

meters; 5,000 watts.  
time.<sup>1</sup>  
Michigan.<sup>2</sup>

& Rubber Co.  
meters; 750 watts.  
meridian time.<sup>1</sup>  
ather, and wind direction and velocity at  
nd Erie.  
s, visibility, wind direction, velocity, tem-  
g at 10.30 a. m., for the benefit of aviation,  
yenty-fifth meridian time.<sup>1 2</sup>  
<sup>2</sup>  
Lakes.

Telegraph Co.  
5 meters; spark and i. c. w.  
fifth meridian time.  
ather, and wind direction and velocity at  
nd Erie.  
Lakes.

and advisory messages for the Great Lakes

Electric Co.  
meters; variable.  
me.<sup>1</sup>  
nia.<sup>2</sup>  
ime (except Sundays).  
York, lower Michigan, Ohio, and Indiana.<sup>2</sup>  
ver Lakes whenever issued.

Telegraph Co.  
5 meters; spark and i. c. w.  
fifth meridian time.  
ather, and wind direction and velocity at  
y, at Buffalo and Oswego.  
45 a. m. only).

orporation (Federal Telephone Mfg. Co.).  
meters; 750 watts.  
Saturday nights, seventy-fifth meridian

New York.<sup>2</sup>

Rochester (Eastman School of Music).  
meters; 100 watts.  
time.<sup>1</sup>

c Co.  
meters; 100 watts.  
me.<sup>1</sup>

U. S. Department of Agriculture, Weather

**POSSIBLE DISCONTINUANCE OF RADIO SIGNAL TRANSMISSIONS OF STANDARD FREQUENCY**

Since March, 1923, the Bureau of Standards has been transmitting, twice a month, radio signals of definitely announced frequencies, for use by the public in standardizing frequency meters (wave meters) and transmitting and receiving apparatus. The signals are transmitted from the bureau station WWV, Washington, D. C., and from station 6XBM, Stanford University, California.

Since other means of freely disseminating the bureau's standards of frequency have become increasingly available, the bureau is considering the termination of the standard frequency transmissions. The other means referred to are the lists of standard frequency stations regularly published in the Radio Service Bulletin, the use of piezo oscillators, and the wide availability of reliable standards and testing service from a number of laboratories that do commercial testing of frequency meters. None of these means were available when the standard frequency transmissions were inaugurated.

The standard frequency transmission schedules already announced, extending through June, will be carried on as published. The Bureau of Standards is now announcing the possible termination of the service after that date in order that persons who depend upon the service in any special way may inform the bureau of any objection to its termination.

The bureau will be especially glad to hear from persons in the western part of the United States who have been utilizing the signals from Stanford University, since the listing of standard frequency stations on the west coast has not yet been begun. Any letters on this subject should be addressed to Bureau of Standards, Department of Commerce, Washington, D. C.

**STANDARD FREQUENCY STATIONS**

As a result of measurements by the Bureau of Standards upon the transmitted waves of a limited number of radio-transmitting stations, data are given in each month's RADIO SERVICE BULLETIN on such of these stations as have been found to maintain a sufficiently constant frequency to be useful as frequency standards.

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.

<sup>1</sup> Broadcast made throughout the year.

<sup>2</sup> WY, WAAF, WEBH, WHT, and WLS at Chicago which are not contiguous to the Great Lakes.

Station	Owner	Location	As- signed fre- quency (kilo- cycles)	Period covered by meas- urements (months)	Num- ber of times meas- ured	Deviations from assigned frequencies noted in measurements	
						Average	Greatest since Mar. 20, 1926
WQL	Radio Corporation of America.	Coram Hill, L. I., N. Y.	17.13	15	84	Per cent	Per cent
WCI	Do.....	Barneget, N. J.....	17.95	14	74	.2	0.1
WGG	Do.....	Tuckerton, No. 1, N. J.	18.86	32	238	.2	.2
WII	Do.....	New Brunswick, N. J.	21.80	12	98	.1	.1
WRT	Do.....	do.....	22.60	11	32	.1	.2
WVA	U. S. Army.....	Annapolis, Md.....	100.00	13	128	.2	.5
NAA	U. S. Navy.....	Arlington, Va. <sup>2</sup> .....	113.00	6	40	.2	.1
WJR	Detroit Free Press.	Pontiac, Mich. <sup>3</sup> .....	580.00	7	32	0	.2
WCX	Jewett Radio & Phonograph Co.	do.....	do.....	do.....	do.....	do.....	do.....
WEAF	American Telephone & Telegraph Co.	New York, N. Y.....	610.00	16	113	0	0
WCAP	Chesapeake & Potomac Telephone Co.	Washington, D. C.....	640.00	31	135	.1	0
WRC	Radio Corporation of America.	do.....	640.00	28	123	.1	0
WSB	Atlanta Journal.....	Atlanta, Ga.....	700.00	31	146	.2	.2
WGY	General Electric Co.....	Schenectady N. Y.....	790.00	34	165	.1	.1

<sup>1</sup> Not measured since Feb. 20.  
<sup>2</sup> Time signal frequency.  
<sup>3</sup> 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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 R331 Slepian, J. Oscillation generator system. Un 1926.  
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Location	Assigned frequency (kilocycles)	Period covered by measurements (months)	Number of times measured	Deviations from assigned frequencies noted in measurements	
				Average	Greatest since Mar. 20, 1926
Hill, L. I.,	17.13	15	84	0.2	
.....	17.95	14	74	.2	0.1
.....	18.86	32	238	.2	.2
.....	21.80	12	98	.1	.1
.....	22.60	11	32	.1	.2
.....	100.00	13	128	.2	.5
.....	113.00	6	40	.2	.1
.....	580.00	7	32	0	.2
.....	610.00	16	113	0	0
.....	640.00	31	135	.1	0
.....	640.00	28	123	.1	0
.....	760.00	31	146	.2	.2
.....	790.00	34	165	.1	.1

R and WCX.

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... prepared by the radio laboratory of the ... to cover the more important papers of ... which have recently appeared in periodicals ... left of each reference classifies the reference ... scheme presented in A Decimal Classification of the Dewey System, Bureau of Standards ... y be obtained for 10 cents from the Superintendent of Printing Office, Washington, D. C. The ... obtainable from the Bureau of Standards. ... at large public libraries.

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... rization of radio waves. Radio News, 7, pp. 1540-1541; ... ireless waves (how blind spots in broadcast transmission ... Radio Review, 18, pp. 401-405; March 17, 1926. ... me notes of observations taken on broadcast stations). ... pp. 211-214; April, 1926. ... his affect radio reception? Popular Radio, 10, pp. 11-14, ... ion phenomena. Radio (San Francisco), 8, pp. 21-24; ... System Tech. Jour., 5, pp. 282-291; April, 1926. ... hat recording of atmospherics. Experimental Wireless ... antennas. Proc. Inst. of Radio Engrs., 14, pp. 181-195; ... ed States Patent No. 1581133, issued April 20, 1926. ... ng direction. United States Patent No. 1581622, issued ... ous direct-reading radiogoniometer. Experimental Wire- ... 1926.

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# DEPARTMENT OF RADIO SERVICE

ISSUED MONTHLY BY BUREAU

Washington, May 29,

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ABBREVIATIONS

The necessary corrections to the List of Stations and to the International List of Radiotelegraph Stations are given in this bulletin under the heading "Alterations and Corrections" and the stations affected in the following order:

- Name = Name of station.
- Loc. = Geographical location. O = north latitude. S = south latitude.
- Call = Call letters assigned.
- System = Radio system used and spark gap.
- Range = Normal range in nautical miles.
- W. l. = Wave lengths assigned; normal.
- Service = Nature of service maintained.
  - FX = Point-to-point (fixed).
  - PG = General public.
  - PR = Limited public.
  - RC = Radiocompass station.
  - FS = Fog signal.
  - P = Private.
  - O = Government business.
- Hours = Hours of operation.
  - N = Continuous service.
  - X = No regular hours.
- F. T. Co. = Federal Telegraph Co.
- I. R. T. Co. = Intercity Radio Telegraph Co.
- I. W. T. C. = Independent Wireless Telegraph Co.
- K. & C. = Kilbourne & Clark Manufacturing Co.
- R. C. A. = Radio Corporation of America.
- 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 denoted in the List of Radio Stations.