

RADIO SERVICE BULLETIN

ISSUED MONTHLY BY BUREAU OF NAVIGATION, DEPARTMENT OF COMMERCE

Washington, November 1, 1921—No. 55

CONTENTS.

	Page.		Page.
Abbreviations.....	1	Alterations and corrections—Continued.	
New stations:		Government ship stations, by names.....	7
Commercial land stations, by names.....	2	Government land and ship stations, by call signals.....	7
Commercial ship stations, by names.....	2	Special land stations, by names.....	7
Commercial land and ship stations, by call signals.....	2	Miscellaneous:	
Government land stations, by names.....	3	Increase in rates for Shipping Board vessels	7
Special land stations, by names.....	3	Operators' licenses suspended.....	7
Special land stations, by districts.....	3	Radio station, St. Martin Island, W. I.....	7
Alterations and corrections:		Call letters changed.....	8
Commercial land stations.....	3	Methods of plotting long-range radio compass bearings.....	8
Commercial ship stations, by names.....	4	Paris technical conference on radio regulation.....	8
Commercial land and ship stations, by call signals.....	6	Radio market reports—broadcasting schedule.....	9
Government land stations, by names.....	6		

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, 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:
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.)
I. W. T. Co.=Independent Wireless Telegraph Co.
R. C. of A. =Radio Corporation of America.
S. O. R. S. =Ship Owners Radio Service.
Co. =Company.
Corp. =Corporation.
& =And.

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, 1921, and to the International List of Radiotelegraph Stations published by the Berne bureau.]

Station.	Call signal.	Wave lengths.	Service.	Hours.	Station controlled by—
Coram Hill, N. Y. ¹ ...	WQL	300, 600, 16805....	PR	X	Radio Corporation of America.
Detroit, Mich. ² ...	WBL	300, 360, 600....	PR	X	Detroit News.
Los Angeles, Calif. ³ ...	KQL	300, 360, 600....	PR	X	Arno A. Kluge.
New York, N. Y. ⁴ ...	WJX	300, 360, 600....	PR	X	Deforest Radio Telephone & Telegraph Co.
Pittsburgh, Pa. ⁵ ...	KQV	300, 425....	P	X	Doubleday-Hill Electric Co.
Springwells, Mich. ⁶ ...	WPZ	300, 480, 520, 600....	PR	X	Ford Motor Co.

¹ Loc. O 72° 56' 30", N. 40° 55' 45"; range, 4000; system, R. C. of A. (Alexanderson alternator); rates, to Germany 25 c. per word.² Range, 50; system, Deforest radiophone; rates, none.³ Loc. O 118° 14' 32", N. 34° 03' 05"; system, vacuum tube transmitter; rates, none.⁴ Loc. (approximately) O 74° 00' 00", N. 40° 00' 00"; range, 100; system, Deforest; rates, none.⁵ Loc. (approximately) O 80° 00' 00", N. 40° 00' 00"; range, 200; system, composite, continuous wave; rates, none.⁶ Loc. O 83° 13' 30", N. 42° 18' 00"; range, 100; system, Ford Motor Co. continuous wave; rates, none.

Commercial ship stations, alphabetically by names of vessels.

[Additions to the List of Radio Stations of the United States, edition of June 30, 1921, and to the International List of Radiotelegraph Stations published by the Berne bureau.]

Name of vessel.	Call signal.	Rates.		Service.	Hours.	Station controlled by—
		North and South American service.	Trans-oceanic service.			
		Cents.	Cents.			
Berkenhead.....	KDVL	.....	.....	PG	X	Vacuum Oil Co.
F. H. Hillman.....	KDVK	.....	.....	PG	X	Standard Oil Co.
H. T. Harper.....	KDVM	.....	.....	PG	X	Do.
La Purissima.....	KDVJ	.....	.....	PG	X	Union Oil Co.
Samuel Q. Brown.....	KDVO	.....	.....	PG	X	Tide Water Oil Co.
Steel Seafarer.....	KDVN	.....	.....	PG	X	United States Steel Products Co.
Wm. Rockefeller.....	KDVI	.....	.....	PG	X	Standard Oil Co. of N. J.

Commercial land and ship stations, alphabetically by call signals.

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

Call signal.	Name.	Call signal.	Name.
KDVI	Wm. Rockefeller.....b	KQL	Los Angeles, Calif.....c
KDVJ	La Purissima.....b	KQV	Pittsburgh, Pa.....c
KDVK	F. H. Hillman.....b	WBL	Detroit, Mich.....c
KDVL	Berkenhead.....b	WJX	New York, N. Y.....c
KDVM	H. T. Harper.....b	WPZ	Springwells, Mich.....c
KDVN	Steel Seafarer.....b	WQL	Coram Hill, N. Y.....c
KDVO	Samuel Q. Brown.....b		

Government land stations, alphabetically by names of stations.

[Additions to the List of Radio Stations of the United States, edition of June 30, 1921, and to the International List of Radiotelegraph Stations published by the Berne bureau.]

Station.	Call signal.	Station controlled by—
Soapstone Point, Alaska.....	NUW	U. S. Navy.

Special land stations, alphabetically by names of stations.

[Additions to the List of Radio Stations of the United States, edition of June 30, 1921.]

Station.	Call signal.	Station controlled by—
Boston, Mass.....	1XAF	Edison Electric Illuminating Co. of Boston.
Boston, Mass. (portable).....	1XAG	Do.
Chicago, Ill.....	9XAM	City of Chicago, Dept. of Electricity.
Chicago, Ill.....	9XAN	City of Chicago.
Columbus, Ohio.....	8YO	Ohio State University.
Denver, Colo.....	9YAL	Young Men's Christian Association, Radio Telegraph and Telephone School.
Fresno, Calif.....	6XU	San Joaquin Light & Power Corp.
Iowa City, Iowa.....	9YA	State University of Iowa.
Los Angeles, Calif.....	6XAO	Arno A. Kluge.
Minneapolis, Minn.....	9XAO	Northern States Power Co.
Polytechnic, Mont.....	7ZU	Glen E. West.
Seranton, Pa.....	8ZAB	Shotten Radio Manufacturing Co.
Stanford University, Calif.....	6XH	Herbert Hoover, jr.
Vancouver, Wash.....	7ZJ	Royal Mumford.

Special land stations, grouped by districts.

Call signal.	District and station.	Call signal.	District and station.
1XAF	First district:	8YO	Eighth district:
1XAG	Boston, Mass.	8ZAB	Columbus, Ohio.
6XAO	Boston, Mass. (portable).	9XAM	Seranton, Pa.
6XH	Sixth district:	9XAN	Ninth district:
6XU	Los Angeles, Calif.	9XAO	Chicago, Ill.
7ZJ	Stanford University, Calif.	9YA	Do.
7ZU	Fresno, Calif.	9YAL	Minneapolis, Minn.
	Seventh district:		Iowa City, Iowa.
	Vancouver, Wash.		Denver, Colo.
	Polytechnic, Mont.		

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, 1921, and to the International List of Radiotelegraph Stations, published by the Berne bureau.]

AMUGUIS, P. I.—Call signal changed to KPB.

BATANGAS, P. I.—Call signal changed to KPC.

BOLINAS, CALIF. (KPH).—W. 1., 300, 450, 600, 1800.

CEBU, P. I.—Call signal changed to KPI.

CLEVELAND, OHIO (KDPM).—System, Westinghouse, continuous wave; w. 1., 300, 330, 500, 600, 1610.

CULION, P. I.—Call signal changed to KPJ.

CUYO, P. I.—Call signal changed to KIX.

DAVAO, P. I.—Call signal changed to KIF.

ILOILO, P. I.—Call signal changed to KPM.

- ISABELA DE BASILAN, P. I.—Call signal changed to KPN.
 JOLO, P. I.—Call signal changed to KIL.
 JORDAN, MONT.—Rates, in addition to rates published heretofore, day letter of 10 words, 25 c; night letter of 10 words, 15 c.
 MALABANG, P. I.—Call signal changed to KIZ.
 MALANGAS, P. I.—Call signal changed to KPV.
 MALITA, P. I.—Call signal changed to KPW.
 MANITOWOC, WIS.—Hours, operates 23 hours daily.
 MILES CITY, MONT.—Rates, in addition to rates published heretofore, day letter of 10 words, 25 c; night letter of 10 words, 15 c.
 OGDEN, UTAH.—Strike out all particulars.
 PORT LEBAK, P. I.—Call signal changed to KPX.
 PUERTO PRINCESA, P. I.—Call signal changed to KIV.
 QUINCY, MASS.—Range, 200.
 SAN FRANCISCO, CALIF. (KFS).—Rates, ship service 10 c per word.
 SAN FRANCISCO, P. I. (CAMOTES).—Call signal changed to KPY.
 SAN JOSE, P. I.—Call signal changed to KIY.
 TUCKERTON, N. J.—W. l., 16635; service, PR; rates, to Great Britain 18 c per word.
 ZAMBOANGA, P. I.—Call signal changed to KIW.

NOTE.—Changes in call signals of Philippine stations, not effective until January 1, 1922.

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, 1921, and to the International List of Radiotelegraph Stations, published by the Berne bureau.]

- ADAM E. CORNELIUS.—Range, 150; system, Navy-Wireless Specialty Apparatus Co., 1000; rates, Great Lakes service, 2 c. per word.
 AGYLLA.—Strike out all particulars.
 ANNISTON CITY.—Range, 300; system, Cutting & Washington, 1000; station operated and controlled by S. O. R. S.
 ARAPAHOE.—Range, 300; w. l., 300, 600.
 ARCHER.—System, Navy, 1000; hours, X.
 ARGONNE (KSIO).—Strike out all particulars.
 ATLANTA CITY.—Range, 300; system, Cutting & Washington, 1000; station operated and controlled by S. O. R. S.
 BALCATT.—Strike out all particulars.
 BRISTOL.—American-Hawaiian S. S. Co., owner of vessel.
 CACIQUE.—System, R. C. of A., 1000.
 CAMBRIDGE (KGR).—System, R. C. of A., 260.
 CAPE HENRY.—System, Navy-Marconi, 1000; w. l., 300, 600, 1800.
 CORA F. CRESSY.—Huron Navigation Corp., owner of vessel.
 CHATTANOOGA CITY.—Station operated and controlled by R. C. of A.
 COMMONWEALTH.—Range, 75; system, R. C. of A., 260.
 CONSORT.—System, Navy-Marconi, 1000; w. l., 300, 450, 600.
 COSTA RICA.—Range, 300.
 CULBERSON.—Range, 300; system, Federal arc; w. l., 300, 600, 1800.
 E. J. EARLING.—System, R. C. of A., 1000.
 ELKRIDGE.—System, Navy-Kilbourne & Clark, 1000.
 E. R. KEMP.—Range, 300; system, R. C. of A., 1000.
 ESPERANZA.—Range, 300.
 FAIRMONT.—American-Hawaiian S. S. Co., owner of vessel.
 FARABY.—System, Navy-Marconi, 1000; w. l., 300, 450, 600.
 FAYETTE BROWN.—System, R. C. of A., 1000.
 FRANK G. DRUM.—Range, 300; system, Gray & Danielson, 240.
 FRANKLIN (KDPK).—Station operated and controlled by R. C. of A.

- FRANKLIN (WFF).—American-Hawaiian S. S. Co., owner of vessel.
- FRANKLIN K. LANE.—Range, 300; system, Marconi, 1000.
- GARGOYLE.—Range, 300; system, R. C. of A., 1000.
- GEORGE WASHINGTON.—Station operated and controlled by S. O. R. S.
- G. N. WILSON.—Range, 300; system, Navy-Wireless Specialty Apparatus Co., 1000; w. l., 300, 600.
- GULFLAND.—Range, 300; system, Navy, 1000.
- GULFMAID.—System, R. C. of A., 1000; rates, North and South American and transoceanic services, 8 c. per word.
- HAMER.—Station operated and controlled by S. O. R. S.
- HAMPDEN.—American-Hawaiian S. S. Co., owner of vessel.
- HELEN.—Range, 200; system, I. W. T. Co., 1000.
- HONOLULU.—Range, 150.
- J. L. REISS.—Reiss S. S. Co., owner of vessel.
- KEWANEE.—System, Navy-Liberty, 1000.
- KISNOP.—W. l., 300, 450, 600.
- LAKE GILBOA.—System, Navy-Marconi, 1000; w. l., 300, 450, 600.
- LAKE GILPEN.—System, R. C. of A., 1000.
- LAKE LASANG.—System, Navy-Simon, 1000.
- LAKE SAVUS.—System, Navy-Simon, 1000.
- LENAPE.—Range, 300; w. l., 300, 600.
- LEVANT ARROW.—Station operated and controlled by R. C. of A.
- LUBRICO.—Station operated and controlled by S. O. R. S.
- M. A. REEB.—Range, 150; system, Navy-Wireless Specialty Apparatus Co., 1000; rates, Great Lakes service, 2 c. per word.
- MATINICOCK.—Range, 300; system, R. C. of A., 1000.
- MAZAMA.—Strike out all particulars.
- MEANTICUT.—Range, 300; system, Federal arc; w. l., 300, 600, 1800.
- M. F. ELLIOTT.—Range, 300; system, R. C. of A., 1000.
- MIDDLESEX.—American-Hawaiian S. S. Co., owner of vessel.
- MOHAWK (KXE).—Range, 75; system, R. C. of A., 260.
- MOMUS.—W. l., 300, 600.
- MONTANA.—Range, 300; system, Navy, 1000; hours, X; rates, North and South American and transoceanic services, 8 c. per word; Atlantic Transport Co., owner of vessel.
- MONTABELLO.—Range, 300; system, R. C. of A., 1000.
- MOUNT CLINTON.—Range, 300; system, Kilbourne & Clark, 1000; rates, North and South American and transoceanic services, 8 c. per word.
- MOUNT SHASTA.—Station operated and controlled by R. C. of A.
- MULTNOMAH.—Strike out all particulars.
- MUNWOOD.—Range, 150.
- MUSKOGEE.—System, R. C. of A., 1000.
- NAAMHOK.—Strike out all particulars.
- NEW YORK (KSN).—Polish Navigation Co., owner of vessel.
- NOBLES.—W. l., 300, 450, 600.
- NORFOLK.—American-Hawaiian S. S. Co., owner of vessel.
- ORIZABA.—System, Navy, 1000; w. l., 300, 450, 600; rates, North and South American service, 4 c. per word.
- OSAQUMSICK.—System, Navy-Liberty, 1000.
- PARTHIAN.—Strike out all particulars.
- PATRICIA.—Station operated and controlled by R. C. of A.
- PHYLLIS.—Strike out all particulars.
- PINTHIS.—Strike out all particulars.
- PONCE.—Hours, N.

- QUINAULT (KDND).—Range, 200; system, Gray & Danielson, 240; w. l., 300, 600; rates, North and South American service, 4 c. per word; transoceanic service, 8 c. per word.
- QUISTCONCK.—System, Navy, 1000; w. l., 300, 450, 600.
- RICHARD PECK.—Range, 75; system, Fessenden, 260; w. l., 300, 550, 600.
- SACANDAGA.—W. l., 300, 450, 600.
- SALVATION LASS.—System, Navy-Wireless Specialty Apparatus Co., 1000; w. l., 300, 450, 600.
- SAN JOSE (WWL).—Strike out all particulars.
- SAN PASQUAL.—Range, 300; system, Navy-Simon, 1000; w. l., 300, 450, 600.
- SCHOODIC.—Range, 300; system, Navy-Wireless Specialty Apparatus Co., 1000; w. l., 300, 450, 600.
- SEA RANGER.—Range, 150; system, R. C. of A., 1000; w. l., 300, 450, 600; rates, North and South American and transoceanic services, 8c per word.
- SIBONEY.—Range, 300; system, Navy-Lowenstein, 1000.
- SOUTHERN CROSS.—Range, 300; system, Federal arc; w. l., 300, 450, 600, 1800; station operated and controlled by S. O. R. S.
- STANWOOD.—Strike out all particulars.
- SUFFOLK.—American-Hawaiian S. S. Co., owner of vessel.
- SURUGA.—System, R. C. of A., 1000.
- TATOOSH.—Strike out all particulars.
- TEXAN.—Range, 300; rates, North and South American and transoceanic services, 8 c. per word.
- T. J. WILLIAMS.—Range, 300; system, R. C. of A., 1000; w. l., 300, 450, 600.
- TORRES.—Range, 300.
- WASHTENAW.—System, Halcun, variable.
- WEST CUSSETA.—Range, 300; system, Federal arc; w. l., 300, 450, 600, 1800.
- WEST ERRAL.—W. l., 300, 450, 600, hours, X.
- WEST GREYLOCK.—Range, 300; system, Federal arc; w. l., 300, 450, 600, 1800; hours, X.
- WEST HONAKER.—Range, 300; system, Federal arc; w. l., 300, 450, 600, 1800.
- WEST KEBAR.—Range, 300; system, Federal arc; w. l., 300, 450, 600, 1800; hours, X.
- WEST LEWARK.—Range, 300; system, Federal arc; w. l., 300, 450, 600, 1800.
- WEST O'ROWA.—Range, 300; system, Federal arc; w. l., 300, 600, 1800.
- WEST PROSPECT.—Station operated and controlled by S. O. R. S.
- WHEATLAND MONTANA.—System, Navy-Kilbourne & Clark, 1000; w. l., 300, 450, 600.
- WHITTIER.—Union Transportation Co., owner of vessel.
- WILLSOLO.—Station operated and controlled by R. C. of A.

COMMERCIAL LAND AND SHIP STATIONS, ALPHABETICALLY BY CALL SIGNALS.

KDLP, read KPW; KDLQ, read KPJ; KDLR, read KPY; KDMX, read KPX; KDRF, read KPB; KHI, read KPN; KUVN, read KPM; KUXG, read KPV; KUXJ, read KPI; KUXK, read KPC; WVO, read KIF; WVS, read KIL; WVT, read KIZ; WVY, read KIV; WVV, read KIW; WVX, read KIX; WVY, read KIY; strike out all particulars following the call signals, KDNE, KEA, KHD, KNUO, KOLM, KSIO, KUPC, KUPQ, KUXS, WCE, WMA, WPE, WWL.

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, 1921.]

- MONTAUK POINT, N. Y.—(NAH) Strike out all particulars.
- MORRIS ISLAND, S. C.—Read Folly Island, S. C.; loc. O. $79^{\circ} 53' 14''$; N. $32^{\circ} 41' 00''$.
- ROCKAWAY BEACH, N. Y.—Strike out all particulars.
- TATOOSH, WASH.—Loc. O. $124^{\circ} 44' 13''$, N. $48^{\circ} 23' 41''$.
- WEST PORT, WASH.—Strike out all particulars.

GOVERNMENT 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, 1921.]

ALABAMA.—Strike out all particulars.

MAHANNA.—Strike out all particulars.

GOVERNMENT LAND AND SHIP STATIONS, ALPHABETICALLY BY CALL SIGNALS.

Strike out all particulars following the call signals, NAH (Montauk Point, Long Island), NBI, NBT (Rockaway Beach, N. Y.), NHL and NURB; NZV, read Folly Island, S. C.

SPECIAL LAND STATIONS, BY NAMES OF STATIONS.

BALTIMORE, MD. (3XT).—Read Louis E. Richwien.

BALTIMORE, MD. (3XX).—Read R. Selway Collmus.

CLEVELAND, OHIO (8XV).—Read Pittsburgh, Pa.; w. l., variable from 1 to 350.

DENVER, COLO. (9XAG).—W. l., 200, 375, 450, 750.

OAKLAND, CALIF. (6XAF).—Read Piedmont, Calif.

PITTSBURGH, Pa. (8ZD).—Read Parker E. Wiggin.

Strike out all particulars of the following-named stations:

Ann Arbor, Mich. (8XA). Columbus, Ohio (8XI). Pittsburgh, Pa. (8ZO).

Battle Creek, Mich. (8ZC). Detroit, Mich. (8YE). Ridgway, Pa. (8XO).

Buffalo, N. Y. (8ZM). Lewisburg, Pa. (8XJ). State College, Pa. (8XE).

Cincinnati, Ohio (8XY). Manlius, N. Y. (8YB). Toledo, Ohio (8ZI).

Cincinnati, Ohio (8ZH). Marietta, Ohio (8ZE).

Cincinnati, Ohio (8ZJ). Pittsburgh, Pa. (8XN).

MISCELLANEOUS.

INCREASE IN RATES FOR SHIPPING BOARD VESSELS.

Effective January 1 next, the rate for all Shipping Board vessels will be increased to 8 cents per word for both North and South American and transoceanic services.

OPERATORS' LICENSES SUSPENDED.

First-grade license No. 24572, issued at Seattle, May 5, this year, has been suspended for a period of three months on account of the holder of the license violating article 6 of the International Convention service regulations, in that he transmitted superfluous signals.

First-grade license No. 1404, issued at Norfolk, August 5, this year, has been suspended for a period of three months on account of the holder of the license violating article 21 of the International Convention service regulations, in that he interfered with an S O S signal.

First-grade license No. 1661, issued at New Orleans, on the 24th instant, has been suspended for a period of three months on account of the holder of the license violating article 6 of the International Convention service regulations, in that he transmitted superfluous signals.

RADIO STATION, ST. MARTIN ISLAND, WEST INDIES.

A radio station has recently been established at Philipsburg, St. Martin Island.

Communication by radio is thus established between Guadeloupe and both the Dutch and French portions of St. Martin by use of the station at Destrellan, Pointe-a-Pitre, Guadeloupe, and the station above mentioned.

Telegrams intended for the French part of St. Martin are, of course, forwarded by mail from Philipsburg to the town of Marigot.

The rates are as follows:

	Francs gold.
Land rate in Guadeloupe, per word.....	0.05
Radio rate, pertaining to Guadeloupe, per word.....	.30
Radio rate, pertaining to Philipsburg, per word.....	.60
Total per word.....	.95
Postage to Marigot, per message.....	.25

The amount of gold centimes to be collected in Guadeloupe is found by multiplying the paper franc in circulation by the coefficient 1.8.—*From Hydrographic Bulletin, October 26, 1921.*

CALL LETTERS CHANGED.

The call signals for several stations operated by the Philippine Insular Government have been changed, effective January 1 next. These stations are listed in this publication under "Alterations and Corrections."

METHODS OF PLOTTING LONG-RANGE RADIO COMPASS BEARINGS.

The radio compass gives the great-circle bearing of a transmitting station. In plotting any great-circle bearing on the maps in ordinary use, certain precautions are necessary.

The Department of Commerce (Coast and Geodetic Survey) has recently issued Special Publication No. 75, "Radio Compass Bearings," by Oscar S. Adams. This publication gives methods of plotting radio compass bearings on maps based on the Mercator projection, and also on maps based on the gnomonic projection, and discusses the theoretical considerations involved.

The accurate methods of plotting bearings discussed in this publication are of particular importance in bearings taken over long distances. At the present time, however, the radio compass work of most importance is done when a ship is comparatively near shore, and most bearings are taken over distances of less than 50 miles, seldom over 100 miles. In cases of such short distances the errors introduced by using ordinary methods of plotting radio bearings on a map based on Mercator's projection or other usual projection are within the accuracy of the observation, and can usually be neglected. Over longer distances, however, the corrections discussed in this publication may be very important.

A copy of this publication may be secured by sending 5 cents to the Superintendent of Documents, Government Printing Office, Washington, D. C.

Charts Nos. 40-bis and 41, issued by the French Hydrographic Office (Service Hydrographique de la Marine), are intended for use in plotting radio bearings on maps based on Mercator's projection.—*Submitted by Bureau of Standards, October 27, 1921.*

PARIS TECHNICAL CONFERENCE ON RADIO REGULATION.

During the past summer, delegates representing the United States, Great Britain, France, Italy, and Japan met in Paris to consider certain technical questions concerned with radio communication, and to make a report to the next International Communications Conference. Radio communication is now regulated in accordance with the London convention of 1912. The revolutionary developments in radio since 1912 have made new regulations imperative.

This Interallied Technical Committee, which sat from June 21 to August 22, considered primarily a set of 14 questions prepared by the Preliminary Communications Conference of the five principal powers, which met at Washington in 1920. The delegates of the Department of Commerce at the Paris Conference were Dr. A. E. Kennelly, of Harvard University, and Dr. J. H. Dellinger, of the Bureau of Standards.

The questions considered at Paris are included under the following heads:

- (a) Classification of waves, including suppression of undesirable emissions.
- (b) Principles of allocation of long waves to fixed stations.
- (c) Distribution of waves to military, fixed, and mobile services, including statements of restrictions on damped waves and on radio telephony.
- (d) Selection of waves for meteorological work, radio beacons, and radio goniometers.
- (e) Determination of normal range of a radio station.
- (f) Nomenclature, and such related matters as the use of "frequency" instead of "wave length."

One of the fundamental questions was the classification of waves. In the conclusion on this question there are really two wave classifications adopted, one by "types" and one by "classes." The "types" are: Key-modulated continuous waves, continuous waves modulated at audible frequencies, continuous waves modulated by speech, and damped waves. The "classes" are such that all waves coming within a given class should have the same potentiality for interference production, the degree of interference production increasing from class to class; as a practical approximation to this, the classification based on equivalent decrement was adopted.

The Paris Conference did not attempt to allocate particular ranges of long waves to particular countries, but formulated the technical principles on which such an allocation should be considered by the next International Communications Conference.

The technical principles adopted were, in brief:

- (a) The lower frequency waves should be used for the longer distances and the higher frequency waves for the shorter distances.
- (b) Stations situated in the same general locality and working at similar distances should, in principle, use adjacent frequencies.
- (c) Each nation should use only the smallest possible number of wave lengths necessary to carry on its radio communications.
- (d) Use should be made of the directional properties of radio, whereby the number of communications carried on in a given region may be increased by employing the same frequency a plurality of times. (This last principle was stated in an appendix to the main conclusions on question 10, but is one of the technical principles laid down.)

The conclusions adopted at the Paris Conference are not binding on any of the Governments. They are recommendations made by the conference to each of the five Governments represented. It is assumed that they will be the basis of discussion and action at the next world communications conference.—*Submitted by Bureau of Standards, October 27, 1921.*

RADIO MARKET REPORTS—BROADCASTING SCHEDULE.

For many years there has existed a very real demand from farmers and dealers in farm products for prompt, accurate reports of the prices of farm products in the principal markets of the United States. Market reports have usually been transmitted by wire to various newspapers, which have published them, sometimes on the following day. Market reports have of course also been available in other ways in the larger cities, but not usually in such a way as to be available to the farmer. The recent development of the farmer as a business man has brought about a demand from him for more and better information about the marketing of farm products. To meet the demand for a method of delivering market reports with a minimum of delay, the Bureau of Markets and Crop Estimates of the Department of Agriculture, in cooperation with the Air Mail Radio Service of the Post Office Department, has established a regular daily broadcast service for the distribution of market news.

The radio market news service was experimentally begun in December, 1920, by the Department of Agriculture (Bureau of Markets) in cooperation with the Department of Commerce (Bureau of Standards), the report being transmitted from the station of

the Bureau of Standards at Washington. The Bureau of Standards is continuing to act in an advisory capacity to the Bureau of Markets and Crop Estimates in technical problems, especially those relating to receiving equipment.

The reports cover various commodities in various markets. For brevity, a code is used in connection with a set of forms on which the reports are recorded by the receiving operator. Six forms are in use at present. The transmitted report is not intelligible without the appropriate form.

Detailed information and forms can be secured by any interested person from the Bureau of Markets and Crop Estimates, Department of Agriculture, Washington, D. C.

The radio market reports are being used by the various agents of the Bureau of Markets and Crop Estimates, representatives of State bureaus, by farmers, bankers, country elevators, commercial exchanges, shipping associations, newspapers, and many others. Banks and various others have installed radio receiving equipment for the express purpose of receiving the radio market reports. The reports have met with widespread appreciation in all parts of the United States, and there is a growing demand for an extension of the service.

The radio market report is broadcasted daily except Sundays.

The radio market report is broadcasted daily, except Sundays and holidays, from various stations of the Air Mail Radio Service in accordance with the following schedule. Notice of any changes in this schedule will be broadcasted in connection with the radio reports for one or more days prior to the date such changes become effective. All stations transmit undamped (continuous) waves on the wave length stated, using arc converters.

Station and call letters.	Nature of reports.	Form used.	Time of transmission.	Wave.	
				Frequency kilocycles per second.	Length meters.
Washington, D. C., WWX	Grain and live stock.....	43	Eastern time. 7.30- 8.00 p.m..	120	2,500
	Fruits and vegetables.....	53	8.00- 8.30 p.m..		
Cincinnati, Ohio, KDQC.	Live-stock receipts.....	41	Central time. 9.00- 9.15 a.m..	75	4,000
	Chicago live stock.....	20	11.00-11.30 a.m..		
	St. Louis live stock.....	20	12.00-12.30 p.m..		
	Chicago live stock.....	Press.	7.30- 7.45 p.m..		
	St. Louis live stock.....	Press.	8.00- 8.15 p.m..		
			Central time.		
Omaha, Nebr., KDEF..	Live-stock receipts.....	42	9.00- 9.15 a.m..	120	2,500
	Chicago live stock.....	20	11.00-11.30 a.m..		
	Omaha live stock.....	20	12.00-12.30 p.m..		
	Kansas City live stock.....	20	1.00- 1.30 p.m..		
	Grain.....	21	2.00- 2.15 p.m..		
	Chicago live stock.....	Press.	4.30- 4.45 p.m..		
	Kansas City live stock.....	Press.	7.00- 7.15 p.m..		
	Omaha live stock.....	Press.	7.30- 7.45 p.m..		
North Platte, Nebr., KDHN.	Live-stock receipts.....	42	Central time. 9.30- 9.45 a.m..	75	4,000
	Chicago live stock.....	20	12.00-12.30 p.m..		
	Chicago live stock.....	Press.	5.00- 5.15 p.m..		
	Kansas City live stock.....	Press.	8.00- 8.15 p.m..		
	Omaha live stock.....	Press.	8.30- 8.45 p.m..		
Rock Springs, Wyo., KDHN.	Live-stock receipts.....	42	Mountain time. 9.00- 9.15 a.m..	100	3,000
	Chicago live stock.....	20	12.00-12.30 p.m..		
	Chicago live stock.....	Press.	4.30- 4.45 p.m..		
	Kansas City live stock.....	Press.	8.00- 8.15 p.m..		
	Omaha live stock.....	Press.	8.30- 8.45 p.m..		
Elko, Nev., KDEJ.....	Live-stock receipts.....	42	Pacific time. 8.30- 8.45 a.m..	100	3,000
	Chicago live stock.....	20	12.00-12.30 p.m..		
	Chicago live stock.....	Press.	4.00- 4.15 p.m..		

In addition to the Government stations listed above, a number of private stations are also broadcasting market reports by radiotelephone. Most of these private radiotelephone transmitting stations are using four 50-watt tubes. The transmitting schedules of these private stations are not altogether definitely arranged at the present time, and for information regarding their schedules inquiry should be made of the Bureau of Markets and Crop Estimates, Department of Agriculture, Washington, D. C.—
Submitted by Bureau of Standards, October 27, 1921.

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