telegraph Co. of America. The station also communicates with Duluth, Minn.

KEY WEST, FLA.—Notes, Radio station operated and controlled by the United States Naval Radio Service, Radio, Va. The station sends time signals daily at noon (time of the meridian 75° west of Greenwich), Sundays and holidays included, on the wave length of 1,000 meters. Signals same as for Arlington, Radio, Va. Time furnished by the Naval Observatory at Washington, D. C.

MARE ISLAND, CAL.—Notes, Radio station operated and controlled by the United States Naval Radio Service, Radio, Va. The station sends time signals twice daily for five minutes on the wave length of 2,500 meters, commencing at 11.55m and 9.55s, Sundays and holidays included. Final signals at 12m and 10s (time of the meridian 120° west of Greenwich). Signals same as for Arlington, Radio, Va. Time furnished by Observatory at Navy Yard, Mare Island, Cal.

MIAMI, FLA.—Notes, Radio station operated and controlled by the Marconi Wireless Telegraph Co. of America. The station also exchanges correspondence with Nassau (Bahamas), charge: 12 c. (0.60 fr.) per word, without minimum.

NEW ORLEANS (NAT), LA.—Notes, Radio station operated and controlled by the United States Naval Radio Service, Radio, Va. The station handles public correspondence in emergencies, when the coast rate will be furnished on request. The operator is generally at the receiver at the beginning of each hour. The station is open for the general benefit of shipping. The station sends out information concerning obstructions in paths of navigation such as wrecks, derelicts, etc., and aids to navigation deranged or misplaced four times daily, at 8m, 12m, 4s, and 8s. The station also sends local weather forecasts at 12m and storm warnings four times at hours mentioned above. The station furnishes above

information to passing ships at other hours on request. The station sends time signals daily at noon (time of the meridian  $75^{\circ}$  west of Greenwich), Sundays and holidays included, on the wave length of 1,000 meters. Signals same as for Arlington, Radio, Va. Time furnished by the Naval Observatory, Washington, D. C.

**NEW YORK (WHB).**—Notes, Radio station operated and controlled by the New York Herald Co. The station transmits daily news without charge, using a wave length of 1,610 meters. No charge is made for radiograms to or from naval vessels.

**NORTH HEAD, WASH.**—Notes, Radio station operated and controlled by the United States Naval Radio Service, Radio, Va. The station sends time signals daily at noon (time of the meridian  $120^{\circ}$  west of Greenwich), Sundays and holidays excluded, on the wave length of 2,000 meters. Signals same as for Arlington, Radio, Va. Time furnished by Observatory at Navy Yard, Mare Island, Cal.

**PHILADELPHIA (WHE), PA.**—Hours, 9m-5.30s.

**SAN DIEGO (NPL), CAL.**—Notes, Radio station operated and controlled by the United States Naval Radio Service, Radio, Va. The station sends time signals daily at noon (time of the meridian  $120^{\circ}$  west of Greenwich), Sundays and holidays excluded, on the wave length of 2,000 meters. Signals same as for Arlington, Radio, Va. Time furnished by Observatory at Navy Yard, Mare Island, Cal.

### 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, 1914, and to the International List of Radiotelegraph Stations published by the Berne bureau.)

**ADELINE SMITH.**—Range, 200; system, Marconi, 120; W. L., 300, 600; service, PG; hours, X; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram.

**ADVANCE.**—Note, Radio station operated and controlled by the Panama Railroad Co., owner of vessel.

**ALASKAN.**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.

**ALBERTA.**—System, Marconi; rate, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram. Notes, Radio station operated and controlled by the Marconi Wireless Telegraph Co. of America. F. D. Bourne, owner of vessel (yaekt.)

**ALGONQUIN (KVG).**—System, Marconi, 400.

**AL-KI.**—Notes, Radio station operated and controlled by the Marconi Wireless Telegraph Co. of America. Border Line Transportation Co., owner of vessel.

**ALLIANCA.**—Note, Radio station operated and controlled by the Panama Railroad Co., owner of vessel.

**AMERICAN.**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.

**ANCON.**—Note, Radio station operated and controlled by the Panama Railroad Co., owner of vessel.

**ARIZONAN.**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.

**AROLINE.**—Range, 150; system, Marconi, 240.

**ASTRAL.**—Range, 200; system, Marconi, 240; hours, X; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram. Notes, Radio station operated and controlled by the Marconi Wireless Telegraph Co. of America. Standard Oil Co. of New York, owner of vessel.

**ASUNCION (WTX).**—System, Marconi, 120; W. L., 300, 600; service, PG. Notes, Radio station operated and controlled by the Marconi Wireless Telegraph Co. of America. Standard Oil Co. of California, owner of vessel.

**ATLAS (WTT).**—Range, 150; system, Marconi, 290.

**BALBOA.**—Range, 150; system, Marconi, 240; service, PG; hours, X; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram.

**BRABANT.**—Range, 200; system, Marconi, 480; service, PG; hours, X.

**CALIFORNIA (WOR).**—Range, 150; system, Marconi, 240; service, PG; hours, X; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram. Notes, Radio station operated and controlled by the Marconi Wireless Telegraph Co. of America. John A. Hooper, owner of vessel.

- CALIFORNIAN (WKC).**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.
- CAROLINA (KGB).**—Range, 200; system, Marconi, 240; W. L., 300, 600; service, PG; hours, N; rate, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram.
- CASSANDRA (KYE).**—Note, John J. Doyle, owner of vessel (yacht).
- CHICAGO (WAC).**—System, Kilbourne & Clark. Note, Radio station operated and controlled by the Booth Fisheries Co., owner of vessel.
- CITY OF EVERETT.**—Notes, Radio station operated and controlled by the Standard Oil Co. of New York, owner of vessel.
- CITY OF SOUTH HAVEN.**—Range, 150; system, Marconi, 120; W. L., 300, 600; service, PG; hours, X; rate, 2 c. (0.10 fr.) per word, 20 c. (1 fr.) minimum per radiogram. Notes, Radio station operated and controlled by the Marconi Wireless Telegraph Co. of America. Chicago and South Haven Steamship Co., owner of vessel.
- COLON (KMX).**—Note, Radio station operated and controlled by the Panama Railroad Co., owner of vessel.
- COLON (WHO).**—Range, 150; system, Marconi, 240; service, PG; hours, X; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram.
- COLUMBIAN (WKS).**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.
- COLUSA.**—Range, 200; system, Marconi, 480; service, PG; hours, N; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram.
- CORONADO.**—Range, 100; system, Marconi, 120; W. L., 300, 600; service, PG; hours, X; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram.
- CRISTOBAL.**—Note, Radio station operated and controlled by the Panama Railroad Co., owner of vessel.
- DAMARA.**—Range, 200; system, Marconi, 480; W. L., 300, 600; service, PG; hours, X; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram.
- E. G. CROSBY.**—Strike out all particulars.
- EL SEGUNDO.**—Range, 150; system, Marconi, 480; W. L., 300, 600; service, PG; hours, X; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram.
- EVELYN.**—Strike out all particulars.
- FRANK H. BUCK.**—Range, 200; system, Marconi, 120; service, PG; hours, X; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram; transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram.
- GEORGIA (WFA).**—Range, 150; system, Marconi, 120; W. L., 300, 600; service, PG; hours, X; rate, 2 c. (0.10 fr.) per word, 20 c. (1 fr.) minimum per radiogram. Notes, Radio station operated and controlled by the Marconi Wireless Telegraph Co. of America. Goodrich Transit Co., owner of vessel.
- GEORGIANA.**—Rate, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram.
- GULFLIGHT.**—Range, 200; system, Marconi, 240; service, PG; hours, X; rate, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram.
- HAWAIIAN.**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.
- HENRY T. SCOTT.**—Range, 150; system, Marconi, 480; W. L., 300, 600; service, PG; hours, X; rates, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram.
- HERMOSA.**—Range, 150; system, Marconi, 120; W. L., 300, 500, 600; hours, X; rate, 1 c. (0.05 fr.) per word, 10 c. (0.50 fr.) minimum per radiogram.
- IOWAN.**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.
- ISTHMIAN.**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.
- JAMESTOWN.**—Range, 400.
- KANSAN.**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.

- KENTUCKIAN.**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.
- LAKELAND.**—Range, 125; system, Marconi, 120.
- LAKEWOOD.**—Range, 100; system, Marconi, 240; W. L., 300, 600; service, PG; hours, X; rate, 2 c. (0.10 fr.) per word, 20 c. (1 fr.) minimum per radiogram.
- LANSING.**—Strike out range; strike out system. Note, Union Steamship Co. (Union Oil Co.), owner of vessel.
- LIGONIER.**—Range, 200; system, Marconi, 400; W. L., 300, 600; service, PG. Notes, Radio station operated and controlled by the Marconi Wireless Telegraph Co. of America. Gulf Refining Co., owner of vessel.
- LOUISE.**—Strike out all particulars.
- LYRA (WNF).**—Name, Hattie Luckenbach.
- MARIPOSA.**—System, Kilbourne & Clark.
- METAPAN.**—Range, 500; system, composite, 1000; service, PG; hours, N; rate, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram. Notes, Radio station operated and controlled by the Tropical Radio Telegraph Co. Metapan Steamship Corporation, owner of vessel.
- MEXICAN.**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.
- MILLINOCKET.**—Hours, X.
- MISSOURIAN.**—Range, 350; system, Telefunken, 1000; hours, X. Notes, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.
- MOMUS.**—System, Marconi, 400.
- MONTANAN.**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.
- MULTNOMAH.**—Range, 150; system, Marconi, 120; W. L., 300, 600; service, PG; hours, N; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram.
- NEBRASKAN.**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.
- NEVADAN.**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.
- NORTHERN PACIFIC.**—Range, 200; system, Marconi, 1000; service, PG; hours, N; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram.
- NORTHLAND (WNX).**—Range, 150; system, Marconi, 120; W. L., 300, 600; service, PG; hours, N; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram.
- NORTHWESTERN (KUO).**—Range, 200; system, Marconi, 480; service, PG; hours, X; rates, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram.
- NUSHAGAK.**—Range, 150; system, Marconi, 120; W. L., 300, 600; service, PG; hours, N; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram. Notes, Radio station operated and controlled by the Marconi Wireless Telegraph Co. of America. Alaska Packers' Association, owner of vessel.
- NYACK.**—Strike out all particulars.
- OHIOAN.**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.
- OREGONIAN.**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.
- PACIFIC.**—Range, 200; system, composite, 1000.
- PANAMA (KMH).**—Note, Radio station operated and controlled by the Panama Railroad Co., owner of vessel.
- PANAMAN.**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.
- PENNSYLVANIAN.**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.
- RED CROSS.**—Strike out all particulars.
- REDONDO.**—Notes, Radio station operated and controlled by the Marconi Wireless Telegraph Co. of America. Alaska Steamship Co., owner of vessel.
- REUC.**—Strike out system. Note, Columbia River Packers' Association, owner of vessel.

- SANTA RITA.**—Strike out system. Note, United Steamship Co. (Union Oil Co.), owner of vessel.
- SEGURANCA.**—System, Marconi, 480; hours, X; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram.
- SHEBOYGAN.**—Range, 150; system, Marconi; W. L., 300, 600; service, PG; hours, X; rate, 2 c. (0.10 fr.) per word, 20 c. (1 fr.) minimum per radiogram.
- SHENANGO (WET).**—Range, 150; system, Marconi, 120; rate, 2 c. (0.10 fr.) per word, 20 c. (1 fr.) minimum per radiogram.
- S. O. Co. No. 91.**—Range, 150; system, Marconi, 120; W. L., 300, 600; service, PG; hours, X; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram.
- S. O. Co. No. 93.**—Range, 150; system, Marconi, 120; W. L., 300, 600; service, PG; hours, X; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram.
- S. O. Co. No. 95.**—Range, 150; system, Marconi, 120; W. L., 300, 600; service, PG; hours, X; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram.
- St. NICHOLAS.**—Strike out system. Note, Columbia River Packers' Association, owner of vessel.
- TEXAN.**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.
- THE HARVESTER.**—Range, 200; system, Marconi, 240; service, PG; hours, X.
- TRINIDADIAN.**—Range, 200; system, Marconi, 400; service, PG; hours, X; rate, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram.
- UNITED STATES.**—Range, 100; system, Marconi, 120; W. L., 300, 600; service, PG; hours, X; rate, 2 c. (0.10 fr.) per word, 20 c. (1 fr.) minimum per radiogram.  
Notes, Radio station operated and controlled by the Marconi Wireless Telegraph Co. of America. Indiana Transportation Co., owner of vessel.
- VESTA (KTS).**—Range, 200; system, Marconi, 480; service, PG; hours, X; rates, North and South American service, 4 c. (0.20 fr.) per word, 40 c. (2 fr.) minimum per radiogram, transoceanic service, 8 c. (0.40 fr.) per word, 80 c. (4 fr.) minimum per radiogram.
- VIRGINIA (WFH).**—Range, 150; system, Marconi, 120; hours, X.
- VIRGINIAN (WKV).**—Note, Radio station operated and controlled by the American-Hawaiian Steamship Co., owner of vessel.
- WARRIOR.**—Name, Wayfarer. Note, Alfred G. Vanderbilt, owner of vessel (yacht).
- WILLIAM P. SNYDER.**—Range, 150; system, Marconi-United, 120.
- WILPEN.**—Range, 150; system, Marconi, 120; W. L., 300, 600; service, PG; hours, X; rate, 2 c. (0.10 fr.) per word, 20 c. (1 fr.) minimum per radiogram. Notes, Radio station operated and controlled by the Marconi Wireless Telegraph Co. of America. Shenango Steamship Co., owner of vessel.
- WM. F. HERRIN.**—System, Marconi, 240.
- YALE.**—Range, 150.
- ZAPORA.**—System, Kilbourne & Clark. Note, International Fisheries Co., owner of vessel.

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

KYW, read: Wayfarer (b); WNF, read: Hattie Luckenbach (b). Strike out particulars following the call signals KNE, KRL, KRX, WEJ, and WEL.

#### 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, 1914, only.]

CAMBRIDGE, MASS. (LXP).—W. L., 300, 600, variable.

MEMPHIS, TENN. (5ZD).—W. L., 296.



**MISCELLANEOUS.****SPECIAL SERVICE.**

The attention of owners and operators of commercial radio stations is invited to the Laws and Regulations, page 54, paragraphs 49 and 50. General public service may be defined as paid business between coast and ship or ship and ship stations, on the wave lengths of 300, 600, or 1,800 meters, conducted at a speed of not less than 20 words per minute. All special service, such as limited public service or other point-to-point communication, and all press items, must be conducted on some authorized wave length, not interfering with general public service.

**STATION LICENSES.**

Applications for station licenses (Form 761) must be submitted in the name of the person, company, or corporation controlling and operating the radio station and responsible under the law for the operation and for the radio accounts. The applications must be signed by the applicant or by an officer of the company or corporation.

**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  $0^{\circ}$  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, 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.

#### RENEWAL OF STATION AND OPERATOR LICENSES.

Applicants for renewal of station and operator licenses must submit the originals of old licenses with application for renewal of same. Operators should be sure to have their service records on the backs of their licenses complete at all times, giving the time of service at all stations at which they are employed.

#### OPERATOR'S LICENSE SUSPENDED.

A commercial operator recently applied to the examining officer at the Philadelphia Navy Yard for a renewal of his first-grade license, and upon examination of his expired license it was found that the service record on the reverse side contained a fraudulent entry.

The operator has been severely reprimanded by the Secretary of Commerce, through the examining officer at the Philadelphia Navy Yard, and his license has been suspended for a period of three months.

#### COMMERCIAL OPERATOR REPRIMANDED.

The attention of all operators is invited to the Laws and Regulations, page 74, paragraph 210, regarding the use of profane or obscene words in radio communication. Several cases of violations of this regulation have been reported to the Bureau recently. An operator, reported by the radio inspector of the first district, for abbreviating messages in a reprehensible manner, was severely reprimanded by the Secretary of Commerce, and future violations may be subject to more drastic action.

## AMATEUR PENALIZED.

An amateur of Portland, Me., was reported recently for operating a station in that city without a license. Judge Hale of the district court of Portland found the amateur guilty and imposed a fine.

## RATES.

The rate of 42 cents per word for radiograms transmitted to vessels at sea, at a distance of 400 miles, authorized for the South Wellfleet station of the Marconi Wireless Telegraph Co. of America, was made effective on November 12, 1914. The increase in the ship rates from 2 cents to 4 cents per word and the coast rate from 3 cents to 6 cents per word, authorized for the Pacific stations of the Marconi Wireless Telegraph Co. of America for the North and South American service, was made effective on February 1, 1915.

## AMENDMENTS.

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

The Radio Communication Laws of the United States, edition of July 27, 1914, are hereby amended as follows:

Paragraph 153, page 66, should read:

Renewal licenses may be issued to commercial grade operators without examination, provided the service records on the backs of licenses properly certify to three months' satisfactory commercial service during the last six months of the license term. If expired licenses have been lost or destroyed, an affidavit must be submitted attesting the facts regarding the manner in which the license was lost. In such cases, evidence of the required satisfactory commercial service may be submitted in the form of letters, signed by masters and employers.

Operators holding licenses of grades other than commercial, who submit satisfactory evidence to the examining officer, showing actual operation of radio apparatus for three months during the last six months of the license term, may be issued new licenses without examination. Otherwise, applicants for renewals will be examined in the usual manner.

Renewals or new licenses may be issued a reasonable length of time previous to the expiration of existing licenses, but must bear the exact date of issue, which must correspond with the date on the back of Form 756 forwarded to the Commissioner of Navigation.

Service records must be completed and signed only by masters, employers, or the duly authorized agents of either.

Any improper alteration of the service record, or the forgery of masters' or employers' signatures, constitute a violation of the regulations, and the operator may suffer suspension of license for a period not exceeding one year, at the discretion of the Secretary of Commerce.

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