

# DEPARTMENT OF COMMERCE

# RADIO SERVICE BULLETIN

ISSUED MONTHLY BY BUREAU OF NAVIGATION

Washington, March 31, 1926—No. 108

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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 = Radiocompass station.
	FS = Fog signal.
	P = Private.
	O = Government business exclusively.
Hours	= Hours of operation.
	N = Continuous service.
	X = No regular hours.
F. T. Co.	= Federal Telegraph Co.
I. R. T. Co.	= Inter-city Radio Telegraph Co.
I. W. T. Co.	= Independent Wireless Telegraph Co.
K. & C.	= Kilbourn & Clark Manufacturing Co.
R. C. A.	= Radio Corporation of America.
U. R. Corp.	= Universal Radio Corporation.
W. S. A. Co.	= Wireless Specialty Apparatus Co.
C. w.	= Continuous wave.
I. c. w.	= Interrupted continuous wave.
K. c.	= Kilocycles.
Fy.	= Frequency.
A. c.	= Alternating current.
V. t.	= Vacuum tube.
U. S. L.	= After operating company denotes that the change applies only to the List of 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, 1925, and to the International List of Radiotelegraph Stations published by the Home Bureau)

Station	Call signal	Wave lengths	Service	Hours	Station controlled by—
Annette Island, Alaska. <sup>1</sup>	KCAF	600, 625, 700...	PG	X	Annette Island Packing Co.
Columbus, Ohio. <sup>2</sup>	WGL	1950.....	PX	.....	Intercity Radio Telegraph Co.
Eska, Alaska. <sup>3</sup>	KOAD	600, 625.....	P	X	Sunny Point Packing Co.
Port Armstrong, Alaska. <sup>4</sup>	KHH	600, 650.....	P	X	Buchan & Heinen Packing Co.
Point Barrow, Alaska. <sup>5</sup>	KDZ	21.4, 42.08, 74.77, 149.5.....	FX	.....	New York Times.
Engleau Bay, Alaska. <sup>6</sup>	KPJ	600, 600, 1535.....	P	.....	Alaska Consolidated Canneries (Inc.).
Schantzady, N. Y. <sup>7</sup>	WBQ	18.3, 23.5.....	FX	X	General Electric Co.

<sup>1</sup> Loc. (approximately)  $0\ 136^{\circ}\ 40'\ 00''$ ,  $N\ 55^{\circ}\ 10'\ 00''$ ; range, 150; system, Navy, 1000.

<sup>2</sup> Loc. (approximately)  $0\ 83^{\circ}\ 00'\ 00''$ ,  $N\ 40^{\circ}\ 00'\ 00''$ ; range, 300; system, composite, v. t. telegraph; hours, 8 a. m.—8 p. m.

<sup>3</sup> Loc.  $0\ 135^{\circ}\ 47'\ 40''$ ,  $N\ 56^{\circ}\ 49'\ 10''$ ; range, 150; system, Navy, 1000.

<sup>4</sup> Loc. (approximately)  $0\ 135^{\circ}\ 10'\ 00''$ ,  $N\ 57^{\circ}\ 52'\ 00''$ ; range, 150; system, K. & C., 1000.

<sup>5</sup> Loc. (approximately)  $0\ 156^{\circ}\ 18'\ 00''$ ,  $N\ 71^{\circ}\ 23'\ 00''$ ; range, 500; system, composite, v. t. telegraph; hours, 10 a. m.—2 p. m.

<sup>6</sup> Loc. (approximately)  $0\ 134^{\circ}\ 10'\ 00''$ ,  $N\ 54^{\circ}\ 50'\ 00''$ ; range, 150; system, Marconi, 240; hours, 7 a. m.—midnight.

<sup>7</sup> Loc. (approximately)  $0\ 73^{\circ}\ 51'\ 30''$ ,  $N\ 42^{\circ}\ 50'\ 00''$ ; range, 2000; system, General Electric Co., v. t. telegraph.

## Commercial ship stations, alphabetically, by names of vessels

(Additions to the List of Radio Stations of the United States, edition of June 30, 1925, and to the International List of Radiotelegraph Stations published by the Home Bureau)

Name of vessel	Call signal	Rate	Service	Hours	Owner of vessel	Station controlled by—
Atas.....	KCAA	8	PG	X	Hugh J. Chisholm.....	R. C. A.
Arctic.....	KYB	8	PG	X	Alaska Packers Association.....	.....
Arlyn.....	KEKQ	8	PG	X	A. H. Hull & S. Co.....	I. W. T. Co.
Brasawick.....	WNIO	8	PG	X	Asa F. Davison.....	R. C. A.
Cohatitua.....	KFP	.....	P	X	Famous Players-Lasky Corporation.....	Owner of vessel.
E. J. Sadler.....	KGAC	8	PG	X	Standard Oil Co. of N. J.....	R. C. A.
E. M. Clark.....	KGAB	8	PG	X	do.....	Do.
Gulferest.....	KZYZ	8	PG	X	Gulf Refining Co.....	Do.
Henry G. Dalton.....	KGAE	.....	PG	X	Interlake S. S. Co.....	Do.
Huscar.....	KZV	.....	PG	X	E. F. Hutton.....	.....
June Christensen.....	KDHL	8	PG	X	Selden & Christensen.....	Do.
Lake Gorm.....	WHIE	8	PG	X	Ford Motor Co.....	Do.
Lake Ormoe.....	KVUA	8	PG	X	do.....	Do.
Memnon.....	KDMH	8	PG	X	Columbia River Packers Association.....	Owner of vessel.
Moerwis Bridge.....	KOZD	8	PG	X	Matson Navigation Co.....	.....
Palatka.....	WFN	8	PG	X	Asa F. Davison.....	R. C. A.
Steel Chemist.....	KEZW	8	PG	X	U. S. Steel Products Co.....	Do.
Steel Electrician.....	KEZX	8	PG	X	do.....	Do.
Tycomate.....	KIST	8	PG	X	Ulen & Co.....	I. W. T. Co.
Western Ally.....	KEJF	8	PG	N	U. S. Shipping Board.....	R. C. A.

<sup>1</sup> Range, 300; system, Navy-Marconi, 1,000; w. l., 600, 700, 800.

<sup>2</sup> System, composite v. t. telephones and telegraph; w. l., 110, 600.

<sup>3</sup> Rates, Great Lakes service, 4 cents per word.

<sup>4</sup> Range, 300; system, Federal airc; w. l., 600, 700, 800, 2,100, 2,400.

<sup>5</sup> Range, 300; system, Navy, 1,000; w. l., 600, 700, 800.

<sup>6</sup> System, R. C. A. v. t. telegraph.

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## Commercial land and ship stations, alphabetically, by call signals

[b, ship station; e, land station]

Call signal	Name of station	Call signal	Name of station
KDJH	Jane Christensen.....b	KGAC	E. J. Sadler.....b
KDMH	Memnon.....b	KOAD	Kake, Alaska.....e
KDST	Tecumate.....b	KGAF	Henry O. Dalton.....b
KDZ	Point Barrow, Alaska.....e	KGAF	Annette Island, Alaska.....e
KEJP	Western Ally.....b	KHH	Port Armstrong, Alaska.....e
KEKQ	Ariyn.....b	KOZO	Miravin Bridge.....b
KFJ	Saginaw Bay, Alaska.....e	KVUA	Lake Osmoe.....b
KFP	Constitution.....b	KYS	Arctic.....b
KFZV	Hassar.....b	WBQ	Schenectady, N. Y.....e
KFZW	Steel Chemist.....b	WCL	Columbus, Ohio.....e
KFZX	Steel Electrician.....b	WFN	Palatka.....b
KFZY	Gulfcrest.....b	WNIO	Brunswick.....b
KGAA	Ara.....b	WRIE	Lake Gorin.....b
KOAB	E. M. Clark.....b		

## Governmental land stations, alphabetically, by names of stations

[Additions to the List of Radio Stations of the United States, edition of June 30, 1925, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Station	Call signal	Wave length	Service	Hours	Station controlled by—
San Pedro, Calif. †.....	NGQ	110, 115, 130...	O	X	U. S. Const Guard.

† Range, 50; system, W. E. v. t. telegraph.

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

[Additions to the List of Radio Stations of the United States, edition of June 30, 1925, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Station	Call signal	Wave length	Service	Hours	Station controlled by—
Briarcliff.....	NEZB				New York Naval Militia.

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

[b, ship station; e, land station]

Call signal	Name of station	Call signal	Name of station
NEZB	Briarcliff.....b	NGQ	San Pedro, Calif.....e

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

[Additions to the List of Radio Stations of the United States, edition of June 30, 1925]

Station	Call signal	Station controlled by—
Babylon, N. Y.....	2XC	Independent Wireless Telegraph Co., 67 Wall Street, New York, N. Y.
Cleveland, Ohio.....	8XAR	Integrity Radio Telegraph Co.
Detroit, Mich.....	8XBT	Do.
Flint, Mich.....	8XAZ	Frank D. Fallain, Police Building.
Rutherford, Pa.....	8XF	Reading Co. (Graybar Electric Co.).
San Pedro, Calif.....	6XBX	McWhinnie Electric Co., 1925 South Pacific Avenue.
Washington, D. C.....	3XII	Capt. Clay I. Horough, U. S. Signal Corps, 2854 Connecticut

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## Special land stations, grouped by districts.

Call signal	District and station	Call signal	District and station
2XC	Second district: Babylon, N. Y. ....	6XBX	Sixth district: San Pedro, Calif.
3XP	Third district:	8XAR	Eighth district:
3XH	Rutherford, Pa. ....	8XAZ	Cleveland, Ohio.
	Washington, D. C. ....	8XBT	Flint, Mich.
	Do .....		Detroit, Mich.

## ALTERATIONS AND CORRECTIONS

## COMMERCIAL LAND STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1925, and to the International List of Radiotelegraph Stations, published by the Berné bureau]

ALITAK, ALASKA.—System, composite, 1,000.  
 BECHAROF, ALASKA.—System, K. & C., 240.  
 BIRMINGHAM, ALA.—Owner of station, Inland Waterways Corporation.  
 BUTLER, PA.—System, composite, v. t. telegraph.  
 CAPE CHACON, ALASKA.—Loc. (approximately) O 132° 00' 00", N 54° 50' 00";  
 w. l., 600, 900, 1,585.  
 CEIBA, P. R.—W. l., add 52.  
 CHARLENOI, PA.—W. l., 90.88, 142.1.  
 CHIGNIK, ALASKA (KJB).—System, K. & C., 1,000.  
 CHOMLY, ALASKA.—W. l., 600, 900, 1,585.  
 DALLAS, TEX. (KVP).—W. l., 146.8.  
 DALY, ALASKA.—W. l., 600, 725, 1,610.  
 DEARBORN, MICH.—Range, 300.  
 DETROIT, MICH. (WDI).—W. l., 715, 875, 1,960.  
 EAST HAMPTON, N. Y.—System, composite, 480; w. l., 600, 625.  
 EGEK, ALASKA.—W. l., 600, 706.  
 EKUK, ALASKA.—W. l., 600, 900.  
 EVERETT, WASH.—W. l., add 706.  
 FORT WORTH, TEX.—Loc. (approximately) O 97° 15' 00", N 32° 45' 00"; system,  
 - Western Electric v. t. telegraph and telephone; w. l., 1,585.  
 GALVESTON, TEX.—W. l., 600, 830, 2,200, 2,310.  
 HILO, HAWAII.—W. l., 600, 675; hours, 7.30 a. m.—8 p. m.  
 HONOLULU, HAWAII (KOG).—W. l., 600, 790; hours, 7.30 a. m.—11.30 p. m.  
 HUNTERS BAY, ALASKA.—System, Marconi, 1,000.  
 IKATAN, ALASKA.—W. l., 600, 875, 900, 1,610; service, PG; rates, ship service 6  
 cents per word.  
 KARLUK, ALASKA.—Range, 150; system, Marconi, 1,000.  
 KABAAN, ALASKA.—System, Marconi, 1,000.  
 KATALLA, ALASKA.—W. l., 600, 1,650; service, FX.  
 KAUMAPALAPAU, HAWAII.—Loc. (approximately) O 156° 59' 00", N 20° 47' 00".  
 KAUNAKAKAI, HAWAII.—W. l., 600, 675; hours, 7.30 a. m.—5.30 p. m.  
 KAWAIIHAE, HAWAII.—W. l., 600, 675.  
 KENAI, ALASKA (KLD).—System, Marconi, 1,000.  
 KOGGIUNG (moored vessel—KUBX).—System, Marconi coil, 120.  
 KOGGIUNG, ALASKA (KVV).—W. l., strike out 900.  
 LIBBYVILLE, ALASKA.—W. l., 600, 900, 1,680, 1,800, 1,900, 2,100, 2,400.  
 LIHUE, HAWAII.—W. l., 600, 675; hours, 7.30 a. m.—5.30 p. m.  
 LOCKANOK, ALASKA.—W. l., 600, 900, 1,650.  
 LORING, ALASKA.—Loc. (approximately) O 131° 38' 00", N 55° 36' 00"; w. l.,  
 600, 700.  
 MEMPHIS, TENN.—Owner of station, Coastwise Waterways Corporation.  
 MOBILE, ALA. (WPP).—Owner of station, Coastwise Waterways Corporation.  
 NAKNEK, ALASKA (KHT).—Service, P.  
 NAKNEK, ALASKA (KMK).—W. l., 600, 650, 1,750.  
 NAKNEK, ALASKA (KOM).—System, Marconi, 1,000.  
 NUSHAGAK, ALASKA (KKAE).—W. l., 600, 900.  
 NUSHAGAK, ALASKA (KNJ).—System, Marconi, 1,000.  
 PILLAR BAY, ALASKA.—System, Marconi, 1,000; w. l., 600, 725, 900.

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- PORT MOLLER, ALASKA.—W. l., 800, 900, 1,610; service, PG; rates, ship service 6 cents per word.
- PYBUS BAY, ALASKA.—W. l., 600, 900, 1,585.
- PYBUT, WASH.—W. l., 146, 600.
- QUADRA, ALASKA (KHD).—W. l., 600, 900, 1,585.
- QUADRA, ALASKA (KOR).—System, Marconi, 1,000.
- RADIOVILLE, ALASKA.—W. l., 600, 700.
- ROGERS, MICH.—Range, 500; system, Marconi, 1,000 and Marconi v. t. telegraph; w. l., 715, 875, 1,790, 2,150.
- ROSE INLET, ALASKA.—W. l., 600, 900, 1,585.
- RED BLUFF BAY, ALASKA.—Range, 200-300; system, F. T. Co. arc and F. T. Co., 1,000; w. l., 600, 675, 706, 1,750, 1,800, 2,400; service, PG; rates, ship business (private) 5 cents per word, PG ship to shore 10 cents per word; owner of station, David H. Bunch.
- SALTCHUCK, ALASKA.—W. l., 600, 875.
- SHAKAN, ALASKA.—System, Marconi, 1,000.
- SNAG POINT, ALASKA.—Service, P.
- SQUAW HARBOR, ALASKA.—W. l., 600, 875.
- SUPERIOR, MICH.—W. l., 715, 1,621.
- TENAKEE, ALASKA.—W. l., 600, 900, 1,585.
- UYAK, ALASKA (KHV).—System, Marconi, 1,000.
- VIEQUES, P. R.—W. l., add 52.
- WAHIAWA, HAWAII.—W. l., 600, 740, 2,400.
- WAILUKU, HAWAII.—W. l., 600, 675; hours, 7.30 a. m.—5.30 p. m.
- WRANGELL, ALASKA.—Loc. (approximately) O 132° 22' 00", N 56° 29' 00"; w. l., 600, 700.
- YAKUTAT, ALASKA.—W. l., 600, 900.
- YES BAY, ALASKA.—W. l., 600, 900, 1,585.
- Strike out all particulars of the following-named stations: Metha Nelson; New Brunswick, N. J. (WIK); Yacutaga Beach, Alaska.

## COMMERCIAL SHIP STATIONS, ALPHABETICALLY BY NAMES OF VESSELS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1925, and to the International List of Radiotelegraph Stations, published by the Berna Bureau]

- AGWIDALE.—System, Navy-Marconi, 1,000; w. l., 600, 706, 800.
- AGWISEA.—Owner of vessel, Citics Service Transportation Co.
- ALL AMERICA.—System, F. T. Co. arc and F. T. Co. 1,000; w. l., 600, 706, 800, 1,800, 2,000, 2,100, 2,400.
- ANACOSTEN.—W. l., 600, 706, 800.
- ANGELINE.—System, Navy-Marconi, 1,000; w. l., 715, 800, 875; rates, Great Lakes service 4 cents per word.
- ANN ARBOR No. 3.—W. l., 715.
- ANN ARBOR No. 4.—W. l., 715.
- ANSONIO.—W. l., 600, 706, 800.
- ARDMORE.—System, Lowenstein, 1,000 and I. W. T. Co. arc; w. l., 600, 706, 800, 1,800, 1,900, 2,000, 2,100, 2,400.
- ARTIGAS.—W. l., 600, 706, 800.
- ASTERO II.—Service, PG; hours, X; rates, 8 cents per word; station controlled by R. C. A.
- BARBARA C.—System, F. T. Co., 1,000; w. l., 600, 706, 800; station controlled by F. T. Co.
- BIDWELL.—Owner of vessel, Sun Oil Co.
- BUTTERCUP.—System, R. C. A v. t. telegraph; w. l., 600, 706, 800; owner of vessel, Ford Motor Co., station controlled by R. C. A.
- BYRON D. BENSON.—W. l., 600, 706, 750, 800, 900.
- C. A. CANFIELD.—System, R. C. A. v. t. telegraph.
- CADDO.—W. l., 450, 600, 706.
- CADILLAC.—System, Navy-Marconi, 1,000; w. l., 715, 800, 875; rates Great Lakes, 4 cents per word.
- CARPLAKA.—System, Navy-Marconi, 1,000; w. l., 600, 706, 800.
- CATHERINE.—W. l., 600, 706, 800; owner of vessel, A. H. Bull S. S. Co.
- CATHLAMET.—W. l., 600, 706, 800.
- CRCIL COUNTY.—W. l., 600, 706, 800; station controlled by I. W. T. Co.
- CHALLENGER.—W. l., 600, 706, 800.
- CHANTIER.—System, Navy, 1,000; w. l., 600, 706, 800; station controlled by Byrd Arctic Expedition.

- CITY OF FAIRBURY.—W. l., 600, 706, 800.  
 CLINCHO.—Range, 200; w. l., 600, 706; owner of vessel, Hollywood Boat & Transportation Co.  
 COELLEDA.—W. l., 600, 706, 800.  
 COLDBROOK.—W. l., 450, 600, 706, 800.  
 COMMISSIONER.—Range, 300; w. l., 600, 706, 800.  
 CORVUS.—W. l., 600, 706, 800.  
 CUBORE.—W. l., 600, 706, 800.  
 CUTTY SARK.—Range, 150; system, R. C. A. v. t. telephone and telegraph; w. l., 600, 706, 750, 800, 1,800, 1,900, 2,000, 2,100, 2,400; service, PG; hours, X; rates, 8 cents per word; station controlled by R. C. A.  
 DEAN EMBURY.—System, Navy-Marconi, 1,000; w. l., 600, 706, 800.  
 DEGO.—Owner of vessel, Bay State Fishing Co.  
 DELAWARE SUN.—W. l., 600, 706, 800.  
 DEMOPOLIS.—System, composite, 1,000.  
 DIO.—Owner of vessel, Finkbine-Guild Transportation Co.  
 DIRIGO.—W. l., 600, 706, 800.  
 DISTRICT OF COLUMBIA.—Station controlled by I. W. T. Co.  
 EASTERLING.—System, Navy-Marconi, 1,000; w. l., 600, 706, 800; station controlled by I. W. T. Co.  
 EASTERN GALE.—Owner of vessel, Perry L. Smithers.  
 EASTERN GLENN.—W. l., 600, 706, 800; owner of vessel, American-South African Line.  
 EDENTON.—Range, 300.  
 EL ISLEO.—W. l., 600, 706, 800.  
 ELKRIDGE.—W. l., 600, 706, 800; station controlled by R. C. A.  
 EMERGENCY AID.—W. l., 600, 706, 800, 1,800, 2,100, 2,400.  
 EMPIRE ARROW.—W. l., 600, 706, 800.  
 FEDERAL (WDOO).—Range, 300; system Navy-R. C. A., 1,000; w. l., 600, 706, 800, 875.  
 FREDERIC R. KELLOGG.—System, R. C. A. v. t. telegraph; w. l., 600, 706, 750, 800, 900.  
 GEORGE G. HENRY.—System, R. C. A. v. t. telegraph; w. l., add 750, 900.  
 GEORGE WASHINGTON (KDCL).—System, F. T. Co. arc and Navy-Lowenstein, 1,000; w. l., 600, 706, 800, 1,800, 1,900, 2,000, 2,100, 2,400.  
 GLYMONT.—System, Navy-K. & C.; 1,000; w. l., 600, 706, 800.  
 GOVERNOR COBB.—W. l., 600, 706, 800.  
 GRAND ISLAND.—System, Navy-Marconi, 1,000; w. l., 715, 800, 875; rates, Great Lakes service, 4 cents per word.  
 GUINEVERE.—System, W. S. A. Co. v. t. telegraph; w. l., 600, 706, 800; service, PG; rates, 8 cents per word.  
 GULFPORT.—System, composite, 1,000.  
 HAGAN.—Station controlled by I. W. T. Co. (U. S. L.).  
 HEFFRON.—Owner of vessel, Heffron S. S. Co.  
 HERBERT L. PRATT.—W. l., 600, 706.  
 HOWICK HALL.—W. l., 600, 706, 800.  
 INVINCIBLE.—W. l., 600, 706, 800; station controlled by R. C. A. (U. S. L.).  
 IROQUOIS.—W. l., 600, 706, 800.  
 JADDEN.—W. l., 600, 706, 800; station controlled by R. C. A. (U. S. L.).  
 JAMES MCGEE.—System, R. C. A. v. t. telegraph; w. l., 600, 706, 750, 800, 900.  
 JEAN.—W. l., 600, 706, 800.  
 JETHA.—W. l., 600, 706, 800, 2,100, 2,400; owner of vessel, Alaska S. S. Co.  
 J. M. DANZINGER.—System, R. C. A. v. t. telegraph; w. l., add 750.  
 JOSEPH D. WOOD.—Station controlled by R. C. A.  
 KENTUCKIAN.—W. l., 600, 706, 800.  
 K. I. LUCKENBACH.—Range, 200; system, Navy, 1,000.  
 LAKE CHARLES.—System, Navy-Marconi, 1,000; w. l., 600, 706, 800.  
 LAKE FLATTERY.—Name changed to Buenaventura.  
 LAKE FLORIAN.—Name changed to Tillie Lykes.  
 LAKE SLAVI.—Name changed to Almerica Lykes; station controlled by R. C. A.  
 LARA.—Range, 200; system, R. C. A. v. t. telegraph; w. l., 600, 706, 800, 900; station controlled by R. C. A.  
 LEBORE.—W. l., 600, 706, 800.  
 LIVINGSTONE ROE.—System, R. C. A. v. t. telegraph; w. l., 600, 706, 750, 800, 900.  
 LYNDONIA.—System, Marconi, 1,000; w. l., 600, 706, 800.

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- MARGARET F. STERLING.—Range, 150; system, Marconi, 1,000; w. l., 600, 706, 800; station controlled by owner of vessel.
- MARQUETTE.—System, Navy-Marconi, 1,000; w. l., 715, 800, 875; rates, Great Lakes service, 4 cents per word.
- MAHAN.—Call signal changed to KZBM; range, 600; system, v. t. telegraph; w. l., 600; service, PG; hours, X; rates, 8 cents per word; owner of vessel, Compania General de Tabacos de Filipinas; station controlled by owner of vessel.
- MIAMI (KFZK).—Range, 300; system, R. C. A. v. t. telegraph; w. l., 600, 706, 800.
- MIAMI (KOZ).—W. l., 600, 706, 800.
- MILLINOCKET.—Owner of vessel, United Wireless, 120; w. l., 600, 706, 800.
- MOBILE.—System, composite, 1,000.
- MOBILE CITY.—W. l., 600, 706, 800.
- MOHAWK (KFYU).—Range, 150-300; system, I. W. T. Co. arc and Marconi, 1,000; w. l., 600, 706, 800, 1,800, 2,000, 2,100, 2,400.
- MOHEGAN.—System, composite, 1,000; hours, X.
- MONGOLIA.—System, Navy-Lowenstein, 1,000 and I. W. T. Co. arc; w. l., 600, 706, 800, 1,800, 1,900, 2,000, 2,100, 2,400.
- MONTAGUE.—W. l., 600, 706, 800.
- MONTANA.—W. l., 600, 706, 800.
- MONTGOMERY.—System, composite, 1,000.
- MUNISLA.—W. l., 600, 706, 800.
- MUNISING.—System, Navy-Marconi, 1,000; w. l., 715, 800, 875; rates, Great Lakes service, 4 cents per word.
- NEGAUNEE.—System, Navy-Marconi, 1,000; w. l., 715, 800, 875; rates, Great Lakes service, 4 cents per word.
- NEW BRITAIN.—W. l., 600, 706, 800.
- NEW HAMPSHIRE.—W. l., 600, 706, 800, 875.
- NORA.—W. l., 600, 706, 800.
- O. A. HERMANSON.—Name changed to Creole.
- ORITANI.—Range, 200; system, R. C. A. v. t. telegraph; w. l., 600, 706, 800.
- ORIZABA.—System, Navy-Marconi, 1,000 and I. W. T. Co. arc; w. l., 600, 706, 800, 1,800, 1,900, 2,000, 2,100, 2,400.
- ORMES.—Range, 200; system, R. C. A. v. t. telegraph; w. l., 600, 706, 800.
- OTHO.—W. l., 600, 706, 800.
- PADSNAY.—System, Navy-Marconi, 1,000; w. l., 600, 706, 800.
- PANAMAN.—W. l., 600, 706, 800.
- PHYLLIS.—System, F. T. Co., 1,000; station controlled by F. T. Co.
- PRESIDENT HARRISON.—System, R. C. A., 1,000; w. l., 450, 600, 706, 800.
- PRESIDENT MADISON.—W. l., 600, 706, 800, 1,800, 2,100, 2,400.
- PRESQUE ISLE.—System, Navy-Marconi, 1,000; w. l., 715, 800, 875; rates, Great Lakes service, 4 cents per word.
- REPUBLIC (KUBJ).—Owner of vessel, Petroleum Navigation Co.
- RESTOREE.—W. l., 600, 706, 800.
- ROBERT J. PAISLEY.—W. l., 715, 800, 875.
- SANTA EULALIA.—System, Marconi, 1,000; w. l., 600, 706, 800.
- SANTA INEZ.—Station controlled by F. T. Co.
- SARAMACA.—W. l., 600, 706, 800.
- SCOTTSBURG.—W. l., 600, 706, 800.
- SEEKONK.—Owner of vessel, United American Lines.
- STANDARD (KIC).—System, R. C. A. v. t. telegraph; w. l., 600, 706, 750, 800, 900.
- STELLA LYKES.—Range, 200; system, Marconi, 1,000; w. l., 600, 706, 800.
- SWIFTEAGLE.—Range, 300; system, composite, 1,000 and I. W. T. Co. arc; w. l., 600, 706, 800, 1,800, 1,900, 2,000, 2,100, 2,400; station controlled by I. W. T. Co.
- SWIFT SCOUT.—Range, 300; system, I. W. T. Co. arc; w. l., 600, 706, 800, 1,800, 1,900, 2,000, 2,100, 2,400.
- THOMAS BRITT.—System, Navy-Marconi, 1,000; w. l., 715, 800, 875; rates, Great Lakes service, 4 cents per word; station controlled by Intercity Radio Telegraph Co.
- THOMAS H. WHEELER.—System, R. C. A. v. t. telephone and telegraph; w. l., 600, 706, 750, 800, 900.
- THOMAS P. NEAL.—W. l., 600, 706, 800.
- THOMAS TRACY.—Range, 150; system, Telefunken, 1,000; w. l., 600, 706, 800.
- TIGER (KIT).—System, R. C. A. v. t. telegraph; w. l., 600, 706, 750, 800, 900.
- TILLICUM.—W. l., 600, 706.

- TUSCALOOSA.**—Owner of vessel, Inland Waterways Corporation.  
**TUXPANOH.**—W. l., 600, 706, 800, 1,900, 2,000, 2,100, 2,400; station controlled by I. W. T. Co.  
**WANDERER.**—System, Western Electric Co. v. t. telephone and telegraph; w. l., 129, 600.  
**WARBLER.**—W. l., 450, 600, 706, 800.  
**WEST CAJOOT.**—W. l., 600, 706, 800.  
**WEST CALUMB.**—W. l., 600, 706, 800.  
**WEST CAMARGO.**—W. l., 600, 706, 800.  
**WEST CAWTHON.**—W. l., 600, 706, 800; owner of vessel, American-South African Line; station controlled by R. C. A.  
**WEST KEATS.**—Range, 200.  
**WESTERN KNIGHT.**—Range, 300; system, Navy-Lowenstein, 1,000; w. l., 600, 706, 800; owner of vessel, American-South African Line.  
**WEST GAMBO.**—W. l., 600, 706, 800.  
**WEST IRA.**—W. l., 600, 706, 800.  
**WEST IVAN.**—W. l., 600, 706, 800.  
**WEST JENA.**—Name changed to Myrtle; range, 300; system Navy-Marconi, 1,000; w. l., 600, 706, 800, owner of vessel, Forest Transportation Corporation; station controlled by I. W. T. Co.  
**WEST KASSON.**—Owner of vessel, Grace S. S. Co.; station controlled by R. C. A.  
**WEST LASHAWAY.**—Station controlled by I. W. T. Co.  
**WEST MODUS.**—W. l., 600, 706, 800.  
**WEST NOTUS.**—Owner of vessel, Pacific Argentina Brazil Line.  
**WILLETT.**—W. l., 600, 706, 800.  
**WINDHAM.**—Range, 300; system, R. C. A., 1,000; w. l., 600, 706, 800; owner of vessel, United Dredging & Marine Construction Co.  
**W. R. CHAMBERLAIN, JR.**—System, F. T. Co., 1,000; w. l., 600, 706, 800; station controlled by F. T. Co.  
 Strike out all particulars of the following-named vessels: Cuyamaca, Gertrude, Irages, Lake Onawa, Latham, Peerless, Star of France, Star of Iceland, Star of Italy, Star of Lapland, Star of Russia.

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

**KOJJ**, read Wyoming; **KOMC**, read Buenaventura; **KOTG**, read Myrtle; **KOTJ**, read Almeria Lykes; **KRAE**, read KUBZ-Mauban; **KUFD**, read Tillie Lykes; **WRA**, read Creole; strike out all particulars following the call signals **KDVC**, **KDYH**, **KPFH**, **KFFI**, **KPFJ**, **KFSB**, **KPYV**, **KMP**, **KOJM**, **KUKR**, **KUXD**, **KXOA**, **KYJ**, **WIK**.

#### COMMERCIAL AIRPLANE STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1925, and to the International List of Radiotelegraph Stations, published by the Bureau.]

Unnamed (KDA).—Read Detroit.

#### BROADCASTING STATIONS, BY CALL SIGNALS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1925 and list in Radio Service Bulletin No. 106, January 30, 1926.]

**KFVN** (Welcome, Minn.).—Change to Fairmont, Minn.  
**KFVS** (Cape Girardeau, Mo.).—Owner of station, Hirsch Battery & Radio Co.  
**KTAB** (Oakland, Calif.).—Owner of station, Associated Broadcasters.  
**WFBI** (Camden, N. J.).—Call signal changed to WCAM.  
**WGBI** (Scranton, Pa.).—Owner of station, Scranton Broadcasters (Inc.) (Frank S. Megargee).  
**WGBX** (Orono, Me.).—Power, 500; w. l., 234.2, fy. kc., 1,250.  
**WBK** (Cleveland, Ohio).—Address, 1220 Huron Road.  
**WIBS** (Elizabeth, N. J., portable).—Owner of station, Lieut. Thomas F. Hunter.  
**WJAK** (Kokomo, Ind.).—Owner of station, Kokomo Tribune.  
**WJBG** (Charlotte, N. C.).—Call changed to WNRC, location change to Greensboro, N. C.; owner of station, Wayne M. Nelson.  
 Strike out all particulars following the call signals **KFVR** (Denver, Colo.—near); **KFXM** (Beaumont, Tex.).



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## GOVERNMENT LAND STATIONS, ALPHABETICALLY BY NAMES OF STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1925, and to the International List of Radiotelegraph Stations, published by the Berns bureau]

GRAND MARAIS, MICH.—Loc. O 85° 58' 28", N 46° 40' 39".

## 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, 1925, and to the International List of Radiotelegraph Stations, published by the Berns bureau]

ABARENDA.—Strike out all particulars.

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

Strike out all particulars following the call signal, NOB.

## SPECIAL LAND STATIONS, BY NAMES OF STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1925]

BOUND BROOK, N. J. (2XAR).—Owner of station, R. C. A.  
 HOLLYWOOD, CALIF. (6XBR-portable).—Change to Los Angeles, Calif.  
 STANFORD UNIVERSITY, CALIF. (6XBM).—Owner of station, Stanford University.  
 Strike out all particulars of the following-named stations: Brooklyn, N. Y. (2XN); New York, N. Y. (2XAO); New York, N. Y. (2XAS); New York, N. Y. (2XNA); New York, N. Y. (2XW); Polytechnic, Mont. (7YI); Washington, D. C. (3XAV).

## MISCELLANEOUS

## CHANGES IN RADIO FOG SIGNALS ON THE GREAT LAKES

*Detroit River Light Station, Mich.*—Characteristic: To sound every 120 seconds; groups of 2 dashes for 60 seconds, silent 60 seconds; thus:

— — — — etc.	Silent.
60 seconds.	60 seconds.

Signals will be transmitted daily in clear weather at the following hours (ninetieth meridian time): 4 to 4.30 and 10 to 10.30 a. m.; 4 to 4.30 and 10 to 10.30 p. m.

*Lake Huron Light Station, Mich.*—Signals will be transmitted daily in clear weather at the following hours (ninetieth meridian time): 2 to 2.30 and 8 to 8.30 a. m.; 2 to 2.30 and 8 to 8.30 p. m.

*Detour Light Station, Mich.*—Characteristic: To sound every 180 seconds; groups of 4 dashes for 60 seconds, silent 120 seconds, thus:

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

Signals will be transmitted daily in clear weather at the following hours (ninetieth meridian time): 12 to 12.30 and 6 to 6.30 a. m.; 12 to 12.30 and 6 to 6.30 p. m.

*Whitefish Point Light Station, Mich.*—Signals will be transmitted daily in clear weather at the following hours (ninetieth meridian time): 4 to 4.30 and 10 to 10.30 a. m.; 4 to 4.30 and 10 to 10.30 p. m.

## CHANGES IN ITALIAN STATIONS

The coast station Naples (ICN) is closed. A new station, Naples (IQH) has been opened, location 14° 14' 42" E., 40° 50' 34" N., system, Marconi, w. l., 300, 600, service, PG, hours, N.; rates, 60 centimes per word. The coast station, Palermo is closed.

## WEATHER BULLETINS TRANSMITTED BY FOREIGN STATIONS

*France, Paris (Eiffel Tower).*—The weather bulletins previously transmitted by this station at 0400, 0940, 1005, 1600, and 2100 G. M. T. are now transmitted at 0400, 0840, 1008, and 2100 G. M. T. on 7,300 meters (c. w.) and at 1600 G.

M. T. on 6,000 meters (c. w.). The weather bulletins at 0220, 0820, 1420, and 1920 G. M. T. are now transmitted on a wave length of 7,300 meters (c. w.). The weather bulletins previously transmitted at 0400, 1420, and 2300 G. M. T. are now transmitted at 0420, 0840, 1008, 1620, and 2220 G. M. T. on 75 meters (c. w.), as follows: At 0420, commencing "Meteo le Verrier." Observations of 1800 and 0100 from stations in Europe and North Africa, and ships' international code resume. At 0840, commencing "Meteo Amerique Atlantique." Simultaneous transmission of 1008 bulletin from Issy-les-Moulineaux (OCDJ) on 33 meters, c. w. At 1620, repetition of 1600 bulletin. At 2220, commencing "Meteo Maury." Observations of 1300 from stations in Europe and North Africa and 0700, local time observations from Russia and Siberia. Same form as 0420 bulletin. The short-wave emissions from Eiffel Tower are now transmitted with 7 kilowatts in the antenna instead of 1 kilowatt.

*Germany.*—Weather bulletins are now transmitted from the Norddeich station on a wave length of 1,100 meters spark. The bulletins are repeated on 1,100 meters, c. w. (experimentally).

*India.*—Weather bulletins are now transmitted from the Karachi station on 1,000 meters.

*Ceylon.*—At the conclusion of the 0945 and 1745 weather bulletins the Matara station listens on 600 meters for 15 minutes and replies on 2,000 meters, i. c. w., to merchant vessels wishing to transmit weather messages and who are unable to communicate with the Colombo station.

*Korea.*—Weather bulletins issued by the Korean Government Observatory are transmitted through the Seoul (Keijo) station daily at 0000 and 1100 G. M. T. The message is preceded by QST QST QST, and then the bulletin is sent twice, the details being given as follows: Name of observation station (one symbol), barometric pressure (two symbols), wind force and state of the weather (one symbol), wind direction (one symbol). The observations are made at 2100 for the first transmission and at 0900 for the second.

*List of observation stations*

Code	Station	Code	Station
A.....	Ishigaki Jima.	O.....	Makubo.
B.....	Naha.	P.....	Saishu to (Quelpart I.).
C.....	Nase.	Q.....	Dalren.
D.....	Kagoshima.	R.....	Cheoshun.
E.....	Sakai.	S.....	Tsingtao.
F.....	Nagasaki.	T.....	Shanghai.
G.....	Shimonoseki.	U.....	Mukden.
H.....	Fusan.	V.....	Ushio misaki.
I.....	Koryo.	W.....	Niigata.
J.....	Gensan.	X.....	Sho sel to (Little Tsingtao).
K.....	Seishan.	Y.....	Yingkow.
L.....	Ryuk.	Z.....	Tientsin.
M.....	Ryugampo.		
N.....	Cheonulpo (Hansen).		

NOTE.—A, E, I, O, and U are always sent.

Storm warnings are transmitted immediately on receipt and repeated at the commencement of the next hour only. The messages are preceded by QST, QST, QST, and the warning, which is sent in plain English, is transmitted twice. Call signal, JMAA, wave length, for weather bulletins, 800 meters, spark; for storm warnings, 600 meters, spark.

*Australia.*—All weather reports and forecasts transmitted on behalf of the Commonwealth Meteorological Bureau are sent in plain language, the use of the synoptic code being restricted to weather reports from shipping and from the meteorological stations at Port Moresby and Samarai (Papua), the Willis Islets and Flinders Island. When dangerous weather prevails or is expected, special reports and warnings are immediately issued to be forthwith transmitted by the radio stations serving the area affected. The following bulletins are transmitted daily except Sunday by the *Sydney* (VIS), station: At 2300 G. M. T. on 600 meters spark a weather report of the coastal conditions. At 2300-0030 G. M. T. on 600 meters, spark, a 24 hours forecast, if the weather is in receipt of sufficient data. At 0200-0300 G. M. T. on 2,400 meters, i. c. w., if report and forecast are not available until after 0030 they are then transmitted. At 1030 and 2230

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weather reports and a 24 hours forecast are available on application after 0630 daily except on Saturdays and Sundays and are transmitted at 1030 on the day of receipt and repeated at 2230. On Sundays a forecast for the ensuing 24 hours and the coastal weather reports at broadcast at 1030 and repeated at 2230. Special storm warnings are broadcast immediately on receipt and are repeated at intervals until the issue of the next advice from the Weather Bureau. *Adelaide:* Weather bulletins are now broadcast from this station at 1130 and 1330 G. M. T. on 600 meters, i. e. w., giving a weather forecast for ensuing 24 hours, preceded by statement of the meteorological conditions at 0530 G. M. T. except that on Saturdays the forecast is given for 48 hours and the statement omitted. A summary 2330 G. M. T. coastal weather reports and a 24 hour forecast are available on application after 0200 G. M. T. daily, except on Sundays. Special storm warnings are broadcast immediately upon receipt.

## TIME SIGNALS BY FOREIGN STATIONS

*France, Paris (Eiffel Tower).*—Radio time signals are automatically transmitted from the standard clock at Paris Observatory, in accordance with the new international system of radio time signals. There are three transmissions daily, viz, at 8, 030, and 20 G. M. T., the first being simultaneously transmitted on wave lengths of 2,650 meters (spark), 75 meters (c. w.) and 32 meters (c. w.), the second on 2,650 meters (spark) and the last simultaneously transmitted on 75 meters (c. w.) and 32 meters (c. w.). Procedure:

G. M. T.		Signal.
h. m. s.	h. m. s.	
7 19	55 30	Call (— . — . —) followed by initials of the Bureau International de l'Heure (— . . . . .).
7 19	56 05 to { 7 19 } 56 50	— — — every 10 secs., the third series being a single dash prolonged for 5 secs.
	57 00 to 57 50	— . . — . . — . . — . . — etc.
	57 55 to 58 00	$\frac{55}{\cdot}$ $\frac{56}{\cdot}$ $\frac{57}{\cdot}$ $\frac{58}{\cdot}$ $\frac{59}{\cdot}$ $\frac{60}{\cdot}$ Time signal.
	58 05 to 58 10	— .
	58 15 to 58 20	— .
	58 25 to 58 30	— .
	58 35 to 58 40	— .
	58 45 to 58 50	— .
	58 55 to 59 00	$\frac{55}{\cdot}$ $\frac{56}{\cdot}$ $\frac{57}{\cdot}$ $\frac{58}{\cdot}$ $\frac{59}{\cdot}$ $\frac{60}{\cdot}$ Time signal.
	59 05 to 59 10	— — .
	59 15 to 59 20	— — .
	59 25 to 59 30	— — .
	59 35 to 59 40	— — .
	59 45 to 59 50	— — .
7 19	59 55 to { 8 20 } 00 00	$\frac{55}{\cdot}$ $\frac{56}{\cdot}$ $\frac{57}{\cdot}$ $\frac{58}{\cdot}$ $\frac{59}{\cdot}$ $\frac{60}{\cdot}$ Time signal.

— = 1 sec.; . = 0.2 sec.

The procedure for the 9<sup>h</sup> 30<sup>m</sup> new international time signals for which the preliminary signals commence at 9<sup>h</sup> 25<sup>m</sup> 30<sup>s</sup> is similar.

The ordinary W/T time signals (also referred to either as the "Old" or "Semi-automatic" system) will continue to be transmitted once daily, viz, from 22<sup>h</sup> 45<sup>m</sup> to 22<sup>h</sup> 49<sup>m</sup> G. M. T. The 10<sup>h</sup> 45<sup>m</sup> time signals is therefore discontinued.

The new international rhythmic radio time signals are transmitted twice daily. The transmissions commence at 8<sup>h</sup> 01<sup>m</sup> and 20<sup>h</sup> 01<sup>m</sup> G. M. T., the first being simultaneously transmitted on wave lengths of 2,650 meters (spark), 75 meters (c. w.) and 32 meters (c. w.); and the last simultaneously transmitted

The new series consists of the automatic transmission from the standard clock, Paris Observatory, of 306 mean time signals in 300 seconds.

Procedure:

G. M. T.      Signal.

h. m. s.	Signal.
8) 01 00	1st dash (—) followed by 60 dots (. . . . etc.).
20) 02 00	62d      do.      do.      do.
03 00	123d    do.      do.      do.
04 00	184th   do.      do.      do.
05 00	245th   do.      do.      do.

Procedure:

G. M. T.      Signal.

h. m. s.	Signal.
8) 06 00	306th dash (—).

20) 06 : 05 - Transmission in G. M. T. of the extrapolated time of signals Nos. 1 to 306 of the previous day. This will be sent slowly and repeated three times, as follows:

If the signal concerned has been sent 0.14 sec. slow, the correction is transmitted as a three-figure group, thus: 014.

If, on the other hand, the signal has been sent 0.09 fast, the complement of the correction is transmitted as a three-figure group, thus: 991.

If one or other of the signals has failed, the word "Néant" (nothing) is sent.

8) 08 00 End of transmission (. — . — .) followed by BIH (— . . . . .).

Each dash (—) = 0.4 sec.; each dot (.) = 0.2 sec.; interval between each dot =  $\frac{1}{10}$  sec., nearly.

The beginning of each dash represents the G. M. T. of the even minute; the end of the final dash (No. 306) = 8<sup>h</sup> 06<sup>m</sup> 00.4<sup>s</sup> G. M. T., subject to any of the above-mentioned corrections.

The rhythmic time signals at 10<sup>h</sup> 00<sup>m</sup> 00<sup>s</sup> and 22<sup>h</sup> 00<sup>m</sup> 00<sup>s</sup> G. M. T. are therefore discontinued.

Call signal FL.

*Bordeaux (Lafayette).*—Time signals in accordance with the new international system of radio time signals are transmitted twice daily, viz, at 8 and 20 G. M. T. Rhythmic time signals in accordance with the new international scheme are transmitted twice daily, commencing at 801 and 2001 G. M. T. Call signal, LY, wave length, 18,900 meters, c. w. The signals are automatically transmitted by the standard clock at Paris Observatory. For procedure see Eiffel Tower new international system.

*Lyon-Doua.*—Time signals are no longer transmitted by this station. The whole of the foregoing changes will continue for a period of four months, beginning January 1, 1926, after which it is contemplated that the Eiffel Tower international time signals at 930 will be cancelled, and that the Eiffel Tower "old time signals" at No. 2245 will be replaced by the new international time signals at 20, sent on 2,650 meters. By that time the spark transmission from Eiffel Tower will probably be superseded by i. c. w. Transmissions on short waves from Eiffel Tower will also continue for four months, after which as the result of the experience gained one of the short wave lengths will be discontinued and the other permanently in addition to the long wave. It is pointed out that in addition to the simultaneous broadcasts on long and short waves from Eiffel Tower already mentioned, the transmissions 8 and 20, new international and rhythmic time signals both from Eiffel Tower and Lafayette, are simultaneously effected. The probationary period of four months has been adopted in order to ascertain how far the new transmissions meet both general and scientific requirements.

*Australia, Sydney.*—Radio time signals are transmitted from this station, call signal VIS, on 600 meters, spark. They are automatically controlled by the standard time clock of Sydney Observatory. The procedure is as follows: The signals commence at 255 and at 1055, G. M. T., corresponding to 1255 and 2055, standard time, with a long dash lasting for two seconds and end with a long dash for two seconds from 3 to two seconds past three and from 11 to two

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dash of 2 seconds duration commences at each even minute, a dash of 1 second duration commences at 10, 20, 30, 40, and 50 seconds, and the intermediate seconds are given by dots, thus:

Time (G. M. T.)			Signal				
h.	m.	s.	h.	m.	s.		
2	10	55 00	to	2	10	55 09	— . . . . .
2	10	55 10	to	2	10	55 59	— . . . . . (repeated every 10 seconds).
2	10	56 00	to	2	10	56 09	— . . . . .
2	10	56 10	to	2	10	56 59	— . . . . . (repeated every 10 seconds).
2	10	57 00	to	2	10	57 09	— . . . . .
2	10	57 10	to	2	10	57 59	— . . . . . (repeated every 10 seconds).
2	10	58 00	to	2	10	58 09	— . . . . .
2	10	58 10	to	2	10	58 59	— . . . . . (repeated every 10 seconds).
2	10	59 00	to	2	10	59 09	— . . . . .
2	10	59 10	to	2	10	59 59	— . . . . . (repeated every 10 seconds).
3	11	00 00	to	3	11	00 02	— (dash of 2 seconds duration).

New Zealand, Wellington.—Radio time signals are now transmitted by the station at the Dominion Observatory (formerly named "Hector") as described below. The signals are automatically operated by the standard time clock at the observatory. The following time signals are sent daily at 23, G. M. T., corresponding to 1030, New Zealand standard time. The signals are repeated at the first, second, fourth, and fifth minutes. There is no time signal at 2303. Each time signal consists of a dash (—) of three seconds duration, and commences exactly at the beginning of the minute.

Procedure:			Signal			
G. M. T.						
h.	m.	s.	h.	m.	s.	
22	58	00	to	22	59 05	— VLY every 15 seconds, the dash being of two seconds duration.
22	59	10	to	22	59 50	— . . . . . etc.
23	00	00	to	23	00 03	— Time signal.
23	00	12	to	23	00 50	— . . . . . etc.
23	01	00	to	23	01 03	— Time signal.
23	01	13	to	23	01 50	— . . . . . etc.
23	02	00	to	23	02 03	— Time signal.
23	02	14	to	23	03 50	— . . . . . etc.
23	04	00	to	23	04 03	— Time signal.
23	04	09	to	23	04 50	— . . . . . etc.
23	05	00	to	23	05 03	— Time signal.

AR VLY VA.

Time signals are also transmitted on Tuesdays and Fridays, except New Zealand Government holidays, at 9, G. M. T., corresponding to 2030, New Zealand standard time. The conditions governing the transmission are similar to those given above. The signals are repeated at the first, second, fourth, and fifth minutes. There is no time signal at 903. Each time signal consists of a dash (—) of three seconds duration and commences exactly at the beginning of the minute. In addition to the automatic time signals other signals are transmitted by hand, but they must not be used as time signals. Call signal, VLY, wave length, 600, i. c. w.

*Mexico, Mexico City (Chapultepec).*—Time signals are transmitted from this station at 1 and 19, G. M. T., corresponding to 18 and 12, standard time. On Sundays and public holidays the 1, G. M. T., signal is the only one sent. For the purpose of these signals Tacubaya Observatory is connected by land line to the radio station. Procedure:

Time. (G. M. T.)			Signal.			
h.	m.	s.	h.	m.	s.	
11	59	00	11	59	55	— — — — — etc. (warning).
12	00	00	12	00	01	— (1st time signal).
12	00	30	12	00	55	— . . . . . etc. (warning).
12	01	00	12	01	01	— (2d time signal).
12	01	30	12	01	55	— . . . . . etc. (warning).
12	02	00	12	02	01	— (3d time signal).
12	02	30	12	02	55	— . . . . . etc. (warning).
12	03	00	12	03	01	— (4th time signal).
12	03	30	12	03	55	— . . . . . etc. (warning).
12	04	00	12	04	01	— (5th time signal).

The beginning of the dash is the time signal.

On Sundays and holidays the time signals between 12<sup>h</sup> and 12<sup>h</sup> 04 = 00<sup>h</sup> G. T. M., only are sent. Call signal, JCS. Wave length, 600 meters (spark).

#### MEETING OF RADIO ADVISORY COMMITTEE OF BUREAU OF STANDARDS

The Bureau of Standards maintains contact with a great number of industries through advisory committees which assist and advise the bureau in formulating its program of work. Such a committee was recently formed representing the radio industry, with the following representatives:

Institute of Radio Engineers, L. A. Hazeltine.

American Institute of Electrical Engineers, Prof. A. E. Kennelly.

American Radio Relay League, Robert S. Kruse.

National Association of Broadcasters, G. Lewis.

American Telephone and Telegraph Co., O. B. Blackwell.

Radio Corporation of America, Dr. A. N. Goldsmith.

General Electric Co., E. M. Kinney.

Westinghouse Electric & Manufacturing Co., F. Conrad.

Associated Manufacturers of Electrical Supplies, Radio Apparatus Section, R. H. Manson.

This committee had its first meeting at the bureau on March 9 and spent the day making a careful inspection of the radio laboratory and a study of the program of work in progress. The committee also met with the director and other members of the bureau staff concerned with radio work and made preliminary recommendations on the program. The work of the bureau's radio laboratory comprises projects under the following headings: Maintenance of standards, testing of instruments, research on standards and methods of measurement, general research for the improvement of radio, special radio work for Government departments, and certain nonresearch projects such as reference and information service, the promotion and coordination of radio research in other institutions, and participation in the work of various radio and standardizing organizations.

#### 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

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There may be many other stations maintaining their frequency just as constant as these, but these are the only ones among those observed at the bureau. There is, of course, no actual guaranty that the stations named below will maintain the constancy shown, but the data indicate the high degree of confidence that can be placed in them. The transmitted frequencies from these stations can be utilized for standardizing 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 (kilo-cycles)	Period covered by measurements (months)	Number of times measured	Deviations from assigned frequencies noted in measurements	
						Average	Greatest since Feb. 29, 1925
WQL	Radio Corporation of America.	Coram Hill, Long Island, N. Y.	17.13	15	84	Per cent 0.2	Per cent (?)
WCI	Do.....	Barnegat, N. J.	17.95	13	70	.2	0.3
WGG	Do.....	Tuckerton, No. 1, N. J.	18.85	31	245	.2	.2
WH	Do.....	New Brunswick, N. J.	21.50	11	90	.1	.1
WRT	Do.....	do.....	22.50	19	31	.1	.3
WVA	U. S. Army.....	Annapolis, Md.	100.00	12	121	.2	.4
NAA	U. S. Navy.....	Arlington, Va. <sup>1</sup>	113.00	5	35	.2	.3
WJR	Detroit Free Press, Jewett Radio & Photograph Co.	Pontiac, Mich. <sup>2</sup>	580.00	6	30	.0	.2
WEAF	American Telephone & Telegraph Co.	New York, N. Y.	610.00	15	109	.0	.0
WCAP	Chesapeake & Potomac Telephone Co.	Washington, D. C.	640.00	30	133	.1	.1
WRO	Radio Corporation of America.	do.....	640.00	27	114	.1	.2
WBF	Atlanta Journal.....	Atlanta, Ga.	700.00	30	143	.2	.3
WGY	General Electric Co.	Schenectady, N. Y.	750.00	33	159	.1	.0
WBZ	Westinghouse Electric & Manufacturing Co.	Springfield, Mass.	900.00	23	72	.1	.1

<sup>1</sup> Not measured since Feb. 20.

<sup>2</sup> True signal frequency.

\* Same transmitting set for both call letters WJR and WCX.

## 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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