

NEW LIST OF STATIONS WITH  
LATEST RADIO COMMISSION CHANGES

*Stevenson's*

BULLETIN OF

**RADIO**  
BROADCASTING  
STATIONS



IN THIS ISSUE

NEW BROADCASTING STATION LOG  
NEW LIST OF ALL NORTH AMERICAN  
BROADCASTING STATIONS

CHART OF AIR LINE DISTANCES  
BETWEEN CITIES

REVIEW OF RADIO COMMISSION  
ACTIVITIES

HOW TO IMPROVE RECEPTION  
WITH YOUR SET

SPRING, 1928

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# STEVENSON'S BULLETIN OF RADIO BROADCASTING STATIONS

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## CONTENTS

	Page
Stevenson's Broadcasting Log.....	2
Calibration of Set Increases Efficiency.....	18
List of American Broadcasting Stations.....	20
Statement of Ownership and Management.....	37
List of Canadian Broadcasting Stations.....	38
List of Cuban Broadcasting Stations.....	40
List of Mexican Broadcasting Stations.....	40
Other North American Broadcasting Stations.....	40
Location of North American Broadcasting Stations.....	41
Air Line Distances.....	45
Commission Will Reduce Stations.....	50
Commission Does Half-Way Job.....	55
Good Reception Depends on Antenna.....	57
Interference can be Eliminated.....	60
Radio Tube is Soul of Receiver.....	63

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## BROADCASTING LOG WITH STATIONS LISTED BY WAVE LENGTHS

All North American broadcasting stations of 100 watts or more power are here listed according to frequency in kilocycles and wave length in meters, with the power of each station in parenthesis following the location. Since it is unusual with most sets to pick up distant stations of less than 100 watts power, they are not included in this list. Stations of 1,000 watts or more power are listed in bold face type.

Freq. Kilo.	W. L. Meters	Location	Power
550	545.1	KFDY—Brookings, S. D.	(500)
		<b>KFUC—St. Louis, Mo.</b>	<b>(1000)</b>
		KSD—St. Louis, Mo.	(500)
		WDAY—Fargo, N. Dak.	(250)
		WFAA—Dallas, Tex.	(500)
		WMAK—Lockport, N. Y.	(750)
560	535.4	WPTF—Raleigh, N. C.	(500)-----
		KFBK—Sacramento, Cal.	(100)
		WCAC—Mansfield, Conn.	(500)
		<b>WHO—Des Moines, Iowa</b>	<b>(5000)</b>
		WTIC—Hartford, Conn.	(500)
570	526	CYY—Merida, Mexico	(100)-----
		KFKX—Chicago, Ill.	(2500)
		KMTH—Hollywood, Cal.	(500)
		<b>KYW—Chicago, Ill.</b>	<b>(2500)</b>
580	516.9	WNYC—New York, N. Y.	(500)-----
		WFLA—Clearwater, Fla.	(750)
		WMC—Memphis, Tenn.	(500)
		WSUN—Clearwater, Fla.	(750)
		WTAG—Worcester, Mass.	(250)
		WWVA—Wheeling, W. Va.	(250)
		CHMA—Edmonton, Alta.	(250)
		CHYC—Edmonton, Alta.	(250)
		CJCA—Edmonton, Alta.	(500)
		CKUA—Edmonton, Alta.	(500)
CNRE—Edmonton, Alta.	(500)-----		
590	508.2	KLX—Oakland, Cal.	(500)
		WEEI—Boston, Mass.	(500)
		<b>WOW—Omaha, Nebr.</b>	<b>(1000)</b> -----

<b>Freq. Kilo.</b>	<b>W. L. Meters</b>	<b>Location</b>	<b>Power</b>
600	499.7	<b>WBAP—Fort Worth, Tex. (5000)</b>	
		<b>WCAI—San Antonio, Tex. (5000)</b>	
		<b>CFCH—Iroquois Falls, Ont. (250)</b> -----	
610	491.5	<b>KGW—Portland, Oreg. (1000)</b>	
		<b>WEAF—New York, N. Y. (5000)</b> -----	
620	483.6	<b>KFBU—Laramie, Wyo. (500)</b>	
		<b>KFDM—Beaumont, Texas (500)</b>	
		<b>KUSD—Vermilion, S. D. (250)</b>	
		<b>WCFL—Chicago, Ill. (1500)</b>	
		<b>WEMC—Berrien Springs, Mich. (1000)</b>	
		<b>WJAR—Providence, R. I. (500)</b>	
		<b>WLTS—Chicago, Ill. (100)</b>	
		<b>WTAW—College Station, Tex. (500)</b>	
630	475.9	<b>AQM—Salvador, Salvador (500)</b> -----	
		<b>WSB—Atlanta, Ga. (1000)</b>	
640	468.5	<b>WSUI—Iowa City, Iowa (500)</b> (Daytime only.)	
		<b>CJGX—Yorktown, Sask. (500)</b>	
		<b>CYR—Mazatlan, Mexico (250)</b> -----	
640	468.5	<b>KFI—Los Angeles, Calif. (5000)</b>	
		<b>WRC—Washington, D. C. (500)</b> -----	
650	461.3	<b>KFNF—Shenandoah, Iowa (2000)</b> (6 to 7 P. M. only.)	
		<b>KRLD—Dallas, Texas (500)</b>	
		<b>KUOM—Missoula, Mont. (500)</b>	
		<b>WBIS—Boston, Mass. (500)</b>	
		<b>WCAE—Pittsburgh, Pa. (500)</b>	
		<b>WNAC—Boston, Mass. (500)</b>	
		<b>WRR—Dallas, Texas (500)</b> -----	
660	454.3	<b>KFRC—San Francisco, Cal. (1000)</b>	
		<b>WJZ—New York, N. Y. (30000)</b> -----	
670	447.5	<b>KFOA—Seattle, Wash. (1000)</b>	
		<b>WMAQ—Chicago, Ill. (1000)</b>	
		<b>WQJ—Chicago, Ill. (500)</b> -----	

**Turn to page 18 and find out how to use this  
broadcasting log for best results.**

<b>Freq. Kilo.</b>	<b>W. L. Meters</b>	<b>Location</b>	<b>Power</b>
680	440.9	KFSD—San Diego, Cal. (500)	
		WAAW—Omaha, Nebr. (500) (Daytime only.)	
		WCX—Detroit, Mich. (5000)	
		WJR—Pontiac, Mich. (5000)-----	
690	434.5	NAA—Arlington, Va. (1000)	
		CFAC—Calgary, Alberta (500)	
		CFCJ—Calgary, Alberta (250)	
		CFCN—Calgary, Alberta (1800)	
		CHXC—Ottawa, Ont. (250)	
		CKCO—Ottawa, Ont. (100)	
		CNRC—Calgary, Alberta (750) CNRO—Ottawa, Ont. (500)-----	
700	428.3	WLW—Cincinnati, Ohio (5000)	
		WMAF—Dartmouth, Mass. (500)	
		CYO—Mexico City, Mexico (100)-----	
710	422.3	KPO—San Francisco, Cal. (1000)	
		WOR—Newark, N. J. (3500)	
		WOS—Jefferson City, Mo. (500)-----	
720	416.4	KHJ—Los Angeles, Cal. (500)	
		WGN—Chicago, Ill. (500)	
		WLIB—Elgin, Ill. (15000)-----	
730	410.7	CFCF—Montreal, Que. (1650)	
		CFYC—Burnaby, B. C. (500)	
		CHPC—Vancouver, B. C. (1000)	
		CKAC—Montreal, Que. (1200)	
		CKCD—Vancouver, B. C. (1000)	
		CNRM—Montreal, Que. (1000)-----	
740	405.2	WCCO—Minneapolis, Minn. (5000)	
		WFI—Philadelphia, Pa. (500)	
		WLIT—Philadelphia, Pa. (500)-----	
750	410.7	WEAR—Cleveland, Ohio (1000)	
		WTAM—Cleveland, Ohio (5000)	
		WSBT—South Bend, Ind. (500)	
		CYJ—Mexico City, Mex. (2000)	
		CYL—Mexico City, Mex. (500) PWX—Havana, Cuba (500)-----	
760	394.5	KMA—Shenandoah, Iowa (1000)	
		KOB—State College, N. Mex. (5000)	

Freq. Kilo.	W. L. Meters	Location	Power
760	394.5	<b>KTW—Seattle, Wash. (1000)</b> <b>KWKH—Shreveport, La. (1000)</b> <b>KWSC—Pullman, Wash. (500)</b> <b>WHN—New York, N. Y. (500)</b> <b>WPAP—Cliffside, N. J. (500)</b> <b>WQAO—Cliffside, N. J. (500)</b> -----	
770	389.4	<b>WAAF—Chicago, Ill. (500)</b> <b>WABI—Bangor, Maine (100)</b> (Sunday only.) <b>WBBM—Chicago, Ill. (5000)</b> <b>WJBT—Chicago, Ill. (500)</b> -----	
780	384.4	<b>KGO—Oakland, Cal. (5000)</b> <b>KTHS—Hot Springs, Ark. (1000)</b> <b>WBSO—Wellesley Hills, Mass. (100)</b> <b>WMBF—Miami Beach, Fla. (500)</b> <b>WQAM—Miami, Fla. (750)</b> <b>CKY—Winnipeg, Manitoba (500)</b> <b>CNRW—Winnipeg, Manitoba (500)</b> -----	
790	379.5	<b>WCAJ—Lincoln, Nebr. (500)</b> (Daytime only.) <b>WGY—Schenectady, N. Y. (50000)</b> -----	
800	374.8	<b>KNRC—Santa Monica, Cal. (500)</b> <b>WOC—Davenport, Iowa (5000)</b> <b>CYH—Mexico City, Mex. (100)</b> -----	
810	370.2	<b>KHQ—Spokane, Wash. (1000)</b> <b>WDAF—Kansas City, Mo. (1000)</b> <b>WLWL—New York, N. Y. (1000)</b> <b>WMCA—New York, N. Y. (500)</b> -----	
820	365.6	<b>WCSH—Portland, Maine (500)</b> <b>WEBH—Chicago, Ill. (500)</b> <b>WJJD—Mooseheart, Ill. (1000)</b> -----	
830	361.2	<b>KFWB—Los Angeles, Cal. (500)</b> <b>WSAI—Cincinnati, Ohio (5000)</b> <b>HHK—Port au Prince, Haiti (1000)</b> -----	
840	356.9	<b>CFCA—Toronto, Ont. (500)</b> <b>CHIC—Toronto, Ont. (500)</b> <b>CHNC—Toronto, Ont. (500)</b> <b>CJBC—Toronto, Ont. (500)</b> <b>CJSC—Toronto, Ont. (500)</b>	

Freq. Kilo.	W. L. Meters	Location	Power
840	356.9	CKCL—Toronto, Ont.	(500)
		CKLC—Red Deer, Alta.	(1000)
		CKNC—Toronto, Ont.	(500)
		CKSM—Toronto, Ont.	(500)
		CNRT—Toronto, Ont.	(500)
850	352.7	WEW—St. Louis, Mo.	(1000)
		WWJ—Detroit, Mich.	(1000)
860	348.6	KJR—Seattle, Wash.	(2500)
		KVOO—Bristow, Okla.	(1000)
		KXA—Seattle, Wash.	(500)
		WGBS—New York, N. Y.	(500)
		WIP—Philadelphia, Pa.	(500)
		WOO—Philadelphia, Pa.	(500)
		2OK—Havana, Cuba	(100)
CZE—Mexico City, Mex.	(500)		
870	344.6	KFQD—Anchorage, Alaska	(100)
		WCBD—Zion, Ill.	(5000)
		WLS—Chicago, Ill.	(5000)
880	340.7	WAPI—Auburn, Ala.	(1000)
		WHB—Kansas City, Mo.	(500)
		WJAX—Jacksonville, Fla.	(1000)
		WKAQ—San Juan, P. I.	(500)
		WOQ—Kansas City, Mo.	(500)
		6KW—Tuincu, Cuba	(4000)
890	336.9	KNX—Los Angeles, Cal.	(500)
		WSM—Nashville, Tenn.	(5000)
900	333.1	KFJM—Grand Forks, N. Dak.	(100)
		KFQB—Fort Worth, Texas	(1000)
		KSAC—Manhattan, Kan.	(500)
		KSEI—Pocatello, Idaho	(250)
		WBZ—Springfield, Mass.	(15000)
		WBZA—Boston, Mass.	(500)
		WHA—Madison, Wis.	(750)
		WJAD—Waco, Texas	(500)
WLBL—Stevens Point, Wis.	(1000)		
910	329.5	CFCT—Vancouver, B. C.	(500)
		CFQC—Saskatoon, Sask.	(500)
		CHUC—Saskatoon, Sask.	(500)

Freq. Kilo.	W. L. Meters	Location	Power
910	329.5	CJDC—London, Ont. (500) CJWC—Saskatoon, Sask. (250) CNRS—Saskatoon, Sask. (500) CYX—Mexico City, Mex. (500)-----	
920	325.9	KOA—Denver, Colo. (5000) WPCH—New York, N. Y. (500) WRNY—New York, N. Y. (500)-----	
930	322.4	KICK—Atlantic, Iowa (100) (Daytime only.) WGHP—Detroit, Mich. (750) (Daytime only.) WIAS—Ottumwa, Iowa (100) WHAS—Louisville, Ky. (500) WRHF—Washington, D. C. (150) CHNS—Halifax, N. S. (100) CNRA—Moncton, N. B. (500) CYQ—Tampico, Mex. (100)-----	
940	319	KFAB—Lincoln, Nebr. (5000) KOIL—Council Bluffs, Iowa (5000) KOIN—Portland, Ore. (1000)-----	
950	315.6	KDKA—Pittsburgh, Pa. (50000) KPSN—Pasadena, Cal. (1000)-----	
960	312.3	CFCY—Charlottetown, P. E. I. (100) CJBR—Regina, Sask. (500) CKCK—Regina, Sask. (500) CNRR—Regina, Sask. (500) CYU—Puebla, Mex. (100)-----	
970	309.1	KYA—San Francisco, Cal. (500) WABC—Richmond Hill, N. Y. (2500) WBOQ—Richmond Hill, N. Y. (500) CZF—Chiluhua, Mexico (250)-----	
980	305.9	KOMO—Seattle, Wash. (1000) WHAZ—Troy, N. Y. (500) WHT—Chicago, Ill. (5000) WIBO—Chicago, Ill. (5000)-----	
990	302.8	KSL—Salt Lake City, Utah (1000) WGR—Buffalo, N. Y. (750)-----	
1000	299.8	KFWO—Avalon, Cal. (250) KMOX—St. Louis, Mo. (5000)	



Freq. Kilo.	W. L. Meters	Location	Power
1000	299.8	WBAK—Harrisburg, Pa. (500)	
		(Daytime only.)	
		WPSC—State College, Pa. (500)	
		(Daytime only.)	
		CYA—Mexico City, Mex. (500)	-----
1010	296.9	KLZ—Denver Colo. (750)	
		KQW—San Jose, Cal. (500)	
		KUOA—Fayetteville, Ark. (500)	
		WDEL—Wilmington, Del. (100)	
		WEPS—Gloucester, Mass. (100)	
		WSMB—New Orleans, La. (750)	
		WSMK—Dayton, Ohio (200)	
		WWNC—Asheville, N. C. (1000)	-----
1020	293.9	KGCH—Wayne, Nebr. (250)	
		KGDW—Humboldt, Nebr. (100)	
		KGEZ—Kalispell, Mont. (100)	
		KPRC—Houston, Tex. (500)	
		WGL, New York, N. Y. (1000)	
		WLBW—Oil City, Pa. (500)	
		WODA—Paterson, N. J. (1000)	
WTMJ—Milwaukee, Wis. (1000)	-----		
1030	291.9	CFRB—King, Ont. (1000)	
		CJYC—Scarboro, Ont. (500)	
		CKCX—Scarboro, Ont. (500)	-----
1040	288.3	KGBX—St. Joseph, Mo. (100)	
		KTBI—Los Angeles, Cal. (500)	
		WBCN—Chicago, Ill. (250)	
		WBET—Boston, Mass. (500)	
		WDBO—Orlando, Fla. (500)	
		WENR—Chicago, Ill. (500)	
		WIAD—Philadelphia, Pa. (100)	
		WKY—Oklahoma City, Okla. (150)	
		WNAT—Philadelphia, Pa. (100)	
		WSSH—Boston, Mass. (100)	-----
1050	285.5	KFAU—Boise, Idaho (2000)	
		KMMJ—Clay Center, Nebr. (250)	
		WBAL—Baltimore, Md. (5000)	
		WCAL—Northfield, Minn. (500)	
		WDGY—Minneapolis, Minn. (500)	
		WJAG—Norfolk, Nebr. (250)	-----

Freq. Kilo.	W. L. Meters	Location	Power
1060	282.8	KFJR—Portland, Oreg. (100)	
		KFUM—Colorado Springs, Colo. (1000)	
		KFXF—Denver, Colo. (250)	
		WAIU—Columbus, Ohio (5000)	
		WDRC—New Haven, Conn. (500)	
		WEAO—Columbus, Ohio (750)-----	
1070	280.2	KTAB—Oakland, Cal. (500)	
		WHAM—Rochester, N. Y. (5000)-----	
1080	277.6	KWWG—Brownsville, Tex. (500)	
		WDZ—Tuscola, Ill. (100)	
		(Daytime only.)	
		WGHP—Mount Clemens, Mich. (750)	
		WKAR—Lansing, Mich. (500)	
		WNAX—Yankton, S. Dak. (1000)-----	
		(Daytime only.)	
1090	275.1	KFSG—Los Angeles, Cal. (500)	
		WEAN—Providence, R. I. (500)	
		WFBM—Indianapolis, Ind. (250)	
		WTAS—Elgin, Ill. (500)	
		6JK—Tuincu, Cuba (100)	
		CYB—Mexico City, Mex. (1000)-----	
1100	272.6	KFKD—Phoenix, Ariz. (500)	
		KFJF—Oklahoma City, Okla. (750)	
		KLDS—Independence, Mo. (1500)	
		KSMR—Santa Maria, Cal. (100)	
		WBAA—West Lafayette, Ind. (500)	
		WFBJ—Collegeville, Minn. (100)	
		WFDF—Flint, Mich. (100)	
		WPG—Atlantic City, N. J. (5000)	
		WRM—Urbana, Ill. (500)	
		WSKC—Bay City, Mich. (250)-----	
1110	270.1	KFLX—Galveston, Tex. (100)	
		KGU—Honolulu, T. H. (600)	
		KOAC—Corvallis, Oreg. (500)	
		KQV—Pittsburgh, Pa. (500)	
		WGST—Atlanta, Ga. (500)	
		WHAD—Milwaukee, Wis. (500)	
		WJAS—Pittsburgh, Pa. (500)	
		WMAZ—Macon, Ga. (500)	
		WSOE—Milwaukee, Wis. (250)-----	

freq. Kilo.	W. L. Meters	Location	Power
1120	267.7	KFIZ—Fond du Lac, Wis.	(100)
		KFLA—Rockford, Ill.	(100)
		KFWI—San Francisco, Cal.	(500)
		KSBA—Shreveport, La.	(1000)
		WAAM—Newark, N. J.	(250)
		WBAO—Decatur, Ill.	(100)
		WDAE—Tampa, Fla.	(500)
		WFBG—Altoona, Pa.	(100)
		WGCP—Newark, N. J.	(250)
WNJ—Newark, N. J.	(250)		
WWRL—Woodside, N. Y.	(100)		
		CFRC—Kingston, Ont.	(500)-----
1130	265.3	KTSA—San Antonio, Tex.	(2000)
		WBES—Takoma Park, Md.	(100)
		WCWS—Danbury, Conn.	(100)
		WHK—Cleveland, Ohio	(500)
		WICC—Easton, Conn.	(500)
		WNOX—Knoxville, Tenn.	(1000)
		WOI—Ames, Iowa	(2500)
		CNRV—Vancouver, B. C.	(500)
		CYF—Oaxaca, Mexico	(100)-----
1140	263	KGEF—Los Angeles, Cal.	(500)
		WDAG—Amarillo, Tex.	(250)
		WEAM—Plainfield, N. J.	(250)
		WJAZ—Mt. Prospect, Ill.	(5000)
		WJBI—Redbank, N. J.	(250)
		WJBO—New Orleans, La.	(100)
		WMBI—Chicago, Ill.	(500)
		WSEA—Virginia Beach, Va.	(500)-----
1150	260.7	KGA—Spokane, Wash.	(2000)
		WCAU—Philadelphia, Pa.	(500)
		WCMA—Culver, Ind.	(500)
		WDWF—Cranston, R. I.	(250)
		WFIW—Hopkinsville, Ky.	(750)
		WLSI—Providence, R. I.	(250)
		WOOD—Grand Rapids, Mich.	(500)
		WRHM—Minneapolis, Minn.	(1000)
		6BY—Cienfuegos, Cuba	(200)-----

Kilo.	Meters	Location	Power
1160	258.5	KFOX—Omaha, Nebr.	(100)
		KFUL—Galveston, Tex.	(500)
		KOCH—Omaha, Nebr.	(250)
		WBT—Charlotte, N. C.	(750)
		WEBW—Beloit, Wis.	(500)
		WFBL—Syracuse, N. Y.	(750)
		WIL—St. Louis, Mo.	(250)
		WNAL—Omaha, Nebr.	(250)
		WSBF—St. Louis, Mo.	(250)
1170	256.8	KRE—Berkeley, Cal.	(100)
		KTNT—Muscatine, Iowa	(2000)
		WASH—Grand Rapids, Mich.	(250)
		WBBR—Rossville, N. Y.	(1000)
		WCOS—Springfield, Ohio	(500)
		WEBJ—New York, N. Y.	(500)
		WLTH—Brooklyn, N. Y.	(250)
1180	254.1	KFKU—Lawrence, Kan.	(500)
		KGFX—Pierre, S. Dak.	(200)
			(Daytime only.)
		KMO—Tacoma, Wash.	(250)
		WABO—Rochester, N. Y.	(250)
		WCAX—Burlington, Vt.	(100)
		WREN—Lawrence, Kan.	(750)
WRVA—Richmond, Va.	(1000)		
		WTAQ—Eau Claire, Wis.	(500)
1190	252	KOCW—Chickasha, Okla.	(250)
		KPLA—Los Angeles, Cal.	(500)
		WKBF—Indianapolis, Ind.	(250)
		WMBB—Chicago, Ill.	(5000)
		WOK—Chicago, Ill.	(5000)
		WORD—Batavia, Ill.	(5000)
		WSAR—Fall River, Mass.	(100)
1200	249.9	KFKA—Greeley, Colo.	(200)
		KFQU—Holy City, Cal.	(100)
		KFRU—Columbia, Mo.	(500)
		KFYR—Bismarck, N. Dak.	(250)
		WBAX—Wilkes-Barre, Pa.	(100)
		WBRE—Wilkes-Barre, Pa.	(100)

Freq. Kilo.	W. L Meters	Location	Power
1200	249.9	WCOA—Pensacola, Fla.	(500)
		WREC—Memphis, Tenn.	(100)
		WSAZ—Huntington, W. Va.	(100)
		WSIX—Springfield, Tenn.	(150)
		7SR—Elia, Cuba	(100)-----
1210	247.8	KFBC—San Diego, Cal.	(100)
		KFEL—Denver, Colo.	(250)
		KFJB—Marshalltown, Iowa	(100)
		KOW—Denver, Colo.	(250)
		WCAT—Rapid City, S. Dak.	(100)
		WIOD—Miami Beach, Fla.	(1000)
	WNBH—New Bedford, Mass.	(250)-----	
1220	245.8	KFH—Wichita, Kans.	(500)
		KFIO—Spokane, Wash.	(100)
		KFPY—Spokane, Wash.	(250)
		KLS—Oakland, Calif.	(250)
		KZM—Oakland, Calif.	(100)
		WAAT—Jersey City, N. J.	(300)
		WEVD—Woodhaven, N. Y.	(500)
		WFBE—Cincinnati, Ohio	(250)
		WGBB—Freeport, N. Y.	(400)
		WGMS—Minneapolis, Minn.	(500)
		WHDI—Minneapolis, Minn.	(500)
		WKRC—Cincinnati, Ohio	(500)
	WLB—Minneapolis, Minn.	(500)	
	WWL—New Orleans, La.	(500)-----	
1230	243.8	KFCB—Phoenix, Ariz.	(125)
		KGRS—Amarillo, Tex.	(250)
		KSCJ—Sioux City, Iowa	(500)
		KWUC—LeMars, Iowa	(1500)
		WCAC—Baltimore, Md.	(250)
		WCAD—Canton, N. Y.	(500)
		WDOD—Chattanooga, Tenn.	(500)
		WFBR—Baltimore, Md.	(100)
		WMBC—Detroit, Mich.	(100)-----
1240	241.8	KFKB—Milford, Kans.	(1500)
		KFON—Long Beach, Cal.	(500)
		WBRC—Birmingham, Ala.	(250)

Freq. Kilo.	W. L. Meters	Location	Power
1240	241.8	WEBC—Superior, Wis.	(250)
		WEBR—Buffalo, N. Y.	(200)
		WEDC—Chicago, Ill.	(500)
		WFCI—Pawtucket, R. I.	(100)
		WGES—Chicago, Ill.	(500)
		WMAL—Washington, D. C.	(500)-----
1250	239.9	KEX—Portland, Oreg.	(2500)
		KGGU—Mandan, N. Dak.	(100)
		KWCR—Cedar Rapids, Iowa	(250)
		WBAW—Nashville, Tenn.	(500)
		WBBP—Petoskey, Mich.	(100)
		WCAN—Lawrenceburg, Tenn.	(500).
		WCAP—Asbury Park, N. J.	(500)
		WIBA—Madison, Wis.	(100)
		WJAM—Cedar Rapids, Iowa	(250)
		WNAD—Norman, Okla.	(500)
		WOAX—Trenton, N. J.	(500)
		WTAL—Toledo, Ohio	(250)-----
1260	238	WADC—Akron, Ohio	(1000)
		WIBX—Utica, N. Y.	(150)
		WJBB—Sarasota, Fla.	(250)
		WLBI—East Wenona, Ill.	(250)
		WQBA—Tampa, Fla.	(250)
		WRAW—Reading, Pa.	(100)
		WRBC—Valparaiso, Ind.	(250)-----
1270	236.1	KDYL—Salt Lake City, Utah	(500)
		KFDX—Shreveport, La.	(250)
		KFMX—Northfield, Minn.	(500)
		KFWM—Oakland, Calif.	(500)
		KHMC—Harlingen, Texas	(100)
		WBBW—Norfolk, Va.	(100)
		WBNY—New York, N. Y.	(500)
		WGBF—Evansville, Ind.	(250)
		WHAP—Carlstadt, N. Y.	(1000)
		WPUB—New York, N. Y.	(500)
		WSRC—Middletown, Ohio	(100)
		WSUF—Norfolk, Va.	(500)
		WTAD—Quincy, Ill.	(250)
		WTAR—Norfolk, Va.	(500)-----

Freq. Kilo.	W. L. Meters	Location	Power
1280	234.2	KGAR—Tucson, Ariz. (100)	
		KWK—St. Louis, Mo. (1000)	
		WBBL—Richmond, Va. (100)	
		WCAH—Columbus, Ohio (250)	
		WDAH—El Paso, Texas (100)	
		WMAY—St. Louis, Mo. (100)	
		WMBS—Lemoyne, Pa. (250)-----	
1290	232.4	KFJY—Ft. Dodge, Iowa (100)	
		KFMR—Sioux City, Iowa (100)	
		KFPR—Los Angeles, Calif. (250)	
		KFQZ—Hollywood, Cal. (100)	
		KUT—Austin, Texas (500)	
		WBRL—Tilton, N. H. (500)	
		WHBQ—Memphis, Tenn. (100)	
		WJKS—Gary, Ind. (500)	
		WSBC—Chicago, Ill. (500)-----	
1300	230.6	KFEQ—St. Joseph, Mo. (1000)	
		WAFD—Detroit, Mich. (100)	
		WCOC—Columbus, Miss. (250)	
		WDBJ—Roanoke, Va. (250)	
		WGBI—Scranton, Pa. (250)	
		WQAN—Scranton, Pa. (250)-----	
1310	288.9	KELW—Burbank, Cal. (250)	
		KGBU—Ketchikan, Alaska (500)	
		WHBP—Johnstown, Pa. (250)	
		WKBE—Webster, Mass. (100)	
		WMBL—Lakeland, Fla. (100)	
		WNBR—Memphis, Tenn. (100)	
		WOWO—Ft. Wayne, Ind. (2500)-----	
1320	227.1	KFUP—Denver, Colo. (100)	
		KGHB—Honolulu, H. T. (250)	
		KSO—Clarinda, Iowa (500)	
		WAIZ—Appleton, Wis. (100)	
		WARS—Brooklyn, N. Y. (500)	
		WBBC—Brooklyn, N. Y. (500)	
		WCLO—Camp Lake, Wis. (100)	
		WFJC—Akron, Ohio (500)	
		WJAY—Cleveland, Ohio (500)	

Freq. Kilo.	W. L. Meters	Location	Power
1320	227.1	WJBC—LaSalle, Ill. (100)	
		WSDA—Brooklyn, N. Y. (500)	
		WTHS—Atlanta, Ga. (200)	
		WWAE—Chicago, Ill. (500)-----	
1330	225.4	WCBM—Baltimore, Md. (100)	
		WCCT—Providence, R. I. (100)	
		WDAD—Nashville, Tenn. (1000)	
		WMAC—Cazenovia, N. Y. (500)	
		WSYR—Syracuse, N. Y. (500)-----	
1340	223.7	KGFH—La Crescenta, Calif. (250)	
		KMIC—Inglewood, Calif. (250)	
		WCAM—Camden, N. J. (500)	
		WCRW—Chicago, Ill. (500)	
		WFAN—Philadelphia, Pa. (500)	
		WFKB—Chicago, Ill. (500)	
		WNRC—Greensboro, N. C. (250)	
		WPCC—Chicago, Ill. (500)	
WSAJ—Grove City, Pa. (250)-----			
1350	222.1	KFCY—St. Paul, Minn. (250)	
		KFWC—San Bernardino, Cal. (100)	
		KWKC—Kansas City, Mo. (100)	
		KWTC—Santa Ana, Cal. (100)	
		WAMD—Minneapolis, Minn. (500)	
		WCBA—Allentown, Pa. (100)	
		WHBD—Bellefontaine, Ohio (100)	
		WHBF—Rock Island, Ill. (100)	
		WOMT—Manitowoc, Wis. (100)	
WSAN—Allentown, Pa. (100)-----			
1360	220.4	KGCI—San Antonio, Tex. (100)	
		KGRC—San Antonio, Tex. (100)	
		WHBW—Philadelphia, Pa. (100)	
		WKBH—La Crosse, Wis. (500)	
WMBO—Auburn, N. Y. (100)-----			
1370	218.8	KGEW—Fort Morgan, Colo. (200)	
		WCGU—Coney Island, N. Y. (500)	
		WGWB—Milwaukee, Wis. (500)	
		WKBO—Jersey City, N. J. (500)	
		WKBQ—New York, N. Y. (500)-----	



Freq. Kilo.	W. L. Meters	Location	Power
1380	217.3	KFOR—Lincoln, Nebr.	(100)
		KFQW—Seattle, Wash.	(100)
		WKBS—Galesburg, Ill.	(100)
		WKBV—Brookville, Ind.	(100)
		WKBW—Buffalo, N. Y.	(500)
		WLBO—Galesburg, Ill.	(100)-----
1390	215.7	KGER—Long Beach, Cal.	(100)
		KRLO—Los Angeles, Cal.	(250)
		WCLS—Joliet, Ill.	(150)
		WEHS—Evanston, Ill.	(100)
		WHFC—Chicago, Ill.	(200)
		WKBB—Joliet, Ill.	(150)
		WOKO—Peekskill, N. Y.	(250)
		WPEP—Waukegan, Ill.	(250)
WQBC—Utica, Miss.	(100)-----		
1400	214.2	KFWF—St. Louis, Mo.	(250)
		WCWK—Ft. Wayne, Ind.	(250)
		WJBU—Lewisburg, Pa.	(100)
		WLBG—Petersburg, Va.	(100)-----
1410	212.6	KGBZ—York, Nebr.	(100)
		KGDX—Shreveport, La.	(250)
		WJBL—Decatur, Ill.	(250)
		WRAX—Philadelphia, Pa.	(250)-----
1420	211.1	KPNP—Muscatine, Iowa	(100)
		WBMH—Detroit, Mich.	(100)
		WCDA—Cliffside, N. J.	(250)
		WLOE—Chelsea, Mass.	(100)
		WRST—Bay Shore, N. Y.	(250)-----
1430	209.7	KGHF—Pueblo, Colo.	(250)
		KSOO—Sioux Falls, S. D.	(250)
		WCBS—Springfield, Ill.	(250)
		WOKT—Rochester, N. Y.	(500)
		WPRC—Harrisburg, Pa.	(100)
		WRCV—Norfolk, Va.	(100)
WTFI—Toccoa, Georgia	(250)-----		

Freq. Kilo.	W. L. Meters	Location	Power
1440	208.2	KFVD—Venice, Calif. (250) KGFJ—Los Angeles, Calif. (100) WJBZ—Chicago Heights, Ill. (100) WLBZ—Dover, Maine (250) WNBA—Forest Park, Ill. (200) WRAF—LaPorte, Ind. (100) WRPI—Terre Haute, Ind. (100)-----	
1450	206.8	KGGF—Picher, Okla. (100)-----	
1460	205.4	KGEO—Grand Island, Nebr. (100) WABF—Kingston, Pa. (250) WMBD—Peoria Heights, Ill. (250) WRK—Hamilton, Ohio (100)-----	
1470	204	KGFO—Portable (100) KGGM—Portable (100) WBBZ—Chicago, Ill. (100) WHBL—Chicago, Ill. (100) WIBS—Elizabeth, N. J. (250) WIBW—Chicago, Ill. (100) WKEN—Kenmore, N. Y. (250) WLBX—Long Island City, N. Y. (250) WMBA—Newport, R. I. (100) WMBH—Joplin, Mo. (100) WMBQ—Brooklyn, N. Y. (100) WSAX—Chicago, Ill. (100)-----	
1480	202.6	KVL—Seattle, Wash. (100) WHBN—Gainesville, Fla. (5000) WTFE—Mt. Vernon Hills, Va. (10000)-----	
1490	201.2	KGEY—Denver, Colo. (250) WATT—Boston, Mass. (100) WCBR—Providence, R. I. (100) WGMU—Portable (100) WHBM—Portable (100) WIBJ—Chicago, Ill. (100) WIBM—Chicago, Ill. (100) WKBG—Chicago, Ill. (100) WRMU—New York, N. Y. (100)-----	
1500	199.9	WRAH—Providence, R. I. (250)-----	

## WOULD YOU LIKE TO GET TWICE AS MANY STATIONS WITH YOUR SET?

The following article will tell you how to find out where any station should come in on the dials, enabling you to locate nearly all stations systematically, and without delay.

**D**O you know how to find the wave lengths on your set?

Almost twice as many stations can be brought in with the receiver if you know just where they should come in on the dials. It is the difference between hunting blindly and searching in a small place for something you know is there.

It can be done by learning the relationship between the numbers on the dials of your radio receiving set and the wave lengths of the various broadcasting stations. With STEVENSON'S Broadcasting Log, it is very simple.

You already know where some few stations come in on the dials. Or you can easily locate a few.

Suppose for instance, that you picked up a station at 30 on the dial. Turning to the alphabetical list of stations, you learn that the wave length of the station is 252. Then you pick up another station at 40, and learn that its wave length is 300 meters.

Immediately you know that all stations with wave-lengths between 252 and 300 meters should come in between 30 and 40 on the dial.

Keep on with the test. Suppose a station comes in at 40, and

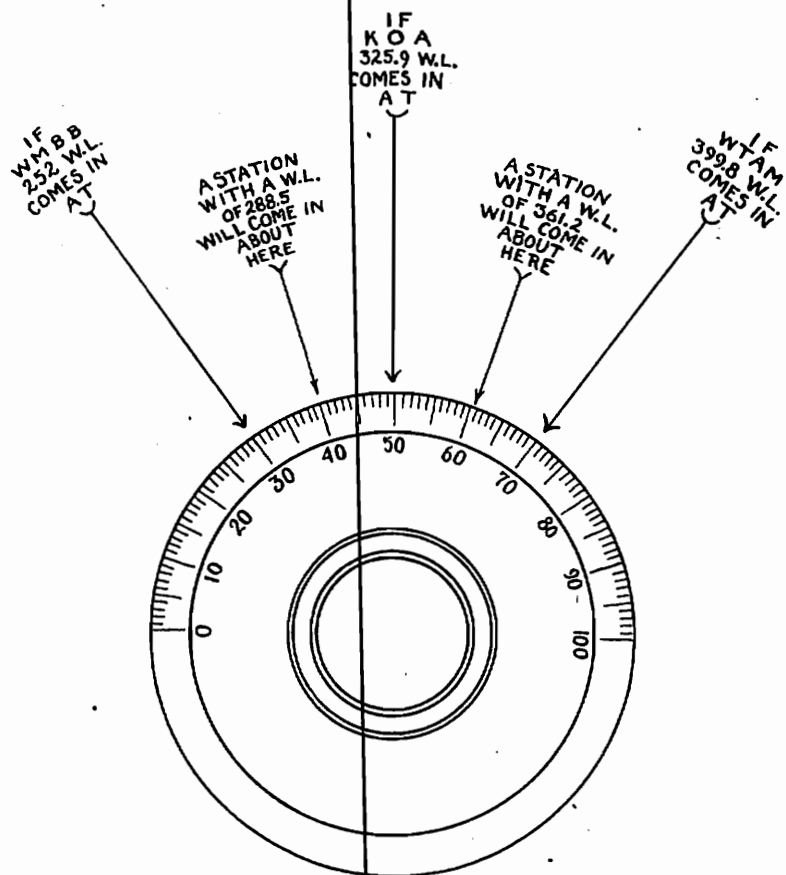
you learn its wave length is 350 meters. Then you know that all stations with wave lengths between 300 and 350 meters should come in between 40 and 50 on the dial.

Go over the entire dial in that manner, and soon you will know approximately where to search for any station when you know its wave length.

Then if you want to get a particular station, all you have to do is to find its wave length and you will know where to look for it. With a little practice, you can almost tell before hearing the call letters announced which station you are listening to.

The distance at which a station can be heard depends on the power it uses. Stations of 1,000 watts or more power (printed in bold face type) are sufficiently powerful to be heard over large areas under favorable conditions.

Inspection of the broadcasting log should enable the listener to determine very quickly which stations should be received. Calculate the distance and the power of the station (shown in parentheses after the location) and you can tell whether you should be able to get it.



The above one dial arrangement illustrates the method which can be used to find out where stations should come in. Suppose WMBB, with a wave length of 252 meters comes in at 30 on the dial, and that KOA, with a wave length of 330 meters comes in at 50. Then a station with a wave length of 288 meters should come in at about 40. And if WTAM, on 400 meters comes in at 70, then a station with a wave length of 361 meters should come in at about 60. On some sets, the process is exactly reversed, the high wave lengths coming in at the bottom of the dial instead of the top.

## AMERICAN BROADCASTING STATIONS

Call	Power Watts	Freq. Kilo.	W. L. Mets.	Location and Owner
KDKA	50000	950	315.6	Pittsburgh, Pa.---Westinghse. E. & M. Co.
KDLR	15	1300	230.6	Devils Lake, N. D.-----Radio Elec. Co.
KDYL	500	1280	234.2	Salt Lake City, Utah----Intm. B'cast Co.
KELW	250	1310	228.9	Burbank, Calif.-----E. L. White
KEX	2500	1250	239.9	Portland, Oreg.-----Western B'cast Co.
KFAB	5000	940	319	Lincoln, Nebr.-----Nebr. Buick Auto Co.
KFAD	500	1100	272.6	Phoenix, Ariz.-----Elec'l Equip. Co.
KFAU	2000	1050	285.5	Boise, Idaho-----School District
KFBB	50	1090	275.1	Havre, Mont.-----F. A. Buttrey Co.
KFBC	100	1210	247	San Diego, Calif.----Dr. Arthur W. Yale
KFBK	100	560	535.4	Sacramento, Calif.----Kimball-Upson Co.
KFBL	50	1340	223.7	Everett, Wash.-----Leese Bros.
KFBU	500	620	483.6	Laramie, Wyo.-----Bishop N. S. Thomas
KFCB	125	1230	243.8	Phoenix, Ariz.-----Nielson Radio Sup. Co.
KFCR	50	1420	211.1	Santa Barbara, Calif.----S. B. B'cast Co.
KFDM	500	620	483.6	Beaumont, Texas.----Magnolia Pet. Co.
KFDX	250	1270	236.1	Shreveport, La.----First Baptist Church
KFDY	500	550	545.1	Brookings, S. D.-----State College
KFDZ	10	1390	215.7	Minneapolis, Minn.-----H. O. Iverson
KFEC	50	1400	214.2	Portland, Oreg.-----Meier & Frank Co.
KFEL	250	1210	247.8	Denver, Colo.-----E. P. O'Fallon, Inc.
KFEQ	1000	1300	230.6	St. Joseph, Mo.-----Scroggin & Co.
KFEY	10	1290	232.4	Kellogg, Idaho-----Union High School
KFGQ	10	1430	209.7	Boonē, Iowa-----Boone Biblical College
KFH	500	1220	245.8	Wichita, Kans.-----Hotel Lassen
KFHA	50	1180	254.1	Gunnison, Colo.----Western State College
KFHL	10	1410	212.6	Oskaloosa, Iowa-----Penn College
KFI	5000	640	468.5	Los Angeles, Calif.----E. C. Anthony, Inc.
KFIF	50	1400	214.2	Portland, Oreg.-----Benson Poly. Inst.
KFIO	100	1220	245.8	Spokane, Wash.-----North Central H. S.
KFIU	10	1330	225.4	Juneau, Alaska-----Alaska Elec. Co.
KFIZ	100	1120	267.7	Fond du Lac, Wis.---Commonw'th Reporter
KFJB	100	1210	247.8	Marshalltown, Iowa---Marshall Elec. Co.
KFJF	750	1100	272.6	Oklahoma City, Okla.---Nat. Rad. Mfg. Co.
KFJI	15	1200	249.9	Astoria, Oreg.-----E. E. Marsh
KFJM	100	900	333.1	Grand Forks, N. D.---University of N. D.
KFJR	100	1060	282.8	Portland, Oreg.---Ashley C. Dixon & Son
KFJY	100	1290	232.4	Fort Dodge, Iowa-----C. S. Tunwall
KFJZ	50	1200	249.9	Fort Worth, Texas-----W. E. Branch

Call	Watts	Kilo.	Mets.	Location and Owner
KFKA	200	1200	249.9	Greeley, Colo.—Colo. State Teach. College
KFKB	1500	1240	241.8	Milford, Kans.-----Dr. J. R. Brinkley
KFKU	500	1180	254.1	Lawrence, Kans.----University of Kansas
KFKX	2500	570	526.0	Chicago, Ill.—Westinghouse E. & M. Co.
KFKZ	15	1330	225.4	Kirksville, Mo.—Ne. Mo. State Teach. Col.
KFLV	100	1120	267.7	Rockford, Ill.—Swedish Evan. Mis. Church
KFLX	100	1110	270.1	Galveston, Texas----George Roy Clough
KFMR	100	1290	232.4	Sioux City, Iowa----Morningside College
KFMX	500	1270	236.1	Northfield, Minn.-----Carleton College
KFNF	2000	650	461.3	Shenandoah, Iowa--Henry Field Seed Co.
KFOA	1000	670	447.3	Seattle, Wash.—Rhodes Departm't Store
KFON	500	1240	241.8	L. Beach, Calif.—Nichols & Warriner, Inc.
KFOR	100	1380	217.3	Lincoln, Nebr.-----Howard A. Shuman
KFOX	100	1160	258.5	Omaha, Nebr.—Omaha Br. of Education
KFOY	250	1350	222.1	St. Paul, Minn.—Maurice Gordon Goldberg
KFPL	15	1090	275.1	Dublin, Texas-----C. C. Baxter
KFPM	15	1300	230.6	Greenville, Texas—The New Furniture Co.
KFPR	250	1290	232.4	Los Angeles, Calif.—L. A. County Forestry
KFPW	50	1140	263.0	Cartersville, Mo.----Rev. L. W. Stewart
KFPY	250	1220	245.8	Spokane, Wash.—Symons Investment Co.
KFQA	50	1280	234.2	St. Louis, Mo.-----The Principia
KFQB	1000	900	333.1	Ft. Worth, Texas--Lone Star Brdcast. Co.
KFQD	100	870	344.6	Anchorage, Alaska—Anchor'ge Radio Club
KFQU	100	1200	249.9	Holy City, Calif.-----W. E. Riker
KFQW	100	1380	217.3	Seattle, Wash.-----KFQW, Incorporated
KFQZ	100	1290	232.4	Hollywood, Calif.—Taft Rad. & Brd. Co. Inc
KFRC	1000	660	454.3	San Francisco, Calif.-----Don Lee, Inc.
KFRU	500	1200	249.9	Columbia, Mo.-----Stephens College
KFSD	500	680	440.9	San Diego, Calif.----Airfan Radio Corp.
KFSG	500	1090	275.1	Los Angeles, Calif.—Echo Pk. Evan. Assn.
KFUL	500	1160	258.5	Galveston, Texas--Thos. Goggan & Bros.
KFUM	1000	1060	282.8	Colorado Springs, Colo.----W. D. Corley
KFUO	1000	550	545.1	St. Louis, Mo.—Concordia Theolgl. Sem.
KFUP	100	1320	227.1	Denver, Colo.-----Fitzsimmons Gen. Hos.
KFUR	50	1330	225.4	Ogden, Utah-----Peery Building Co.
KFUS	50	1170	256.3	Oakland, Calif.-----Dr. L. L. Sherman
KFUT	50	1200	249.9	Salt Lake City, Utah--University of Utah
KFVD	250	1440	203.2	Venice, Calif.—W. J. & C. I. McWhinnie
KFVG	50	1330	225.4	Independence, Kans.—1st Meth. Epis. Ch.
KFVI	50	1260	238.0	Houston, Texas--Hdq. Troop, 56th Cav.
KFVS	50	1340	233.7	Cape Girardeau, Mo.—Hirsch Bat. & Rad Co.

Call	Watts	Kilo.	Mets.	Location and Owner
KFWB	500	830	361.2	Los Angeles, Calif.---Warner Bros. Brdgc.
KFWC	100	1350	222.1	San Bernardino, Calif.---Lawrence E. Wall
KFWF	250	1400	214.2	St. Louis, Mo.---St. L. Truth Center, Inc.
KFWI	500	1120	267.7	San Francisco, Calif.---Radio Enter., Inc.
KFWM	500	1270	236.1	Oakland, Calif.-----Oakland Edu. Society
KFWO	250	1000	299.8	Avalon, Calif.-----Lawrence Mott
KFXD	15	1470	204.0	Jerome, Idaho-----Service Radio Co.
KFXF	250	1060	282.8	Denver, Colo.---Pikes Peak Brdcstg. Co.
KFXJ	50	1390	215.7	Edgewater, Colo.-----R. G. Howell
KFXR	50	1340	223.7	Oklahoma City, Okla.---Exch. Ave. Baptist
KFXY	25	1460	205.4	Flagstaff, Ariz.-----Mary M. Costigan
KFYO	15	1420	211.1	Breckenridge, Texas-----Kirksey Bros.
KFYR	250	1200	249.9	Bismarck, N. D.-----Hoskins-Meyer
KGA	2000	1150	260.7	Spokane, Wash.---Northw't Rad. Serv. Co.
KGAR	100	1280	234.2	Tucson, Ariz.-----Citizen's Pub. Co.
KGBU	500	1310	228.9	Ketchikan, Alaska---Alaska Ra. & Ser. Co.
KGBX	100	1040	288.3	St. Joseph, Mo.-----Foster-Hall Tire Co.
KGBY	50	1350	222.1	Columbus, Nebr.-----Thelen & Taddiken
KGBZ	100	1410	212.6	York, Nebr.---Fed. Live Stock Remedy Co.
KGCA	10	1210	247.8	Decorah, Iowa-----Chas. W. Greenley
KGCB	50	1390	215.7	Oklahoma City, Okla.---Wallace Rad. Inst.
KGCH	250	1020	293.9	Wayne, Nebr.-----S. A. Lutgen
KGCI	100	1360	220.4	San Antonio, Texas---Liberto Radio Sales
KGCL	50	1300	230.6	Seattle, Wash.---Arch. Taft & Lou. Wasmer
KGCN	50	1440	208.2	Concordia, Kans.---Concordia Brdcsg. Co.
KGCR	15	1440	208.2	Brookings, S. D.-----Cutler's
KGCU	100	1250	239.9	Mandan, N. D.-----Mandan Radio Assn.
KGCX	10	1230	243.8	Vida, Mont.---First State Bank of Vida
KGDA	15	1180	254.1	Dell Rapids, S. D.-----Home Auto Co.
KGDE	50	1460	205.4	Barrett, Minn.-----Jaren Drug Co.
KGDM	10	1380	217.3	Stockton, Calif.-----E. F. Peffer
KGDP	10	1340	223.7	Pueblo, Colo.-----Boy Scouts of America
KGDR	15	1450	206.8	San Antonio, Texas-----Joe B. McShane
KGDW	100	1020	293.9	Humboldt, Nebr.-----Frank J. Rist
KGDX	250	1410	212.6	Shreveport, La.-----William E. Antony
KGDY	15	1450	206.8	Oldham, S. Dak.-----J. Albert Loesch
KGEF	500	1140	263.0	Los Angeles, Calif.---Trinity Methodist Ch.
KGEH	50	1490	201.2	Eugene, Oreg.-----Eugene Broadcast Sta.
KGEK	10	1140	263.0	Yuma, Colo.---Beehler Elec. Equip. Co.
KGEM	15	1330	225.4	El Centro, Calif.---E. R. Irey & F. M. Bowles
KGEO	100	1460	205.4	Grand Island, Nebr.-----Hotel Yancey

Call	Watts	Kilo.	Mets.	Location and Owner
KGEQ	50	1470	204.0	Minneapolis, Minn.---Fred W. Hermann
KGER	100	1390	215.7	Long Beach, Calif.---C. Merwin Dobyns
KGES	10	1470	204.0	Central City, Nebr.--Cent. Rad. Elec. Co.
KGEU	50	1320	227.1	Lower Lake, Calif.-----L. W. Clement
KGEW	100	1370	218.8	Fort Morgan, Colo.---City of Fort Morgan
KGEY	250	1490	201.2	Denver, Colo.-----J. W. Dietz
KGEZ	100	1020	293.9	Kalispell, Mont.---Flathead Brdcstg. Assn.
KGFB	10	1340	223.7	Iowa City, Iowa-----Albert C. Dunkel
KGFF	25	1460	205.4	Alva, Okla.-----Earl E. Hampshire
KGFC	50	1390	215.7	Oklahoma City, Okla.---Full Gospel Chur.
KGFH	250	1340	223.7	La Crescenta, Calif.---Frederick Robinson
KGFI	15	1360	220.4	San Angelo, Texas-----M. L. Eaves
KGfJ	100	1440	208.2	Los Angeles, Calif.---Ben S. McGlashan
KGfK	50	1340	223.7	Hallock, Minn.---Kittson County Enterprise
KGfL	50	1350	222.1	Raton, New Mexico-----N. L. Cotter
KGfN	15	1500	199.9	Aneta, N. D.-----Henry Haraldson
KGfO	100	1470	204.0	Portable-----Brant Radio Power Co.
KGfP	10	1410	212.6	Mitchell, S. D.---Mitchell Broadcast Co.
KGfW	10	1010	296.9	Ravenna, Nebr.-----Otto F. Sothman
KGfX	200	1180	254.1	Pierre, S. D.-----Dana McNeil
KGfY	100	1450	206.8	Picher, Okla.-----Dr. D. L. Connell
KGfZ	50	1410	212.6	Cedar Grove, La.---Bates Rad. & Elec. Co.
KGGM	100	1470	204.0	Portable-----J. Peters
KGHB	250	1320	227.1	Honolulu, H. T.-----Radio Sales Co.
KGHC	15	1430	209.7	Slayton, Minn.-----Hogstad Radio Co.
KGHF	250	1430	209.7	Pueblo, Colo.-----Philip G. Lasky
KGHP	50	1140	263.0	Hardin, Mont.-----American Legion
KGO	5000	780	384.4	Oakland, Calif.---General Electric Co.
KGRC	100	1360	220.4	San Antonio, Texas---Gene Roth & Co.
KGRS	250	1230	243.8	Amarillo, Texas---Gish Radio Service
KGTT	50	1450	206.8	San Francisco, Calif.---Glad Tid. Temple
KGU	600	1110	270.1	Honolulu, H. T.---Marion A. Mulrony
KGW	1000	610	491.5	Portland, Oreg.---Oregonian Pub. Co.
KGy	50	1230	243.8	Lacey, Wash.-----St. Martins College
KHAC	50	1470	204.0	Aeroplane (Pac. Coast)---Flying Brd., Inc.
KHJ	500	720	416.4	Los Angeles, Calif.-----Don Lee, Inc.
KHMC	100	1270	236.1	Harlingen, Texas---Harlingen Music Co.
KHQ	1000	810	370.2	Spokane, Wash.-----Louis Wasmer, Inc.
KICK	100	930	322.4	Atlantic, Iowa---Atlantic Automobile Co.
KJBS	50	1360	220.4	San Francisco---Julius Brunton & Sons Co.
KJR	2500	860	348.6	Seattle, Wash.---Northwest Rad. Serv. Co.



Call	Watts	Kllo.	Mets.	Location and Owner
KKP	15	1130	265.3	Seattle, Wash.----Seattle, Harbor Dept.
KLCN	50	1050	285.5	Blytheville, Ark.----Daily Courier News
KLDS	1500	1110	270.1	Independence, Mo.---Reorganized Ch. of Latter Day Saints
KLIT	10	1450	206.8	Portland, Oreg.---Lewis Irvine Thompson
KLS	250	1220	245.8	Oakland, Calif.-----Warner Bros.
KLX	500	590	508.2	Oakland, Calif.-----Tribune Pub. Co.
KLZ	750	1010	296.9	Denver, Colo.----Reynolds Radio Co., Inc.
KMA	1000	760	394.5	Shenandoah, Iowa.---May Seed & Nurs. Co.
KMED	50	1200	249.9	Medford, Oreg.-----W. J. Virgin
KMIC	250	1340	223.7	Inglewood, Calif.-----James R. Fouch
KMJ	50	820	365.6	Fresno, Calif.-----The Fresno Bee
KMMJ	250	1050	285.5	Clay Center, Nebr.---M. M. Johnson Co.
KMO	250	1180	254.1	Tacoma, Wash.-----KMO, Inc.
KMOX	5000	1000	299.8	St. Louis, Mo.-----Voice of St. Louis
KMTR	500	570	526.0	Hollywood, Calif.----KMTR Radio Corp.
KNRC	500	800	374.8	Santa Monica, Calif.---Clarence B. Juneau
KNX	500	890	336.9	Los Angeles, Calif.---L. A. Exp. Pub. Co.
KOA	2500	920	325.9	Denver, Colo.-----General Electric Co.
KOAC	500	1110	270.1	Corvallis, Oreg.---Oreg. State Agri. Col.
KOB	5000	760	394.5	State Col. N. M.---Col. of Agri. & Mech. Arts
KOCH	250	1160	258.5	Omaha, Nebr.-----Central Radio School
KOCW	250	1190	252.0	Chickasha, Okla.---Okla. Col. for Women
KOIL	5000	940	319.0	Council Bluffs, Iowa---Mona Motor Oil Co.
KOIN	1000	940	319.0	Portland, Oreg.-----KOIN, Inc.
KOMO	1000	980	305.9	Seattle, Wash.---Fisher's Blend Sta., Inc.
KOW	250	1210	247.8	Denver, Colo.----Olinger Corp. Brdcastg.
KPCB	50	1300	230.6	Seattle, Wash.---Pacific Coast Biscuit Co.
KPJM	15	1400	214.2	Prescott, Ariz.-----Frank Wilburn
KPLA	500	1190	252.0	Los Angeles, Calif.---Pac. Devel. Rad. Co.
KPNP	100	1420	211.1	Muscatine, Iowa.-----Central Radio Co.
KPO	1000	710	422.3	San Francisco.---Hales Bros. & Chronicle
KPPC	50	1310	228.9	Pasadena, Calif.---Pasadena Pres. Church
KPRC	500	1020	293.9	Houston, Texas.---Houston Printing Co.
KPSN	1000	950	315.6	Pasadena, Calif.-----Star News
KQV	500	1110	270.1	Pittsburgh, Pa.---Doubleday Hill. Elec. Co.
KQW	500	1010	296.9	San Jose, Calif.----First Baptist Church
KRAC	50	1360	220.4	Shreveport, La.-----Caddo Radio Club
KRE	100	1170	256.3	Berkeley, Calif.-----First Cong. Church
KRLD	500	650	461.3	Dallas, Texas.-----KRLD, Inc.
KRLO	250	1390	215.7	Los Angeles.---F. Lang and A. B. Scott

Call	Watts	Kilo.	Mets.	Location and Owner
KRSC	50	1420	211.1	Seattle, Wash.-----Radio Sales Corp.
KSAC	500	900	333.1	Manhattan, Kans.---Kans. State Agri. Col.
KSBA	1000	1120	267.7	Shreveport, La.-----W. G. Patterson
KSCJ	500	1250	245.8	Sioux City, Ia.-----Perkins Bros.
KSD	500	550	545.1	St. Louis, Mo.-----Pulitzer Pub. Co.
KSEI	250	900	333.1	Pocatello, Idaho-----KSEI B'cast Assn.
KSL	1000	990	302.8	Salt Lake City, Utah---Radio Service Corp.
KSMR	100	1100	272.6	Santa Maria, Calif.-----S. M. R. R. Co.
KSO	500	1320	227.1	Clarinda, Iowa-----Berry Seed Co.
KSOO	250	1430	209.7	Sioux Falls, S. D.---Sioux Falls Bdg. Assn.
KTAB	500	1070	280.2	Oakland, Calif.-----Ass'd Broadcasters
KTAP	20	1310	228.9	San Antonio, Texas-----R. B. Bridge
KTBI	500	1040	288.3	Los Angeles, Calif.-----Bible Institute
KTBR	50	1060	282.8	Portland, Oreg.-----M. E. Brown
KTHS	1000	780	384.4	Hot Springs, Ark.---Arlington Hotel Co.
KTNT	2000	1170	256.3	Muscatine, Iowa-----Norman Baker
KTSA	2000	1130	265.3	San Antonio, Texas---Alamo B'cast Co.
KTUE	5	1410	212.6	Houston, Texas-----Uhalt Elec. Co.
KTW	1000	760	394.5	Seattle, Wash.-----First Pres. Church
KUJ	10	1500	199.9	Seattle, Wash.---Puget S'nd Rad. Brdg. Co.
KUOA	500	1010	296.9	Fayetteville, Ark.---Univ. of Arkansas
KUOM	500	650	461.3	Missoula, Mont.---State Univ. of Montana
KUSD	250	620	483.6	Vermilion, S. D.---Univ. of South Dakota
KUT	500	1290	232.4	Austin, Texas-----University of Texas
KVI	50	1280	234.2	Tacoma, Wash.---Puget S'nd Rad. Bdg. Co.
KVL	100	1480	202.6	Seattle, Wash.-----Arthur C. Dailey
KVOO	1000	860	548.6	Bristow, Okla.---Southwestern Sales Corp.
KVOS	50	1430	209.7	Bellingham, Wash.-----L. Kessler
KWBS	15	1500	199.9	Portland, Oreg.-----Schaeffer Rad. Co.
KWCR	250	1250	259.9	Cedar Rapids, Iowa-----H. F. Parr
KWG	50	870	344.6	Stockton, Calif.---Port. Wireless Tel. Co.
KWJJ	50	1310	228.9	Portland, Oreg.-----Wilbur Jerman
KWK	1000	1280	234.2	St. Louis, Mo.---G't'r St. Louis Bdg. Corp.
KWKC	100	1350	222.1	Kansas City, Mo.---Wilson Duncan Brdg.
KWKH	1000	760	394.5	Shreveport, La.-----W. K. Henderson
KWLC	50	1210	247.8	Decorah, Iowa-----Luther College
KWSC	500	760	394.5	Pullman, Wash.-----State Col. of Wash.
KWTC	100	1350	222.1	Santa Ana, Cal.---Dr. John Wesley Hancock
KWUC	1500	1230	243.8	Le Mars, Iowa---Western Union College
KWWG	500	1080	277.6	Brownsville, Texas---Cham. of Commerce
KXA	500	860	348.6	Seattle, Wash.-----Amer. Radio Tel. Co.

Call	Watts	Kilo.	Mets.	Location and Owner
KXL	50	1360	220.4	Portland, Oreg.-----KXL Broadcasters
KXRO	50	1320	227.1	Aberdeen, Wash.-----KXRO, Inc.
KYA	500	970	309.1	San Francisco, Calif.---Pac. Brdcastg. Co.
KYW	2500	570	526.0	Chicago, Ill.---Westinghouse E. & M. Co.
KZM	100	1220	245.8	Oakland, Calif.-----Preston D. Allen
NAA	1000	690	434.5	Arlington, Va.-----U. S. Navy
WAAD	25	1800	230.7	Cincinnati, Ohio---Ohio Mechanics Inst.
WAAF	500	770	389.4	Chicago, Ill.---Drovers Journal Pub. Co.
WAAM	250	1120	267.7	Newark, N. J.-----WAAM, Inc.
WAAT	300	1220	245.8	Jersey City, N. J.---Bremer Brdg. Corp.
WAAW	500	680	440.9	Omaha, Nebr.---Omaha Grain Exchange
WABC	2500	970	309.1	Richmond Hill, N. Y.---Atlantic Bdg. Corp.
WABF	250	1460	205.4	Kingston, Pa.-----Markle Brdcastg. Corp.
WABI	100	770	389.4	Bangor, Maine---First Universalist Church
WABO	250	1180	254.1	Rochester, N. Y.-----Hickson Elec. Co.
WABW	50	1210	247.8	Wooster, Ohio.-----College of Wooster
WABY	50	1210	247.8	Philadelphia, Pa.-----J. Magaldi, Jr.
WABZ	50	1260	238.0	New Orleans, La.---Coliseum Pl. Bap. Ch.
WADC	1000	1260	238.0	Akron, Ohio.-----Allen T. Simmons
WAFD	100	1300	230.6	Detroit, Mich.-----Albert B. Parfet Co.
WAGM	50	1330	225.4	Royal Oak, Mich.-----Robert L. Miller
WAIT	10	1400	214.2	Taunton, Mass.---A. H. Waite & Co., Inc.
WAIU	5000	1060	282.8	Columbus, Ohio---American Ins. Union
WAIZ	100	1320	227.1	Appleton, Wis.-----Irving Zuelke, Inc.
WALK	50	1490	201.2	Willow Grove, Pa.-----Albert A. Walker
WAMD	500	1350	222.1	Minneapolis, Minn.---Radisson Rad. Corp.
WAPI	1000	880	340.7	Auburn, Ala.---Alabama Polytechnic Inst.
WARS	500	1320	227.1	Brooklyn, N. Y.---Amateur Rad. Spec. Co.
WASH	250	1170	256.3	Grand Rapids, Mich.---Baxter Laun., Inc.
WATT	100	1490	201.2	Portable.-----Edison Elec. Illum. Co.
WBAA	500	1100	272.6	Lafayette, Ind.-----Purdue University
WBAK	500	1000	299.8	Harrisburg, Pa.-----Penna. State Police
WBAL	5000	1050	285.5	Baltimore, Md.---Cons. Gas, Elect. L. & P. Co.
WBAO	100	1120	267.7	Decatur, Ill.-----Jas. Millikin University
WBAP	5000	600	499.7	Fort Worth, Texas---Carter Publications
WBAW	500	1250	239.9	Nashville, Tenn.-----Waldrum Drug Co.
WBAX	100	1200	249.9	Wilkes-Barre, Pa.---John H. Stenger, Jr.
WBBC	500	1320	227.1	Brooklyn, N. Y.---Brooklyn Brdcastg. Corp.
WBBL	100	1280	234.2	Richmond, Va.---Grace Cov. Pres. Church
WBBM	5000	770	389.4	Glenview, Ill.-----Atlas Inv. Co.
WBBP	100	1250	239.9	Petoskey, Mich.---Petoskey High School

Call	Watts	Kilo.	Mets.	Location and Owner
WBBR	1000	1170	256.3	Rossville, N. Y.----Peoples Pulpit Assn.
WBBW	100	1270	236.1	Norfolk, Va.----Ruffner Jr. High School
WBBY	75	1200	249.9	Charleston, S. C.---Wash. Light Infantry
WBBZ	100	1470	204.0	Portable-----C. L. Carrell
WBCN	250	1040	288.3	Chicago, Ill.---Great Lakes Rad. Brd. Corp.
WBES	100	1130	265.3	Takoma Park, Md.---Bliss Electr'l School
WBET	500	1040	288.3	Boston, Mass.-----Boston Transcript Co.
WBIS	500	650	461.3	Boston, Mass.-----Shepard Stores
WBKN	100	1500	199.9	Brooklyn, N. Y.-----Arthur Faske
WBMH	100	1420	211.1	Detroit, Mich.----Braun's Music House
WBMS	100	1500	199.9	Union City, N. J.----Geo. J. Schowerer
WBNY	500	1270	236.1	New York, N. Y.----Baruchrome Corp.
WBOQ	500	970	309.1	Richmond Hill, N. Y.----Atlan. Brdg. Corp.
WBRC	250	1240	241.8	Birmingham, Ala.---Birmingham Brdg. Co.
WBRE	100	1200	249.9	Wilkes-Barre, Pa.----Louis G. Baltimore
WBRL	500	1290	232.4	Tilton, N. H.---Booth Radio Laboratories
WBRS	250	1420	211.1	Cliffside Park, N. J.----Italian E. B. Co.
WBSO	100	780	384.4	Wellesley Hills, Mass.----Babson's Statis. Organization, Inc.
WBT	750	1160	258.5	Charlotte, N. C.-----C. C. Coddington
WBZ	15000	900	333.1	E. Sp'gfield, Mass.---Westingh'e E. & M. Co.
WBZA	500	900	333.1	E. Sp'gfield, Mass.---Westingh'e E. & M. Co.
WCAC	500	560	534.4	Mansfield, Conn.-----Conn. Agri. Col.
WCAD	500	1230	243.8	Canton, N. Y.---St. Lawrence University
WCAE	500	650	461.3	Pittsburgh, Pa.----Kaufman & Baer Co.
WCAH	250	1280	234.2	Columbus, Ohio-----C. A. Entrekin
WCAJ	500	790	379.5	Lincoln, Nebr.----Nebr. Wesleyan Univ.
WCAL	500	1050	285.5	Northfield, Minn.-----St. Olaf College
WCAM	500	1340	223.7	Camden, N. J.-----City of Camden
WCAO	250	1230	243.8	Baltimore, Md.---Monumental Radio, Inc.
WCAP	500	1250	239.9	Asbury Park, N. J.---Rad. Indus. Brd. Co.
WCAT	100	1210	247.8	Rapid City, S. D.---S. D. St. Sch. of Mines
WCAU	500	1150	260.7	Philadelphia, Pa.---University Brdg. Co.
WCAX	100	1180	254.1	Burlington, Vt.---University of Vermont
WCAZ	50	1200	249.9	Carthage, Ill.-----Carthage College
WCBA	100	1350	222.1	Allentown, Pa.----Chas. W. Heimbach & B. Bryan Musselman
WCBD	5000	870	344.6	Zion, Ill.-----Wilbur Glenn Voliva
WCBE	5	1320	227.1	New Orleans, La.-----Uhalt Radio
WCBM	100	1330	225.4	Baltimore, Md.-----Hotel Chateau
WCBR	100	1490	201.2	Portable-----Charles H. Messter

Call	Watts	Kllo.	Mets.	Location and Owner
WCBS	250	1430	209.7	Springfield, Ill.-----Harold L. Dewing
WCCO	5000	740	405.2	Minneapolis, Minn. Washburn Crosby Co.
WCDA	250	1420	211.1	Cliffside Park, N. J. Ital. Edu. Brdg. Co.
WCFL	1500	620	483.6	Chicago, Ill. Chicago Federation of Labor
WCGU	500	1370	218.8	Coney Island, N. Y.----Chas. G. Unger
WCLO	100	1320	227.1	Camp Lake, Wis.-----C. E. Whitmore
WCLS	150	1390	215.7	Joliet, Ill.-----The M. A. Felman Co.
WCMA	500	1150	260.7	Culver, Ind.----Culver Military Academy
WCOA	500	1200	249.9	Pensacola, Fla.-----City of Pensacola
WCOC	250	1300	230.6	Columbus, Miss.-----Crystal Oil Co.
WCOT	100	1330	225.4	Providence, R. I.-----Jacob Conn
WCRW	500	1340	223.7	Chicago, Ill.-----Clinton R. White
WCSH	500	820	365.6	Portland, Me.----Cong. Square Hotel Co.
WCSSO	500	1170	256.3	Springfield, Ohio----Wittenberg College
WCWK	250	1400	214.2	Ft. Wayne, Ind.-----Chester W. Keen
WCWS	100	1130	265.3	Danbury, Conn.----Danbury Brdg. Sta.
WCX	5000	680	440.9	Detroit, Mich.-----Detroit Free Press
WDAD	1000	1330	225.4	Nashville, Tenn. Dad's Auto Accessories
WDAE	500	1120	267.7	Tampa, Fla.-----Tampa Publishing Co.
WDAF	1000	810	370.2	Kansas City, Mo.---Kansas City Star Co.
WDAG	250	1140	263.0	Amarillo, Texas----J. Laurance Martin
WDAH	100	1280	234.2	El Paso, Texas Trinity Methodist Church
WDAY	250	550	545.1	Fargo, N. Dak.---Rad. Equipment Corp.
WDBJ	250	1300	230.6	Roanoke, Va.---Richardson-Wayland Elec. Corp.
WDBO	500	1040	288.3	Orlando, Fla.-----Rollins College, Inc.
WDEL	100	1010	296.9	Wilmington, Del. Wilm. E. Spec. Co. Inc.
WDGY	500	1050	285.5	Minneapolis, Minn.---Dr. Geo. W. Young
WDOD	500	1230	243.8	Chattanooga, Tenn. Chat. Rad. Co., Inc.
WDRC	500	1060	282.8	New Haven, Conn.---Doolittle Radio Corp.
WDWF	250	1150	260.7	Cranston, R. I.-----Dutee W. Flint
WDZ	100	1080	277.6	Tuscola, Ill.-----James L. Bush
WEAF	50000	610	491.5	Bellmore, N. Y.----Nat. Brdg. Co., Inc.
WEAF	5000	610	491.5	New York, N. Y.----Nat. Brdg. Co., Inc.
WEAM	250	1140	263.0	N. Plainfield, N. J.---Bor. of N. Plainfield
WEAN	500	1090	275.1	Providence, R. I.-----The Shepard Co.
WEAO	750	1060	282.8	Columbus, Ohio---Ohio State University
WEAR	1000	750	399.8	Cleveland, Ohio--Willard Stor. Bat. Co.
WEBC	250	1240	241.8	Superior, Wis.-----Head of the Lakes Broadcasting Co.
WEBE	10	1210	247.8	Cambridge, Ohio-----Roy W. Waller

Call	Watts	Kilo.	Mets.	Location and Owner
WEBB	500	820	365.6	Chicago, Ill. Edgewater Beach Hotel Co.
WEBJ	500	1170	256.3	New York, N. Y. Third Ave. Railway Co.
WEBQ	15	1340	223.7	Harrisburg, Ill. Tate Radio Company
WEBR	200	1240	241.8	Buffalo, N. Y. H. H. Howell
WEBW	500	1160	258.5	Beloit, Wis. Beloit College
WEDC	500	1240	241.8	Chicago, Ill. Emil Denmark
WEEI	500	590	508.2	Boston, Mass. Edison Elec. Il. Co. of Bos.
WEHS	100	1390	215.7	Evanston, Ill. Victor C. Carlson
WEMC	1000	620	483.6	Berrien Sprgs., Mich. Em. Mis. College
WENR	500	1040	288.3	Chicago, Ill. Great Lakes Rad. Bdg. Co.
WEPS	100	1010	296.9	Gloucester, Mass. Math. Rad. Co., Inc.
WEVD	500	1220	245.8	Woodhaven, N. Y. Debs Mem. Rad. Fund
WEW	1000	850	352.7	St. Louis, Mo. St. Louis University
WFAA	500	550	545.1	Dallas, Texas Dallas Morning News
WFAM	10	1190	252.0	St. Cloud, Minn. Times Pub. Co., Inc.
WFAN	500	1340	223.7	Philadelphia, Pa. Keystone Brd. Co., Inc.
WFBC	50	1280	234.2	Knoxville, Tenn. First Baptist Church
WFBE	250	1220	245.8	Cincinnati, Ohio Garfield Place Hotel Co.
WFBG	100	1120	267.7	Altoona, Pa. Wm. F. Gable Company
WFBJ	100	1100	272.6	Collegeville, Minn. St. John's University
WFBL	750	1160	258.5	Syracuse, N. Y. The Onondaga Co., Inc.
WFBM	250	1090	275.1	Indianapolis, Ind. Ind. Power & Light Co.
WFBR	100	1230	243.8	Baltimore, Md. Baltimore Rad. Show, Inc.
WFBZ	50	1210	247.8	Galesburg, Ill. Knox College
WFCI	100	1240	241.8	Pawtucket, R. I. Frank Crook, Inc.
WFDF	100	1100	272.6	Flint, Mich. Frank D. Fallain
WFI	500	740	405.2	Philadelphia, Pa. Strawbridge & Clothier
WFIW	750	1150	260.7	Hopkinsville, Ky. The Acme Mills, Inc.
WFJC	500	1320	227.1	Akron, Ohio W. F. Jones Brdg., Inc.
WFKD	500	1340	223.7	Chicago, Ill. Francis K. Bridgman, Inc.
WFKD	50	1210	247.8	Frankford, Pa. Foulkrod Rad. Eng. Co.
WFLA	750	580	516.9	Clearwater, Fla. Chamber of Commerce
WGAL	15	1190	252.0	Lancaster, Pa. Elec. Sup. & Const. Co.
WGBB	400	1220	245.8	Freeport, N. Y. Harry H. Carman
WGBC	15	1310	228.9	Memphis, Tenn. First Baptist Church
WGBF	250	1270	236.1	Evansville, Ind. Finke Furniture Co.
WGBI	250	1300	230.6	Scranton, Pa. Scranton Brdg., Inc.
WGBS	500	860	348.6	Astoria (L. I.) N. Y. Gimbel Bros., Inc.
WGCP	250	1120	267.7	Newark, N. J. May Radio Br'dcast. Corp.
WGES	500	1240	241.8	Chicago, Ill. Oak Leaves Brdg. Corp.
WGHP	750	1080	277.6	Mt. Clemens, Mich. Geo. H. Phelps, Inc.

Call	Watts	Kilo.	Mets.	Location and Owner
WGL	1000	1020	293.9	Secaucus, N. J.---International Brdg. Co.
WGM	50	1440	208.2	Jeanette, Pa.----Verne & Elton Spencer
WGMS	500	1220	245.8	Minneapolis, Minn.--Washburn Crosby Co.
WGMU	100	1490	201.2	Portable-----Atlantic Broadcastg. Corp.
WGN	500	720	416.4	Chicago, Ill.-----Tribune Co.
WGOP	100	1500	199.9	Flushing, N. Y.-----Fred B. Zittel, Jr.
WGR	750	990	302.8	Buffalo, N. Y.-----Federal Radio Corp.
WGST	500	1110	270.1	Atlanta, Ga.-----Ga. Sch. of Technology
WGWD	500	1370	218.8	Milwaukee, Wis.--Radiocast Corp. of Wis.
WGY	50000	790	379.5	Schenectady, N. Y.---General Electric Co.
WHA	750	900	333.1	Madison, Wis.-----University of Wis.
WHAD	500	1110	270.1	Milwaukee, Wis.-----Marquette Univ.
WHAM	5000	1070	280.2	Rochester, N. Y.--Stromberg Carlson Tele- phone Mfg. Co.
WHAP	1000	1270	236.1	Carlstadt, N. J.-----Defenders of Truth Society, Inc.
WHAS	500	930	322.4	Louisville, Ky.-----The Courier Journal
WHAZ	500	980	305.9	Troy, N. Y.-----Rensselaer Poly. Inst.
WHB	500	880	340.7	Kansas City, Mo.--Sweeney Auto. Sch. Co.
WHBA	10	1150	260.7	Oil City, Pa.-----C. C. Shaffer
WHBC	10	1270	236.1	Canton, Ohio----St. John's Cath. Church
WHBD	100	1350	222.1	Bellefontaine, Ohio--Cham. of Commerce
WHBF	100	1350	222.1	Rock Island, Ill.---Beardsley Spec. Co.
WHBL	100	1470	204.0	Portable-----C. L. Carrell
WHBM	100	1490	201.2	Portable-----C. L. Carrell
WHBN	5000	1480	202.6	Gainesville, Fla.---University of Florida
WHBP	250	1310	228.9	Johnstown, Pa.----Johnstown Auto. Co.
WHBQ	100	1290	232.4	Memphis, Tenn.---Brdg. Sta. WHBQ, Inc.
WHBU	15	1360	220.4	Anderson, Ind.-----Citizens Bank
WHBW	100	1360	220.4	Philadelphia, Pa.-----D. R. Kienzle
WHBY	50	1200	249.9	West De Pere, Wis.--St. Norbert's College
WHDI	500	1220	245.8	Minneapolis, Minn.--Wm. Hood Dunwoody Industrial Inst.
WHEC	250	1180	254.1	Rochester, N. Y.-----Hickson Elec. Co.
WHFC	200	1390	215.7	Chicago, Ill.----Goodson & Wilson, Inc.
WHK	500	1130	265.3	Cleveland, Ohio--Rad. Air Service Corp.
WHN	500	760	394.5	New York, N. Y.-----George Schubel
WHO	5000	560	535.4	Des Moines, Iowa-----Bankers Life Co.
WHPP	10	1450	206.8	New York, N. Y.---Bronx Broadcast'g Co.
WHT	5000	980	305.9	Chicago, Ill.----Radiophone Brdcstg. Co.
WIAD	100	1040	288.3	Philadelphia, Pa.-----Howard R. Miller

Call	Watts	Kilo.	Mets.	Location and Owner
WIAS	100	930	322.4	Ottumwa, Iowa-----Poling Electric Co.
WIBA	100	1250	239.9	Madison, Wis.--Cap. Times-Strand The'tr
WIBG	50	680	440.9	Elkins Park, Pa....St. Pauls P. E. Church
WIBJ	100	1490	201.2	Portable-----C. L. Carrell
WIBM	100	1490	201.2	Portable-----C. L. Carrell
WIBO	5000	980	305.4	Des Plaines, Ill.----WIBO Brdcstg., Inc.
WIBR	50	1200	249.9	Steubenville, Ohio--Thurman A. Owings
WIBS	250	1470	204.4	Elizabeth, N. J.--N. J. Broadcastg. Corp.
WIBU	20	1380	217.3	Poynette, Wis.--Wis. State Journal Co.
WIBW	100	1470	204.0	Portable-----C. L. Carrell
WIBX	150	1260	238.0	Utica, N. Y.-----WIBX, Inc.
WIBZ	15	1300	230.6	Montgomery, Ala.---Alexander D. Trum
WICC	500	1130	265.3	Easton, Conn.--Bridgeport Brdg. Sta., Inc.
WIL	250	1160	258.5	St. Louis, Mo.---Benson Rad. Brdg. Co.
WIOD	1000	1210	247.8	Miami Beach, Fla.---Carl G. Fischer, Co.
WIP	500	860	348.6	Philadelphia, Pa.----Gimbel Bros., Inc.
WJAD	500	900	333.1	Waco, Texas-----Frank P. Jackson
WJAG	250	1050	285.5	Norfolk, Nebr.-----Norfolk Daily News
WJAK	50	1280	234.2	Kokomo, Ind.-----J. A. Kautz
WJAM	250	1250	239.9	Cedar Rapids, Iowa-----D. M. Perham
WJAR	500	620	483.6	Providence, R. I.--The Outlet Company
WJAS	500	1110	270.1	Pittsburgh, Pa.---Pittsburgh Ra. Sup. Hse.
WJAX	1000	880	340.7	Jacksonville, Fla.---City of Jacksonville
WJAY	500	1320	227.1	Cleveland, Ohio--Cleveland Ra. Brd. Corp.
WJAZ	5000	1140	263.0	Mt. Prospect, Ill.---Zenith Radio Corp.
WJBA	50	1210	247.8	Joliet, Ill.-----D. H. Lentz, Jr.
WJBB	250	1260	238.0	Sarasota, Fla.----Financial Journal, Inc.
WJBC	100	1320	227.1	LaSalle, Ill.-----Hummer Furniture Co.
WJBI	250	1140	263.0	Red Bank, N. J.-----Robt. S. Johnson
WJBK	15	1360	220.4	Ypsilanti, Mich.-----Ernest F. Goodwin
WJBL	250	1410	212.6	Decatur, Ill.--Wm. Gushard Dry Goods Co.
WJBO	100	1140	263.0	New Orleans, La.----Valdemar Jensen
WJBT	500	770	389.4	Chicago, Ill.-----J. S. Boyd, Inc.
WJBU	100	1400	214.2	Lewisburg, Pa.-----Bucknell University
WJBW	30	1260	238.0	New Orleans, La.---Chas. C. Carlson, Jr.
WJBY	50	1280	234.2	Gadsden, Ala.-----Electric Cons. Co.
WJBZ	100	1440	208.2	Chicago Heights, Ill.---Roland G. Palmer & Antony Coppotelli
WJJD	1000	820	365.6	Mooseheart, Ill.---Supreme Lodge of the World Loyal Order of Moose
WJKS	500	1290	232.4	Gary, Ind.--Johnson Kennedy Radio Corp.



Call	Watts	Kilo.	Mets.	Location and Owner
WJPW	30	1440	208.2	Ashtabula, Ohio.....J. P. Wilson
WJR	5000	680	440.9	Pontiac, Mich.....WJR, Inc.
WJZ	30,000	660	454.3	Bound Brook, N. J...Radio Corp. of Amer.
WKAQ	500	930	322.4	San Juan, P. R...Rad. Corp. of Porto Rico
WKAR	500	1080	277.6	E. Lansing, Mich....Mich. State College
WKAU	50	1340	223.7	Laconia, N. H.....Laconia Radio Club
WKBB	150	1390	215.7	Joliet, Ill.....Sanders Bros.
WKBC	10	1370	218.8	Birmingham, Ala.....H. L. Ansley
WKBE	100	1310	228.9	Webster, Mass.....K. & B. Electric Co.
WKBF	250	1190	252.0	Indianapolis, Ind...Noble Butler Watson
WKBG	100	1490	201.2	Portable.....C. L. Carreli
WKBH	500	1360	220.4	LaCrosse, Wis.....Callaway Music Co.
WKBI	50	1390	215.7	Chicago, Ill.....Fred L. Schoenwolf
WKBL	15	1460	205.4	Monroe, Mich...Monrona Radio Mfg. Co.
WKBN	50	1400	214.2	Youngstown, Ohio...W. P. Williamson, Jr.
WKBO	500	1370	218.8	Jersey City, N. J.....Camith Corp.
WKBP	50	1410	212.6	Battle Creek, Mich...Enquirer-News Co.
WKBQ	500	1370	218.8	New York, N. Y...Standard Cahill Co., Inc.
WKBS	100	1380	217.3	Galesburg, Ill.....Permil N. Nelson
WKBT	50	1190	252.0	New Orleans, La.—First Baptist Church
WKBV	100	1380	217.3	Brookville, Ind...Knox Battery & Elec. Co.
WKBW	500	1380	217.3	Buffalo, N. Y...Churchill Evan. Assn., Inc.
WKBZ	15	1500	199.9	Ludington, Mich.....K. L. Ashbacker
WKDR	15	1210	247.8	S. Kenosha, Wis.....Edward A. Dato
WKEN	250	1470	204.0	Kenmore, N. Y...Radio Sta. WKEN, Inc.
WKJC	50	1190	252.0	Lancaster, Pa.....Kirk Johnson & Co.
WKRC	500	1220	245.8	Cincinnati, Ohio.....Kodel Radio Corp.
WKY	150	1040	288.3	Oklahoma City, Okla...WKY Rad'ph'e Co.
WLAC	1000	1330	225.4	Nashville, Tenn...Life & Casualty Ins. Co.
WLAP	30	1120	267.7	Louisville, Ky.....L. W. Benedict
WLB	500	1220	245.8	Minneapolis, Minn...Univ. of Minnesota
WLBC	50	1430	209.7	Muncie, Ind.....Donald A. Burton
WLBK	50	1430	209.7	Kansas City, Mo.....Everett L. Dillard
WLBG	100	1400	214.2	Petersburg, Va.....Robert Allen Gamble
WLBH	30	1290	232.4	Farmingdale, N. Y...Joseph J. Lombardi
WLBI	250	1260	238.0	Wenona, Ill...Wenona Legion Brd'c's, Inc.
WLBL	1000	900	333.1	Stevens Pt., Wis...Wis. Dept. of Markets
WIBM	50	1300	230.6	Boston, Mass.....Browning-Drake Corp.
WLBK	50	1470	204.0	Portable.....William E. Hiler
WLBO	100	1380	217.3	Galesburg, Ill.....Fred A. Trebbe, Jr.
WLBQ	25	1370	218.8	Atwood, Ill.....E. Dale Trout

Call	Watts	Kilo.	Mets.	Location and Owner
WLBR	15	1210	247.8	Belvidere, Ill.-----Alford Radio Co.
WLBT	50	1210	247.8	Crown Point, Ind.-----Harold Wendell
WLBV	50	1450	206.8	Mansfield, Ohio--Mansfield Brdcstg. Assn.
WLBW	500	1020	293.9	Oil City, Pa.----Petroleum Telephone Co.
WLBX	250	1470	204.0	L. I. City, N. Y.-----John N. Brahy
WLBY	50	1430	209.7	Iron Mountain, Mich.----Aimone Electric
WLBZ	250	1440	208.2	Dover, Maine----Thompson L. Guernsey
WLCI	50	1210	247.8	Ithaca, N. Y.----Lutheran Assn. of Ithaca
WLEX	5	1390	215.7	Lexington, Mass.-----J. Smith Dodge
WLIB	15,000	720	416.4	Elgin, Ill.-----Liberty Weekly, Inc.
WLIT	500	740	405.2	Philadelphia, Pa.-----Lit Brothers
WLOE	100	1420	211.1	Chelsea, Mass.-----William S. Pate
WLS	5000	870	344.6	Chicago, Ill.-----Sears, Roebuck & Co.
WLSI	250	1150	260.7	Providence, R. I.-----Lincoln Studios
WLTH	250	1170	256.3	Brooklyn, N. Y.--Voice of Brooklyn, Inc.
WLTS	100	620	483.6	Chicago, Ill.-----Lane Technical H. S.
WLW	5000	700	428.3	Harrison, Ohio-----Crosley Radio Corp.
WLW	500	700	428.3	Cincinnati, Ohio----Crosley Radio Corp.
WLWL	1000	810	370.2	Kearney, N. J.-----Missionary Society
WMAC	500	1330	225.4	Casnovia, N. Y.-----Olive B. Meredith
WMAF	500	700	428.3	S. Dartmouth, Mass..Rnd. Hls. Rad. Corp.
WMAK	750	550	545.1	Lockport, N. Y..Norton Laboratories, Inc.
WMAL	500	1240	241.8	Washington, D. C.-----M. A. Leese Co.
WMAN	50	1280	234.2	Columbus, Ohio-----W. E. Heskitt
WMAQ	1000	670	447.5	Chicago, Ill.----Chicago Daily News, Inc.
WMAY	100	1280	234.2	St. Louis, Mo.----Kingshighway Pres. Ch.
WMAZ	500	110	270.1	Macon, Ga.-----Mercer University
WMBA	100	1470	204.0	Portable-----LeRoy Joseph Beebe
WMBB	5000	1190	252.0	Homewood, Ill.--Amer. Bond & Mtg. Co.
WMBC	100	1230	243.8	Detroit, Mich.----Mich. Brdcstg. Co., Inc.
WMBD	250	1460	205.4	Peoria Hts., Ill.--Peoria Hts. Radio Lab.
WMBE	10	1440	208.2	St. Paul, Minn.-----Dr. C. S. Stevens
WMBF	500	780	384.4	Miami Beach, Fla..Fleetwood Hotel Corp.
WMBG	15	1360	220.4	Richmond, Va.-----Havens & Martin
WMBH	100	1470	204.0	Joplin, Mo.-----Edwin Dudley Aber
WMBI	500	1140	263.0	Chicago, Ill.-----Moody Bible Institute
WMBJ	50	1290	232.4	Monessen, Pa.-----Star Theatre
WMBI	100	1310	228.9	Lakeland, Fla.----Benford's Radio Studios
WMBM	10	1430	209.7	Memphis, Tenn..Seventh Day Advent. Ch.
WMBO	100	1360	220.4	Auburn, N. Y.--Radio Serv. Laboratories
WMBQ	100	1470	204.0	Brooklyn, N. Y.-----Paul J. Gollhofer

Call	Watts	Kilo.	Mets.	Location and Owner
-WMBR	100	1190	252.0	Tampa, Fla.....F. J. Reynolds
-WMBS	250	1280	234.2	Lemoine, Pa.....Mack's Battery Co.
-WMBW	50	1400	214.2	Youngstown, O...Yngstn. Brdstg. Co. Inc.
-WMC	500	580	516.9	Memphis, Tenn...Mphs. Com. Appeal, Inc.
-WMCA	500	810	270.2	Hoboken, N. J....Greeley Sq. Hotel Co.
-WMES	50	1420	211.1	Boston, Mass...Mass. Educational Society
-WMPC	30	1280	234.2	Lapeer, Mich...First Meth. Protestant Ch.
-WMRJ	10	1450	206.8	Jamaica, N. Y.....Peter J. Prinz
-WNAC	500	650	461.3	Boston, Mass.....The Shepard Stores
-WNAD	500	1250	239.9	Norman, Okla...University of Oklahoma
-WNAL	250	1160	258.5	Omaha, Nebr.....R. J. Rockwell
-WNAT	100	1040	288.3	Philadelphia, Pa.....Lennig Bros. Co.
-WNAX	1000	1080	277.6	Yankton, S. Dak...Gurney Seed & Nur. Co.
-WNBA	200	1440	208.2	Forest Park, Ill....Michael T. Rafferty
-WBNF	50	1450	206.8	Endicott, N. Y...Howitt-Wood Radio Co.
-WNBH	250	1210	247.8	New Bedford, Mass...New Bed. Brd. Co.
WNBJ	50	1450	206.8	Knoxville, Tenn...Lonsdale Bap. Church
WNBL	15	1500	199.9	Bloomington, Ill.....Harvey R. Storm
WNBO	15	1420	211.1	Washington, Pa...John Brownlee Spriggs
WNBQ	15	1460	205.4	Rochester, N. Y.....Gordon P. Brown
-WNBK	100	1810	228.9	Memphis, Tenn.....John Ulrich
WNBW	5	1500	199.9	Carbondale, Pa...Homecut Gl. & China Co.
WNBX	10	1240	241.8	Springfield, Vt....First Cong. Ch. Corp.
WNBZ	10	1290	232.4	Saranac Lake, N. Y.....Smith & Mace
WNJ	250	1120	267.7	Newark, N. J.....Herman Lubinsky
WNOX	1000	1130	265.3	Knoxville, Tenn...Peoples Tel. & Telg. Co.
WNRC	250	1340	223.7	Greensboro, N. C....Wayne M. Nelson
WNYC	500	570	526.0	New York, N. Y...Dept. of Plant & Struc.
WOAI	5000	600	499.7	San Antonio, Texas...South. Equip. Co.
WOAN	500	1250	239.9	Lawrenceburg, Tenn...Vaughan Sch. of Mus
-WOAX	500	1250	239.9	Trenton, N. J.....Franklyn J. Wolff
WOBR	10	1470	204.0	Portable.....Harl Smith
-WOBT	15	1460	205.4	Union City, Tenn.....Tittsworth Rad. Music Shop
-WOBV	50	1120	267.7	Charleston, W. Va....Charleston Radio
WOC	5000	800	374.8	Davenport, Iowa.....Palmer School
-WOCL	25	1340	223.7	Jamestown, N. Y.....A. E. Newton
-WODA	1000	1020	299.8	Paterson, N. J.....Richard E. O'Dea
-WOI	2500	1130	265.3	Ames, Iowa.....Iowa State College
-WOK	5000	1190	252.0	Chicago, Ill.....Amn. B. & M. Co.
-WOKO	250	1390	215.7	Peekskill, N. Y.....Harold E. Smith

Call	Watts	Kilo.	Mets.	Location and Owner
WOKT	500	1430	209.7	Rochester, N. Y.---Titus-Ets Corporation
WOMT	100	1350	222.1	Manitowoc, Wis.-----Mikado Theatre
WOO	500	860	348.6	Philadelphia, Pa.-----John Wanamaker
WOOD	500	1150	260.7	Grand Rapids, Mich.---Walt. B. Stiles, Inc.
WOQ	500	880	340.7	Kans. City, Mo.----Unity Sch. of Christ.
WOR	3500	710	422.3	Newark, N. J.-----L. Bamberger & Co.
WORD	5000	1190	252.0	Batavia, Ill.-----Peoples Pulpit Assn.
WOS	500	710	422.3	Jefferson City, Mo.---State Market. Bur.
WOW	1000	590	503.2	Omaha, Nebr.---Woodmen of the World
WOWO	2500	1310	228.9	Ft. Wayne, Ind.-----Main Auto Sup. Co.
WPAP	500	760	394.5	Cliffside, N. J.-----Calvary Church
WPCC	500	1340	223.7	Chicago, Ill.-----North Shore Cong. Ch.
WPCH	500	920	325.9	Hoboken, N. J.---Concourse Radio Corp.
WPEP	250	1390	215.7	Waukegan, Ill.-----Maurice Mayer
WPG	5000	1100	272.6	Atlantic City, N. J.---Mun. of Atlantic City
WPRC	100	1430	209.7	Harrisburg, Pa.---Wilson Prtg. & Rad. Co.
WPSC	500	1000	299.8	State College, Pa.---Penn State College
WPSW	50	1450	206.8	Philadelphia, Pa.---Phila. Sch. of Wireless
WPTF	500	550	545.1	Raleigh, N. C.-----Durham Life Ins. Co.
WPUB	500	1270	236.1	New York, N. Y.---Mad. Sq. Gar. Brd. Co.
WQAM	750	780	384.4	Miami, Fla.-----Electrical Equipment Co.
WQAN	250	1300	230.6	Scranton, Pa.-----Scranton Times
WQAO	500	760	394.5	Cliffside, N. J.-----Calvary Baptist Ch.
WQBA	250	1260	238.0	Tampa, Fla.-----Amorc College
WQBC	100	1390	215.7	Utica, Miss.-----I. R. Jones
WQBJ	65	1250	239.9	Clarkesburg, W. Va.-----John Raikes
WQJ	500	670	477.5	Chicago, Ill.-----Calumet Brdcstg. Co.
WRAF	100	1440	208.2	La Porte, Ind.-----The Radio Club, Inc.
WRAH	250	1500	199.9	Providence, R. I.-----Stanley N. Read
WRAK	50	1060	282.8	Escanaba, Mich.---Economy Light Co.
WRAM	50	1210	247.8	Galesburg, Ill.-----Lombard College
WRAW	100	1260	238.0	Reading, Pa.---Ave. Radio & Elec. Shop
WRAX	250	1410	212.6	Philadelphia, Pa.---Berachah Church, Inc.
WRBC	250	1260	238.0	Valparaiso, Ind.---Imman. Luth. Church
WRC	500	640	468.5	Washington, D. C.---Rad. Corp. of Amer.
WRCV	100	1430	209.7	Norfolk, Va.-----Radio Corp. of Virginia
WREC	100	1200	249.9	Memphis, Tenn.-----WREC, Inc.
WREN	750	1180	254.1	Lawrence, Kans.-----Jenny Wren Co.
WRES	50	1380	217.3	Quincy, Mass.---Harry Leonard Sawyer
WRHF	150	930	322.4	Wash., D. C.-----American B'cast Co.
WRHM	1000	1150	260.7	Fridley, Minn.---Rosedale Hosp. Co., Inc.

Call	Watts	Kilo.	Mets.	Location and Owner
WRK	100	1460	205.4	Hamilton, Ohio-----S. W. Doron
WRM	500	1100	272.6	Urbana, Ill.-----Univ. of Illinois
WRMU	100	1490	201.2	Portable----Atlantic Broadcasting Corp.
WRNY	500	920	325.9	Coytesville, N. J.--Experimenter Pub. Co.
WRPI	100	1440	208.2	Terre Haute, Ind.--Rose Polytechnic Inst.
WRR	500	650	461.3	Dallas, Texas-----City of Dallas
WRRS	50	1210	247.8	Racine, Wis.--Racine Broadcasting Corp.
WRST	250	1420	211.1	Bay Shore, N. Y.--Radiotel Mfg. Co., Inc.
WRVA	1000	1180	254.1	Richmond, Va.----Larus & Bro. Co., Inc.
WSAI	5000	830	361.2	Cincinnati, Ohio..U. S. Playing Card Co.
WSAJ	250	1340	223.7	Grove City, Pa.-----Grove City College
WSAN	100	1350	222.1	Allentown, Pa.--Altn. Call Pub. Co., Inc.
WSAR	100	1190	252.0	Fall River, Mass.--Doughty & Welch E. Co.
WSAX	100	1470	204.0	Chicago, Ill.-----Zenith Radio Corp.
WSAZ	100	1200	249.9	Huntington, W. Va.--McKellar Elec. Co.
WSB	1000	630	475.9	Atlanta, Ga.-----Atlanta Journal Co.
WSBC	500	1290	232.4	Chicago, Ill.----World Battery Co., Inc.
WSBF	250	1160	258.5	St. Louis, Mo.--Miss. Valley Brdcstg. Co.
WSBT	500	750	399.8	South Bend, Ind.--South Bend Tribune
WSDA	500	1320	227.1	Brooklyn, N. Y.-----Amateur Spec. Co.
WSEA	500	1140	263.0	Virginia Beach, Va..Va. Bch. Brdcstg. Co.
WSIX	150	1200	249.9	Springfield, Tenn.--Tire & Vulcanizing Co.
WSKC	250	1100	272.6	Bay City, Mich.--World's Star Knitting Co.
WSM	5000	890	336.9	Nashville, Tenn.--Nat. Life & Acc. Ins. Co.
WSMB	750	1010	296.9	New Orleans, La.--Saenger Theatres, Inc.
WSMK	200	1010	296.9	Dayton, Ohio-----Stanley M. Krohn, Jr.
WSOE	250	1110	270.1	Milwaukee, Wis.--School of Engineering
WSRO	100	1270	236.1	Middletown, Ohio--Harry W. Fahrlander
WSSH	100	1040	288.3	Boston, Mass.--Tremont Temple Bap. Ch.
WSUF	500	1270	236.1	Norfolk, Va.-----Reliance Elec. Co.
WSUI	500	630	475.9	Iowa City, Iowa----State Univ. of Iowa
WSUN	750	580	516.9	Clearwater, Fla.--Chamber of Commerce
WSVS	50	1470	204.0	Buffalo, N. Y.--Seneca Vocational School
WSYR	500	1330	225.4	Syracuse, N. Y.-----Clive B. Meredith
WTAD	250	1270	236.1	Quincy, Ill.-----Ill. Stock Medicine Corp.
WTAG	250	580	516.9	Worcester, Mass.--Telegram Pub. Co. Inc.
WTAL	250	1250	239.9	Toledo, Ohio----Toledo Broadcasting Co.
WTAM	3500	750	399.8	Cleveland, Ohio--Willard Stor. Bat. Co.
WTAQ	500	1180	254.1	Eau Claire, Wis.-----C. S. Van Gorden
WTAR	500	1270	236.1	Norfolk, Va.-----Reliance Elec. Co., Inc.
WTAS	500	1090	275.1	Elgin, Ill.-----Ill. Broadcastg. Corp.

Call	Watts	Kilo.	Mets.	Location and Owner
WTAW	500	620	483.6	College Station, Texas----Agri. & Mech.
WTAZ	15	1360	220.4	Richmond, Va.-----W. Reynolds, Jr.
WTAX	50	1210	247.8	Streator, Ill.----Williams Hardware Co.
WTFE	10000	1480	202.6	Mt. Vernon Hills, Va.---Indep'd't Pub. Co.
WTFI	250	1430	209.7	Toccoa, Ga.-----Toccoa Falls Institute
WTHS	200	1320	227.1	Atlanta, Ga.---Atlanta Technological H. S.
WTIC	500	560	535.4	Hartford, Conn.-----Travelers Ins. Co.
WTMJ	1000	1020	293.9	Milwaukee, Wis.-----Milwaukee Journal
WTRL	15	1450	206.8	Midland Park, N. J.---Tech. Radio Lab.
WWAE	500	1320	227.1	Chicago, Ill.-----Dr. G. F. Courier
WWJ	1000	850	352.7	Detroit, Mich.-----The Detroit News
WWL	500	1220	245.8	New Orleans, La.-----Loyola University
WWNC	1000	1010	296.9	Asheville, N. C.---Chamber of Commerce
WWRL	100	1120	267.7	Woodside, N. Y.-----W. H. Reuman
WWVA	250	580	516.9	Wheeling, W. Va.----J. C. Stroebel, Jr.

**STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS  
OF AUGUST 24, 1912**

of STEVENSON'S BULLETIN OF RADIO BROADCASTING STATIONS, published quarterly, at Washington, D. C., for October 1, 1927. District of Columbia, City of Washington, ss: Before me, a Notary Public in and for the District of Columbia aforesaid, personally appeared W. W. Rapley, who, having been duly sworn according to law, deposes and says that he is the Business Manager of STEVENSON'S BULLETIN OF RADIO BROADCASTING STATIONS, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Acts of August 24, 1912, embodied in section 448, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, and business manager are: Publisher, Stevenson's Radio Syndicate, 1220 H Street N. W., Washington, D. C.; Editor, Thomas Stevenson, 1220 H Street N. W., Washington, D. C.; Managing Editor, none; Business Manager, W. W. Rapley, 1220 H Street N. W., Washington, D. C.

2. That the owners are: Thomas Stevenson, 1220 H Street N. W., Washington, D. C., and W. W. Rapley, 1220 H Street N. W., Washington, D. C.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of

total amount of bonds, mortgages, or other securities; None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but, also, in cases where the stockholder or security holder appears upon the books of the company as trustees or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stocks, bonds, or other securities than as so stated by him.

W. W. RAPLEY, Business Manager.

Sworn to and subscribed before me this 4th day of October, 1927.

[Seal] Esther L. Murray,

Notary Public, District of Columbia.  
(My Commission expires November 24, 1931.)

## CANADIAN BROADCASTING STATIONS

Station	Meters	K. C.	Watts	Location and Owner
CFAC	434.5	690	500	Calgary, Alberta....The Calgary Herald
CFCA	356.9	840	500	Toronto, Ont..Star Publishing & Ptg. Co.
CFCF	410.7	730	1650	Montreal, Quebec..Canadian Marconi Co.
CFCH	499.7	600	250	Iroquois F'ls., Ont.....Abitibi Power & Paper Co.
CFCN	434.5	690	1800	Calgary, Alta....Rad. Serv. & Rep. Shop
CFCQ	410.7	730	20	Vancouver, B. C....Spratt Shaw Rad. Co.
CFCT	329.5	910	500	Victoria, B. C.....G. W. Deaville
CFCY	312.3	960	10	Charlottetown, P. E. I..The Is. Radio Co.
CFGC	296.9	1010	50	Brantford, Ont.....Brant Radio Sup. Co.
CFJC	267.7	1120	15	Kamloops, B. C.....Dagleash & Sons
CFLC	296.9	1010	50	Prescott, Ont.....Radio Association
CFMC	267.7	1120	20	Kingston, Ont.....Monarch Battery Co.
CFNB	247.8	1210	25	Fredericton, N. B..J. S. Neill & Sons, Ltd.
CFQC	329.5	910	500	Saskatoon, Sask.....The Electric Shop
CFRB	291.1	1030	1000	King, Ont.....Std. Radio Mfg. Co.
CFRC	267.7	1120	500	Kingston, Ont.....Queen's University
CFYC	410.7	730	500	Burnaby, B. C.....Bible Students Assn.
CHCO	247.8	1210	5	Huntsville, Ont.....A. Staples
CHCS	340.7	880	10	Hamilton, Ont....The Hamilton Spectator
CHCY	516.9	580	250	Edmonton, Alta....Bible Students Assn.
CHGS	267.7	1120	25	Summerside, P. E. I.....R. T. Holman
CHIC	356.9	840	500	Toronto, Ont.....Northern Electric Co.
CHLC	267.7	1120	25	Summerside, P. E. I.....R. T. Holmes
CHMA	516.9	580	250	Edmonton, Alta..Christian & Mis. Alliance
CHNC	356.9	840	500	Toronto, Ont..Toronto Rad. Resrch. Sec.
CHNS	322.4	930	100	Halifax, N. S.....Northern Elec. Co.
CHPC	410.7	730	1000	Vancouver, B. C....Central Pres. Church
CHRC	340.7	880	5	Quebec, Que.....E. Fontaine
CHSC	267.7	1120	50	Unity, Sask.....H. N. Stovin
CHUC	329.5	910	500	Saskatoon, Sask....Intl. Bible Stu. Assn.
CHWC	312.3	960	15	Regina, Sask.....R. H. Williams & Sons
CHXC	434.5	690	250	Ottawa, Ont.....J. R. Booth, Jr.
CHYC	410.7	730	750	Montreal, Que....Northern Electric Co.
CJBC	356.9	840	500	Toronto, Ont.....Jarvis St. Bap. Church
CJBR	312.3	960	500	Regina, Sask....Coop. Wheat Producers
CJCA	516.9	580	500	Edmonton, Alta..Edmonton Journal, Ltd.

Station	Meters	K. C.	Watts	Location and Owner
CJCJ	434.5	690	250	Calgary, Alta.---Rad. Serv. & Rep. Shop
CJCU	247.8	1210	5	Mission City, B. C.-----E. R. Streeter
CJGC	329.5	910	500	London, Ont.---London Free Press Ptg. Co.
CJGX	475.9	630	500	Yorkton, Sask.-----Grain Exchange
CJOR	291.1	1028	50	Sea Island, B. C.-----G. C. Chandler
CJRM	296.9	1010	50	Moosejaw, Sask.---J. Richardson & Sons
CJSC	356.9	840	500	Toronto, Ont.-----Evening Telegram
CJWC	329.5	910	250	Saskatoon, Sask.---Wheaton Electric Co.
CJYC	291.1	1028	500	Scarboro, Ont.-----Universal Radio Co.
CKAC	410.7	730	1200	Montreal, Que.---LaPresse Publishing Co.
CKCD	410.7	730	1000	Vancouver, B. C.---Vanc. Daily Providence
CKCI	340.7	880	25	Quebec, Que.-----L. Soleil, Ltd.
CKCK	312.3	960	500	Regina, Sask.----Leader Publishing Co.
CKCL	356.9	840	500	Toronto, Ont.---The Dominion Battery Co.
CKCO	434.5	690	100	Ottawa, Ont.-----Dr. G. M. Geldert
CKCV	340.7	880	50	Quebec, Que.-----G. A. Vandry
CKCW	312.3	960	5000	Bowmanville, Ont.---Gooderham & Woorts
CKCX	291.9	1030	500	Scarboro, Ont.-----Int'l Bible Ass'n
CKFC	410.7	730	50	Vancouver, B. C.-----Unity Church
CKLC	356.9	840	1000	Red Deer, Alta.-----Pac. Grain Co.
CKMC	247.8	1210	5	Cobalt, Ont.-----R. L. MacAdam
CKNC	356.9	840	500	Toronto, Ont.----Can. Nat. Carbon Co.
CKOC	340.7	880	50	Hamilton, Ont.---Wentworth Rad. Sup. Co.
CKPC	247.8	1210	10	Preston, Ont.-----W. Russ
CKPR	267.7	1120	50	Midland, Ont.-----E. O. Swan
CKSH	312.3	960	50	St. Hyacinthe, Que.----Municipal Station
CKSM	291.1	1030	1000	Toronto, Ont.----St. Michaels Cathedral
CKUA	516.9	580	500	Edmonton, Alta.-----University of Alta.
CKWX	410.7	730	10	Vancouver, B. C.-----A. Holstead
CKY	384.4	780	500	Winnipeg, Man.---Provincial Government
CNRA	322.4	930	500	Moncton, N. B.----Canadian Natl. Rys.
CNRC	434.5	690	750	Calgary, Alta.-----Canadian Natl. Rys.
CNRE	516.9	580	500	Edmonton, Alta.----Canadian Natl. Rys.
CNRM	410.7	730	1650	Montreal, Que.----Canadian Natl. Rys.
CNRO	434.5	690	500	Ottawa, Ont.-----Canadian Natl. Rys.
CNRQ	340.7	880	50	Quebec, Que.-----Canadian Nat'l Rys.
CNRR	312.3	960	500	Regina, Sask.-----Canadian Natl. Rys.
CNRS	329.5	910	500	Saskatoon, Sask.----Canadian Natl. Rys.
CNRT	356.9	840	500	Toronto, Ont.-----Canadian Natl. Rys.
CNRV	291.1	1030	500	Vancouver, B. C.---Canadian Nat'l Rys.
CNRW	384.4	780	500	Winnipeg, Man.-----Canadian Natl. Rys.



## CUBAN BROADCASTING STATIONS

Station	Meters	K. C.	Watts	Location and Owner	
PWX	399.8	750	500	Habana-----	Cuban Tel. Co.
2OK	348.6	860	100	Habana-----	Mario Garcia Velez
2OL	275	1090	100	Habana-----	Oscar Collado Orta
6BY	260.7	1150	200	Cienfuegos-----	Jose Ganduxe
6JK	275	1090	100	Tuincu-----	Frank H. Jones
6KW	340.7	880	4000	Tuincu-----	Frank H. Jones
7SR	249.9	1200	100	Elia-----	Salvador Rionda

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## MEXICAN BROADCASTING STATIONS

Station	Meters	K. C.	Watts	Location and Owner	
CYA	299.8	1000	500	Mexico City-----	E. R. Gomez
CYB	275	1090	1000	Mexico City-----	El Buen Tono
CYF	265.3	1130	100	Oaxaca-----	Fredrico Zonilla
CYH	374.8	800	100	Mexico City-----	La High Life
CYJ	399.8	750	2000	Mexico City-----	General Electric
CYL	399.8	750	500	Mexico City---	Universal Casa del Radio
CYO	428.3	700	100	Mexico City-----	N. Y. Zetima
CYQ	322.4	930	100	Tampico-----	Cipriano Sagaon
CYR	475.9	630	250	Mazathan-----	Castulo Llamas
CYU	312.3	960	100	Puebla-----	Augustin P. Zaenz
CYX	325.9	910	500	Mexico City-----	Excelsior
CYY	545.1	550	100	Merida-----	Partido Socialiste
CZE	348.6	860	500	Mexico City---	Department of Education
CZF	309.1	970	250	Chiluhua-----	State Government

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## HAITI BROADCASTING STATIONS

HHK	361.2	830	1000	Port au Prince-----	Haitian Government
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## SALVADOR BROADCASTING STATIONS

AQM	488.6	620	500	Salvador-----	Division of Tel. & Tel.
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# LOCATION OF ALL NORTH AMERICAN BROADCASTING STATIONS

*Here is an alphabetical list of all cities in North America with broadcasting stations; it is of value when the call of the station is missed but the name of the city is heard; it includes American, Canadian, Mexican, Cuban and Haitian stations.*

Aberdeen, Wash.	KXRO	Brooklyn, N. Y.	WARS, WBBC,
Akron, Ohio	WADC, WFJC	WBKN, WLTH, WMBQ.	
Allentown, Pa.	WCBA, WSAN	Brookville, Ind.	WKBV
Altoona, Pa.	WFBG	Brownsville, Texas	KWWG
Alva, Okla.	KGFF	Buffalo, N. Y.	WEBR, WGR,
Amarillo, Texas	KGRS, WDAG	WKWB, WSVS.	
Ames, Iowa	WOI	Burbank, Calif.	KELW
Anchorage, Alaska	KFQD	Burlington, Vt.	WCAX
Anderson, Ind.	WEIU	Burnaby, B. C., Canada	CFYC
Anita, N. D.	KGFN	Calgary, Alta., Canada	CFAC, CFNC,
Appleton, Wisc.	WAIZ	CJCJ, CNRC.	
Arlington, Va.	NAA	Cambridge, Ohio	WEBE
Asbury Park, N. J.	WCAP	Camden, N. J.	WCAM
Asheville, N. C.	WWNC	Camp Lake, Wis.	WCLO
Ashtabula, Ohio	WJPW	Canton, N. Y.	WCAD
Astoria, Oreg.	KFJI	Canton, Ohio	WHBC
Astoria (L. I.) N. Y.	WGBS	Cape Girardeau, Mo.	KFVS
Atlanta, Ga.	WGST, WSB, WTHS	Carbondale, Pa.	WNBW
Atlantic, Iowa	KICK	Carterville, Mo.	KFPW
Atlantic City, N. J.	WPG	Carthage, Ill.	WCZA
Atwood, Ill.	WLBQ	Cazenovia, N. Y.	WMAC
Auburn, Ala.	WAPI	Cedar Grove, La.	KGGH
Auburn, N. Y.	WMBO	Cedar Rapids, Iowa	KWCR, WJAM
Austin, Texas	KUT	Central City, Nebr.	KGBS
Avalon, Calif.	KFWO	Charleston, S. C.	WBBY
Baltimore, Md.	WBAL, WCAO,	Charleston, W. Va.	WOBU
WFBR, WCBM.		Charlotte, N. C.	WBT
Bangor, Maine	WABI	Charlottetown, P. E. I., Canada	CFCY
Barrett, Minn.	KGDE	Chattanooga, Tenn.	WDOD
Batavia, Ill.	WORD	Chelsea, Mass.	WLQE
Battle Creek, Mich.	WKBP	Chicago, Ill.	KFKX, KYW, WAAF,
Bay City, Mich.	WSKC	WBBM, WBCN, WCFL, WCRW,	
Bayshore, N. Y.	WRST	WEBH, WEDC, WENR, WFKB,	
Beaumont, Texas	KPDM	WGES, WGN, WHFC, WHT, WIBO,	
Bellingame, Wash.	KVOS	WJAZ, WJBT, WKBI, WLIB, WLS,	
Bellefontaine, Ohio	WBBD	WLTS, WMAQ, WMBB, WMBI,	
Beloit, Wis.	WEBW	WOK, WPCC, WQJ, WSAX, WSBC,	
Belderville, Ill.	WLR	WWAM.	
Berkeley, Calif.	KRE	Chicago Heights, Ill.	WJBZ
Berrien Springs, Mich.	WEMC	Chickasha, Okla.	KOCW
Birmingham, Ala.	WBRC, WKBC	Chiluhua, Mexico	CZF
Bismarck, N. D.	KFYR	Cienfuegos, Cuba	8BY
Bloomington, Ill.	WNBL	Cincinnati, Ohio	WAAD, WFBE,
Blytheville, Ark.	KLCN	WKRC, WLW, WSAI.	
Boise, Idaho	KFAU	Clarinda, Iowa	KSO
Boone, Iowa	KFGQ	Clarksburg, W. Va.	WQBJ
Boston, Mass.	WATT, WBET, WBIS,	Clay Center, Neb.	KMMJ
WBZA, WEEI, WLBM, WMES,		Clearwater, Fla.	WFLA
WNAO, WSSH.		Cleveland, Ohio	WEAR, WHK,
Boundbrook, N. J.	WJZ	WJAY, WTAM.	
Bowmanville, Ont.	CKCW	Cliffside, N. J.	WCDA, WPAP, WQAO
Brantford, Ont., Canada	CFGC	Cobalt, Ont., Canada	CKMC
Breckenridge, Texas	KPYO	College Station, Texas	WTAW
Bristow, Okla.	KVOO	Collegedale, Minn.	WFBJ
Brookings, S. D.	KFDY, KGCR		

Colorado Springs, Colo.	KFUM	Gary, Ind.	WJKS
Columbia, Mo.	KFRU	Gloucester, Mass.	WEPS
Columbus, Miss.	WCOC	Grand Forks, N. D.	KFJM
Columbus, Nebr.	KGBY	Grand Island, Neb.	KGEO
Columbus, Ohio	WAIU, WCAH, WEAO, WMAN.	Grand Rapids, Mich.	WOOD, WASH
Concordia, Kans.	KGCN	Greeley, Colo.	KFKA
Coney Island, N. Y.	WCGU	Greensboro, N. C.	WNRC
Corvallis, Oreg.	KOAC	Greenville, Texas	KFPM
Council Bluffs, Iowa	KOIL	Grove City, Pa.	WSAJ
Cranston, R. I.	WDWF, WLSI	Gunnison, Colo.	KFHA
Crown Point, Wis.	WLBT	Habana, Cuba	PWX, 20K, 20L
Culver, Ind.	WCMA	Hallock, Minn.	KGFK
Dallas, Texas	KRLD, WFAA, WRR	Hardin, Mont.	KGHP
Danbury, Conn.	WCWS	Hoboken, N. J.	WPCH
Davenport, Iowa	WOC	Harlingen, Texas	KHMC
Dayton, Ohio	WSMK	Harrisburg, Ill.	WEBQ
Decatur, Ill.	WJBL, WBAO	Harrisburg, Pa.	WBAK, WPRC, WMBS.
Decorah, Iowa	KGCA, KWLC	Harrison, Ohio	WLW
Dell Rapids, S. D.	KGDA	Hartford, Conn.	WTIC
Denver, Colo.	KFBL, KFUP, KFXF, KGEY, KLD, KLZ, KOA, KOW.	Havre, Mont.	KFBB
Des Moines, Iowa	WHO	Halfax, N. S., Canada	CHNS
Detroit, Mich.	WAFD, WBMH, WCX, WWJ, WMBC.	Hamilton, Ont., Canada	CHCS, CKOC
Devils Lake, N. D.	KDLR	Hamilton, Ohio	WRK
Dover, Maine	WLBZ	Hollywood, Calif.	KFQZ, KMTR
Dublin, Texas	KFPL	Holy City, Calif.	KFQU
Easton, Conn.	WICC	Homewood, Ill.	WOK
Eau Claire, Wis.	WTAQ	Honolulu, Hawaii	KGHB, KGU
Edgewater, Colo.	KFXJ	Hopkinsville, Ky.	WFIW
Edmonton, Alta., Canada	CHCY, CHMA, CJCA, CKUA, CNRE.	Hot Springs, Ark.	KTHS
El Centro, Calif.	KGEN	Houston, Texas	KFVI, KPRC, KTUE
Elgin, Ill.	WGN, WLIB, WTAS	Humboldt, Nebr.	KGDW
Ella, Cuba	7SR	Huntington, W. Va.	WSAZ
Elizabeth, N. J.	WBBS	Independence, Kans.	KFVG
Elkins Park, Pa.	WIBG	Independence, Mo.	KLDS
El Paso, Texas	WDAH	Indianapolis, Ind.	WFBM, WKBF
Endicott, N. Y.	WNBF	Inglewood, Calif.	KMIC
Escanaba, Mich.	WRAK	Iowa City, Iowa	KGFB, WSUI
Eugene, Oreg.	KGEH	Iron Mountain, Mich.	WLBY
Evanston, Ill.	WEHS	Iroquois Falls, Ont., Canada	CFCH
Evansville, Ind.	WGBF	Ithaca, N. Y.	WLCI
Everett, Wash.	KFBL	Jacksonville, Fla.	WJAX
Fall River, Mass.	WSAR	Jamaica, N. Y.	WMBJ
Fargo, N. D.	WDAY	Jamestown, N. Y.	WOCL
Farmingdale, N. Y.	WLBH	Jeanette, Pa.	WGM
Fayetteville, Ark.	KUOA	Jefferson City, Mo.	WOS
Flagstaff, Ariz.	KFXV	Jerome, Idaho	KFXD
Flint, Mich.	WDFD	Jersey City, N. J.	WKBO, WAAT
Flushing, N. Y.	WGOP	Johnstown, Pa.	WHBP
Fond Du Lac, Wis.	KFTZ	Joliet, Ill.	WCLS, WJBA, WKBB
Forest Park, Ill.	WNBA	Joplin, Mo.	WBRH
Fort Dodge, Iowa	KFJY	Juneau, Alaska	KFTU
Fort Morgan, Colo.	KGEW	Kalspell, Mont.	KGEZ
Fort Wayne, Ind.	WOWO, KCWK	Kamloops, B. C., Canada	CFJC
Fort Worth, Texas	KFQB, KFJZ, WBAP.	Kansas City, Mo.	KWKC, WDAF, WHB, WLBF, WOQ.
Frankford, Pa.	WFKD	Kellogg, Idaho	KFEY
Frederickton, N. B., Canada	CFNB	Kenmore, N. Y.	WKEN
Freeport, N. Y.	WGBB	Ketchikan, Alaska	KGBU
Fresno, Calif.	KMJ	King, Ont., Canada	CFRB
Fridley, Minn.	WRHM	Kingston, Ont., Canada	CFMC
Gadsden, Ala.	WJBY	Kingston, Pa.	WABF
Gainesville, Fla.	WHBN	Kirksville, Mo.	KFKZ
Galesburg, Ill.	WFBZ, WKBS, WLBO, WRAM.	Knoxville, Tenn.	WFBC, WNB, J, WNOX.
Galveston, Texas	KFLX, KFUL	Kokomo, Ind.	WJAK
		Lacey, Wash.	KGY
		Laconia, N. H.	WKAV
		La Crescenta, Calif.	KGFH

La Crosse, Wis.-----WKBH  
 Lafayette, Ind.-----WBAA  
 Lakeland, Fla.-----WMBL  
 Lancaster, Pa.-----WGAL, WKJC  
 Lansing, Mich.-----WKAR  
 La Porte, Ind.-----WRAF  
 Lapeer, Mich.-----WMPC  
 Laramie, Wyo.-----KFBU  
 La Salle, Ill.-----WJBC  
 Lawrence, Kans.-----KFKU, WREN  
 Lawrenceburg, Tenn.-----WOAN  
 Lemars, Iowa.-----KWUC  
 Lemoyne, Pa.-----WMBS  
 Lewisburg, Pa.-----WJBU  
 Lexington, Mass.-----WLEX  
 Middletown, Ohio.-----WSRO  
 Lincoln, Nebr.-----KFAB, WCAJ, KFOR  
 Lockport, N. Y.-----WMAK  
 London, Ont., Canada.-----CJGC  
 Long Beach, Calif.-----KFON, KGER  
 Long Island City, N. Y.-----WLBX  
 Los Angeles, Calif.-----KFI, KFPR,  
 KFSG, KFWB, KGEF, KGFJ, KHJ,  
 KNX, KPLA, KRLO, KTBI.  
 Louisville, Ky.-----WHAS, WLAP  
 Lower Lake, Calif.-----KGEU  
 Ludington, Mich.-----WKBZ  
 Macon, Ga.-----WMAZ  
 Madison, Wis.-----WHA, WIBA  
 Mandan, N. D.-----KGCU  
 Manila, P. I.-----KZRQ, KZKZ  
 Manitowoc, Wis.-----WOMT  
 Mansfield, Conn.-----WCAC  
 Mansfield, Ohio.-----WLBV  
 Marshalltown, Iowa.-----KFJB  
 Mazathán, Mexico.-----CYR  
 Medford, Oreg.-----KMED  
 Memphis, Tenn.-----WGBC, WHBQ,  
 WMBM, WMC, WNBR, WREC.  
 Merida, Mexico.-----CYY  
 Mexico City, Mexico.-----CYA, CYB,  
 CYH, CYJ, CYL, CYO, CYX, CZE.  
 Miami, Fla.-----WMBF, WIOD, WQAM  
 Midland, Ont., Canada.-----CKPR  
 Milford, Kans.-----KFKB  
 Milwaukee, Wis.-----WGW, WHAD,  
 WSOE.  
 Minneapolis, Minn.-----KFDZ, KGEQ,  
 WAMD, WCCO, WDG, WHDI,  
 WLB, WGMS.  
 Mission City, B. C., Canada.-----CJCU  
 Missoula, Mont.-----KUOM  
 Mitchell, S. D.-----KGFP  
 Moncton, N. B., Canada.-----CNRA  
 Monessen, Pa.-----WMBJ  
 Monroe, Mich.-----WKBL  
 Montgomery, Ala.-----WIBZ  
 Montreal, Que., Canada.-----CFCF, CHYC,  
 CKAC, CNRM.  
 Moose Jaw, Sask., Canada.-----CJRN  
 Moosheart, Ill.-----WJJD  
 Mt. Clemens, Mich.-----WGHP  
 Mt. Prospect, Ill.-----WJAZ  
 Mt. Vernon Hills, Va.-----WTFF  
 Muncie, Ind.-----WLBC  
 Muscatine, Iowa.-----KPNP, KTNT  
 Nashville, Tenn.-----WBAW, WDAD,  
 WLAC, WSM.  
 Newark, N. J.-----WAAM, WGCP, WNJ,  
 WOR.  
 New Bedford, Mass.-----WNBH  
 New Haven, Conn.-----WDRG  
 New Orleans, La.-----WABZ, WBBE,  
 WJBO, WJBW, WKBT, WSMB,  
 WWL.  
 New York, N. Y.-----WBNY, WBBQ,  
 WBAF, WBBJ, WBSB, WGI,  
 WHAF, WHN, WHPP, WJZ,  
 WKBQ, WLWL, WMCA, WMSG,  
 WNYC, WPU, WRNY, WSDA,  
 WSOM.  
 Norfolk, Neb.-----WJAG  
 Norfolk, Va.-----WBBW, WRCV, WTAR  
 Norman, Okla.-----WNAD  
 Northfield, Minn.-----KFMX, WCAL  
 North Plainfield, N. J.-----WEAN  
 Oakland, Calif.-----KFUS, KFWM, KGO,  
 KLS, KXL, KTAB, KZM.  
 Oaxaca, Mexico.-----CYF  
 Ogden, Utah.-----KFUR  
 Oil City, Pa.-----WHBA, WLW  
 Oklahoma City, Okla.-----KFJF, KFJR,  
 KGCB, KGFB, KGFG, WKY.  
 Oldham, S. D.-----KGDY  
 Omaha, Nebr.-----WAAW, WOW,  
 WNAL, WFOX, KOCH.  
 Orlando, Fla.-----WDBO  
 Oskaloosa, Iowa.-----KFHL  
 Ottawa, Ont., Canada.-----CKCO, CNRO  
 Ottumwa, Iowa.-----WIAS  
 Pasadena, Calif.-----KPPC, KPSN  
 Paterson, N. J.-----WODA  
 Pawtucket, R. I.-----WFCI  
 Peekskill, N. Y.-----WOKO  
 Pensacola, Fla.-----WCOA  
 Peoria, Ill.-----WMBD  
 Petersburg, Va.-----WLBG  
 Petoskey, Mich.-----WBBP  
 Philadelphia, Pa.-----WABY, WCAU,  
 WFAN, WFI, WBBW, WIAD, WIF,  
 WLIT, WNAT, WOO, WPSW,  
 WRAX.  
 Phoenix, Ariz.-----KFAD, KFCB  
 Picher, Okla.-----KGGF  
 Pierce, S. Dak.-----KGFH  
 Pittsburgh, Pa.-----KDKA, KQV, WCAE,  
 WJAS, WMBU.  
 Pocatello, Idaho.-----KSEI  
 Poland, Wis.-----WIBU  
 Pontiac, Mich.-----WJRW  
 Portland, Me.-----WCSH  
 Portland, Oreg.-----KEX, KFEC,  
 KFJR, KFJR, KGW, KLIT, KOIN,  
 KTER, KTBR, KWBS, KWJJ  
 KXL.  
 Port au Prince, Haiti.-----HHK  
 Prescott, Ariz.-----KPJM  
 Prescott, Ont., Canada.-----CFCL  
 Providence, R. I.-----WCOT, WEAN,  
 WJAR, WLSI, WRAH.  
 Puebla, Mexico.-----CYU  
 Pueblo, Colo.-----KGGP, KGHT  
 Pullman, Wash.-----KWSC  
 Quebec, Que., Canada.-----CHRC, CKCV,  
 CKCI, CNRQ.  
 Quincy, Ill.-----WTAD  
 Quincy, Mass.-----WRBS  
 Racine, Wis.-----WRRS  
 Raleigh, N. C.-----WPTF  
 Rapid City, S. D.-----WCAT

Raton, N. M.	KGFL	State College, N. M.	KOB
Ravenna, Neb.	KGFW	State College, Pa.	WPSC
Reading, Pa.	WRAW	Stebenville, Ohio	WIBR
Red Bank, N. J.	WJBI	Stevens Point, Wis.	WLBL
Red Deer, Alta., Canada	CHLC	Stockton, Calif.	KGDM, KWG
Regina, Sask., Canada	CHWC, CKCK, CJBR, CNRR	Streator, Ill.	WTAX
Richmond, Va.	WBBL, WMBG, WRVA, WTAZ	Summerside, P. E. I., Canada	CHGS
Richmond Hill, N. Y.	WABC, WBOQ, WGMU	Superior, Wis.	WEBC
Roanoke, Va.	WDBJ	Syracuse, N. Y.	WFBL, WSYR
Rochester, N. Y.	WABO, WHAM, WHEC, WNBQ, WOKT	Tacoma, Wash.	KMO, KVI
Rockford, Ill.	KFLV	Takoma Park, Md.	WBES
Rock Island, Ill.	WBEF	Tampa, Fla.	WJBB, WDAE, WMBR, WQBA
Rossville, N. Y.	WBBR	Tampico, Mexico	CYQ
Royal Oak, Mich.	WAGM	Taunton, Mass.	WAIT
Sacramento, Calif.	KFBK	Terre Haute, Ind.	WRPI
Salt Lake City, Utah	KDYL, KFUT, KSL	Toccoa, Georgia	WTPI
Salvador, Salvador	AQM	Toledo, Ohio	WTAL
San Angelo, Texas	KGFI	Toronto, Ont., Canada	CFCA, CHIC, CHNC, CJBC, CJSC, CKCL, CKNC, CKSM, CNRT
San Antonio, Texas	KGCI, KGDR, KGRC, KTAP, K TSA, WOAI	Trenton, N. J.	WOAX
San Bernardino, Calif.	KFWC	Troy, N. Y.	WHAZ
San Diego, Calif.	KFBC, KFSD	Tucson, Ariz.	KGAR
San Francisco, Calif.	KFRC, KFWI, KGTT, KJBS, KPO, KYA	Tuincu, Cuba	6JK, 6KW
San Jose, Calif.	KQW	Tuscola, Ill.	WDZ
San Juan, P. R.	WKAQ	Union City, N. J.	WMBS
Santa Ana, Calif.	KWTC	Union City, Tenn.	WBOB
Santa Barbara, Calif.	KPCR	Unity, Sask., Canada	CHSC
Santa Maria, Calif.	KSMR	Urbana, Ill.	WRM
Santa Monica, Calif.	KNRC	Utica, Miss.	WQBC
Saranac Lake, N. Y.	WNBZ	Utica, N. Y.	WIBX
Sarasota, Fla.	WJBB	Valparaiso, Ind.	WRBC
Saskatoon, Sask., Canada	CFQC	Vancouver, B. C., Canada	CFCQ, CKCD, CKFC, CHPC, CKWX, CNRV
	CHUC, CJWC, CNRS	Venice, Calif.	KFVD
Scarboro, Ont., Canada	CJYC, CKCX	Vermillion, S. D.	KUSD
Shenobectady, N. Y.	WGY	Victoria, B. C.	CFCT
Scranton, Pa.	WQAN, WGBI	Vida, Mont.	KGCC
Sea Island, B. C., Canada	CJOR	Virginia Beach, Va.	WSEA
Seattle, Wash.	KFOA, KPQW, KGCL, KJR, KKP, KOMO, KPCC, KRSC, KTW, KUJ, KVL, KKA	Waco, Texas	WIAD
Shenandoah, Iowa	KFNF, KMA	Washington, D. C.	WMAL, WRC, WRHF
Shreveport, La.	KFDX, KGDY, KRAC, K SBA, KWKH	Washington, Pa.	WNBO
Sioux City, Iowa	KFMR, KSCJ	Waukegan, Ill.	WPBP
Sioux Falls, S. D.	KSOO	Wayne, Neb.	KGEB
St. Cloud, Minn.	KGHC	Webster, Mass.	WKBE
South Bend, Ind.	WSBT	Wellesley Hill, Mass.	WBBO
South Dartmouth, Mass.	WMAF	Wenona, Ill.	WLBI
South Kenosha, Wis.	WKDR	West de Pere, Wis.	WHBY
Spokane, Wash.	KHQ, KFIO, KFPY, KGA	Wheeling, W. Va.	WVVA
Springfield, Ill.	WCBS	Wichita, Kans.	KFH
Springfield, Mass.	WBZ	Wilkes-Barre, Pa.	WBAX, WBRE
Springfield, Ohio	WCOS	Willow Grove, Pa.	WALK
Springfield, Tenn.	WSIX	Wilmington, Del.	WDEL
Springfield, Vt.	WNBX	Winnipeg, Manitoba, Canada	CKY, CNRW
St. Cloud, Minn.	WFAM	Woodside, N. Y.	WWRL
St. Hyacinthe, Que., Canada	CKSH	Woodhaven, N. Y.	WEVD
St. Joseph, Mo.	KFEQ, KGBX	Wooster, Ohio	WABW
St. Louis, Mo.	KFOA, KFUD, KFVE, KFWF, KMOX, KSD, KWK, WEW, WIL, WMAV, WSEF	Worcester, Mass.	WTAG
St. Paul, Minn.	KFOY, WMBE	Yankton, S. D.	WNAX
		York, Neb.	KGZB
		Yorkton, Sask., Canada	CJGX
		Youngstown, Ohio	WKBN, WMBW
		Ypsilanti, Mich.	WJBK
		Yuma, Colo.	KGEK
		Zion, Ill.	WCBD

# AIR LINE DISTANCES IN STATUTE MILES

FROM/TO	Albuq'que, N. M.	Atlanta, Ga.	Baltimore, Md.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Buffalo, N. Y.	Chicago, Ill.	Cincinnati, Ohio	Cleveland, Ohio
Albuq'que, N. M.	---	1273	1670	774	1907	838	1577	1126	1248	1417
Atlanta, Ga.	1273	---	575	1830	938	960	695	583	368	550
Baltimore, Md.	1670	575	---	2055	358	1525	273	603	423	303
Boise, Idaho	774	1830	2055	---	2260	1610	1872	1453	1663	1754
Boston, Mass.	1907	938	358	2260	---	1881	398	849	737	550
Brownsville, Tex.	838	960	1525	1610	1881	---	1575	1234	1184	1402
Buffalo, N. Y.	1577	695	273	1872	308	1575	---	454	392	175
Chicago, Ill.	1126	583	603	1453	349	1234	454	---	249	307
Cincinnati, Ohio	1248	368	423	1663	737	1184	392	249	---	218
Cleveland, Ohio	1417	550	303	1754	550	1402	175	307	218	---
Denver, Colo.	332	1208	1505	687	1760	1047	1368	918	1090	1223
Des Moines, Ia.	838	738	913	1155	1159	1102	762	310	509	617
Detroit, Mich.	1860	595	398	1671	613	1398	218	236	234	94
El Paso, Tex.	228	1293	1750	960	2067	682	1690	1249	1333	1521
Fargo, N. Dak.	968	1112	1143	975	1304	1445	923	571	818	838
Fort Worth, Tex.	561	750	1239	1263	1574	471	1221	820	839	1046
Galveston, Tex.	803	688	1245	1538	1598	287	1289	954	897	1116
Hastings, Nebr.	588	901	1154	934	1415	1013	1010	566	742	871
Hot Spngs., Ark.	773	408	964	1384	1302	650	956	585	569	787
Houghton, Mich.	1252	947	808	1367	922	1543	560	367	589	518
Jacksonville, Fla.	1492	286	682	2098	1015	1025	880	361	628	768
Kansas City, Mo.	717	675	962	1158	1250	923	862	413	541	700
Los Angeles, Cal.	663	1935	2313	663	2590	1370	2195	1741	1892	2044
Louisville, Ky.	1174	317	498	1623	823	1093	488	268	92	309
Memphis, Tenn.	938	335	792	1506	1133	777	802	481	410	627
Miami, Fla.	1710	610	958	2368	1258	1100	1184	1190	957	1088
Min'apolis, Minn.	980	905	948	1140	1125	1335	733	356	603	632
Missoula, Mont.	895	1790	1947	252	2124	1706	1740	1348	1578	1640
Nashville, Tenn.	1117	218	597	1631	941	952	626	394	239	456
New Orleans, La.	1030	427	1001	1713	1359	536	1087	831	708	922
New York, N. Y.	1810	747	170	2153	188	1695	291	711	568	404
Norfolk, Va.	1696	507	167	2187	467	1465	435	696	474	429
Oklahoma, Okla.	518	753	1173	1138	1490	669	1117	689	755	946
Omaha, Nebr.	718	815	1026	1044	1280	1061	883	432	620	738
Philadelphia, Pa.	1748	663	90	2118	268	1614	278	604	501	343
Phoenix, Ariz.	330	1592	2002	733	2295	1028	1904	1451	1578	1745
Pittsburgh, Pa.	1498	520	194	1863	478	1424	178	411	258	115
Portland, Me.	2015	1022	446	2282	100	1961	438	892	802	603
Portland, Oreg.	1707	2172	2367	349	2553	1944	2167	1765	1987	2063
Richmond, Va.	1628	470	128	2060	471	1428	375	618	399	353
St. Louis, Mo.	938	467	731	1389	1036	975	662	259	308	490
Salt L. C., Utah	483	1580	1858	292	2099	1317	1701	1260	1450	1567
San Francisco	893	2133	2451	516	2696	1675	2298	1855	2037	2103
Schenectady, N.Y.	1823	840	278	2120	150	1770	249	702	605	408
Seattle, Wash.	1178	2180	2341	405	2508	2015	2180	1743	1974	2085
Shreveport, La.	764	548	1064	1433	1410	510	1080	725	688	904
Spokane, Wash.	1028	1960	2110	290	2279	1852	1900	1514	1746	1804
Springfield, Mass.	1889	868	282	2196	79	1805	325	774	659	473
Vermillion, S. D.	742	917	1083	973	1314	1161	916	479	694	785
Washington	1648	543	33	2045	392	1493	290	594	403	303

## Air Line Distances in Statute Miles—(Continued)

FROM/TO	Denver, Colo.	Des Moines, Ia.	Detroit, Mich.	El Paso, Tex.	Fargo, N. Dak.	Fort Worth, Tex.	Galveston, Tex.	Hastings, Nebr.	Hot Sprgs., Ark.	Houghton, Mich.
Albuq'que, N. M.	332	833	1300	228	968	501	803	588	773	1232
Atlanta, Ga.	1208	738	595	1293	1112	750	638	901	498	947
Baltimore, Md.	1505	913	398	1750	1143	1289	1245	1154	964	808
Boise, Idaho	637	1155	1071	969	975	1203	1538	984	1384	1367
Boston, Mass.	1760	1159	613	2067	1304	1674	1598	1415	1302	922
Brownsville, Tex.	1047	1102	1398	682	1445	471	237	1013	650	1543
Buffalo, N. Y.	1308	762	218	1690	923	1221	1289	1019	956	560
Chicago, Ill.	918	310	236	1249	571	820	954	566	585	307
Cincinnati, Ohio	1090	509	234	1333	818	839	897	742	569	539
Cleveland, Ohio	1223	617	84	1521	838	1040	1116	871	787	518
Denver, Colo.	---	607	1153	554	642	643	925	353	749	970
Des Moines, Ia.	607	---	545	980	397	640	851	256	488	453
Detroit, Mich.	1153	545	---	1475	745	1018	1111	800	761	427
El Paso, Tex.	554	980	1475	---	1161	543	723	757	802	1422
Fargo, N. Dak.	642	397	745	1161	---	973	1218	440	875	393
Fort Worth, Tex.	643	640	1018	543	973	---	283	544	273	1093
Galveston, Tex.	925	851	1111	723	1218	283	---	808	375	1277
Hastings, Nebr.	353	256	800	757	440	544	808	---	513	666
Hot Sprgs., Ark.	749	488	761	802	875	273	375	513	---	901
Houghton, Mich.	970	458	427	1422	393	1093	1277	666	901	---
Jacksonville, Fla.	1408	1024	832	1481	1400	943	799	1178	728	1216
Kansas City, Mo.	555	180	643	836	548	460	677	226	326	683
Los Angeles, Cal.	828	1433	1976	702	1426	1212	1423	1177	1487	1787
Louisville, Ky.	1035	477	315	1253	818	761	807	693	480	636
Memphis, Tenn.	873	485	621	978	882	448	492	591	176	830
Miami, Fla.	1732	1338	1156	1662	1721	1150	941	1468	983	1545
Minneapolis, Minn.	699	235	542	1156	219	870	1087	399	722	272
Missoula, Mont.	670	1074	1552	1115	819	1312	1595	801	1385	1208
Nashville, Tenn.	1018	523	468	1169	900	643	666	697	370	760
New Orleans, La.	1079	825	938	986	1221	470	288	870	858	1187
New York, N. Y.	1628	1023	483	1902	1213	1308	1415	1275	1125	849
Norfolk, Va.	1562	983	522	1755	1258	1226	1195	1216	955	940
Oklahoma, Okla.	503	469	905	578	786	188	456	357	260	926
Omaha, Nebr.	485	122	966	875	390	590	828	135	490	547
Philadelphia, Pa.	575	972	444	1834	1186	1324	1355	1222	1051	827
Phoenix, Ariz.	585	1154	1085	347	1225	858	1065	901	1094	1550
Pittsburgh, Pa.	1320	718	208	1592	952	1097	1140	967	825	630
Portland, Me.	1803	1197	657	2126	1313	1642	1678	1454	1371	924
Portland, Oreg.	985	1479	1975	1286	1248	1612	1885	1271	1733	1636
Richmond, Va.	1488	905	445	1695	1180	1170	1154	1142	897	870
St. Louis, Mo.	793	270	452	1033	658	568	697	455	325	591
Salt L. C., Utah	372	952	1490	689	865	977	1249	708	1116	1242
San Francisco	646	1547	2087	993	1447	1454	1693	1297	1048	1833
Schenectady, N.Y.	1618	1012	407	1930	1157	1445	1487	1267	1175	776
Seattle, Wash.	1020	1470	1945	1373	1206	1658	1938	1288	1759	1538
Shreveport, La.	799	624	891	762	1002	209	233	615	142	1043
Spokane, Wash.	827	1243	1715	1233	976	1470	1753	1061	1552	1360
Springfield, Mass.	1692	1085	540	1990	1240	1495	1524	1340	1224	860
Vermilion, S. D.	468	187	705	920	284	689	938	187	605	510
Washington	1490	895	397	1728	1141	1210	1214	1139	936	813

## Air Line Distances in Statute Miles—(Continued)

FROM/TO	Jacksonville, Fla.	Kansas City, Mo.	Los Angeles, Cal.	Louisville, Ky.	Memphis, Tenn.	Miami, Fla.	Minneapolis, Minn.	Missoula, Mont.	Nashville, Tenn.	New Orleans, La.
Albu'que, N. M.	1402	717	063	1174	938	1710	980	805	1117	1030
Atlanta, Ga.	286	675	1935	317	335	610	905	1790	218	427
Baltimore, Md.	082	962	2813	408	792	958	948	1947	597	1001
Boise, Idaho	2098	1158	063	1623	1506	2308	1140	252	1631	1713
Boston, Mass.	1015	1250	2590	823	1133	1258	1125	2124	941	1359
Brownsville, Tex.	1025	923	1370	1093	777	1100	1385	1706	952	536
Buffalo, N. Y.	880	862	2195	483	802	1184	733	1740	628	1087
Chicago, Ill.	861	413	1741	268	481	1190	356	1348	394	831
Cincinnati, Ohio	628	541	1892	92	410	957	603	1578	239	708
Cleveland, Ohio	768	700	2044	309	627	1088	632	1640	456	922
Denver, Colo.	1468	555	828	1035	878	1732	699	670	1018	1079
Des Moines, Ia.	1024	180	1433	477	485	1338	235	1074	523	825
Detroit, Mich.	832	043	1976	315	621	1156	542	1552	468	938
El Paso, Tex.	1481	836	702	1253	978	1662	1156	1115	1169	986
Fargo, N. Dak.	1400	548	1426	818	882	1721	219	819	900	1221
Fort Worth, Tex.	943	460	1212	751	448	1150	870	1312	648	470
Galveston, Tex.	799	077	1423	807	492	941	1087	1595	606	288
Hastings, Nebr.	1178	226	1177	693	591	1468	399	891	697	870
Hot Sprgs., Ark.	728	326	1437	480	176	933	722	1385	370	358
Houghton, Mich.	1216	633	1787	636	830	1545	272	1208	760	1187
Jacksonville, Fla.	----	952	2153	595	591	328	1192	2070	502	511
Kansas City, Mo.	952	----	1362	480	870	1247	413	1117	472	678
Los Angeles, Cal.	2153	1352	----	1825	1602	2855	1522	910	1777	1675
Louisville, Ky.	595	480	1825	----	319	923	605	1550	153	623
Memphis, Tenn.	591	370	1602	319	----	878	700	1483	195	385
Miami, Fla.	328	1247	2855	923	878	----	1516	2359	821	681
Minneapolis, Minn.	1192	413	1522	605	700	1516	----	1010	695	1050
Missoula, Mont.	2070	1117	910	1550	1483	2359	1010	----	1582	1733
Nashville, Tenn.	502	472	1777	153	195	821	695	1582	----	470
New Orleans, La.	511	678	1675	623	358	681	1050	1733	470	----
New York, N. Y.	838	1097	2446	650	953	1095	1019	2030	758	1173
Norfolk, Va.	548	1009	2352	528	778	802	1047	2045	586	932
Oklahoma, Okla.	988	293	1182	675	422	1233	692	1162	602	575
Omaha, Nebr.	1098	165	1312	579	529	1402	291	978	604	845
Philadelphia, Pa.	758	1037	2388	580	878	1023	985	1997	688	1090
Phoenix, Ariz.	1800	1045	857	1512	1264	1998	1279	932	1445	1319
Pittsburgh, Pa.	703	784	2135	845	660	1014	745	1754	472	923
Portland, Me.	1113	1300	2631	892	1205	1357	1145	2133	1015	1445
Portland, Oreg.	2442	1397	825	1953	1852	2716	1435	430	1970	2063
Richmond, Va.	953	987	2283	457	722	831	968	1067	526	899
St. Louis, Mo.	755	238	1585	242	242	1067	464	1331	258	599
Salt L. C., Utah	1840	922	577	1400	1250	2098	988	435	1390	1433
San Francisco	2375	1500	845	1983	1800	2603	1585	762	1958	1923
Schenectady, N.Y.	960	1107	2445	695	1010	1229	975	1978	820	1259
Seattle, Wash.	2450	1505	956	1945	1867	2740	1403	395	1973	2098
Shreveport, La.	733	826	1420	598	279	950	859	1457	470	280
Spokane, Wash.	2239	1286	939	1720	1652	2528	1173	170	1752	1898
Springfield, Mass.	957	1173	2515	745	1055	1210	1056	2060	863	1287
Vermilion, S. D.	1203	280	1291	663	642	1510	288	887	704	960
Washington	647	943	2295	473	768	927	986	1940	567	968



## Air Line Distances in Statute Miles—(Continued)

FROM/TO	New York, N. Y.	Norfolk, Va.	Oklahoma, Okla.	Omaha, Nebr.	Philadelphia, Pa.	Phoenix, Ariz.	Pittsburgh, Pa.	Portland, Me.	Portland, Oreg.	Richmond, Va.
Albuq'que, N. M.	1810	1606	518	718	1748	330	1498	2015	1107	1628
Atlanta, Ga.	747	507	773	815	663	1592	520	1022	2172	470
Baltimore, Md.	170	167	1173	1026	90	2002	194	446	2367	128
Boise, Idaho.	2153	2137	1138	1044	2113	733	1868	2282	349	2060
Boston, Mass.	188	467	1490	1280	268	2295	478	100	2558	471
Brownsville, Tex.	1695	1465	659	1061	1014	1023	1424	1961	1944	1428
Buffalo, N. Y.	291	435	1117	883	278	1904	178	438	2167	375
Chicago, Ill.	711	606	680	432	664	1451	411	892	1765	618
Cincinnati, Ohio.	568	474	755	620	501	1578	258	802	1987	399
Cleveland, Ohio.	404	429	946	738	343	1745	115	603	2063	353
Denver, Colo.	1628	1562	503	485	1675	585	1320	1803	985	1488
Des Moines, Ia.	1023	983	469	122	972	1154	713	1197	1479	905
Detroit, Mich.	483	522	905	666	444	1685	208	657	1975	445
El Paso, Tex.	1902	1755	578	875	1834	347	1592	2126	1286	1695
Fargo, N. Dak.	1213	1258	786	390	1186	1225	952	1313	1248	1180
Fort Worth, Tex.	1398	1226	188	590	1324	858	1097	1642	1612	1170
Galveston, Tex.	1415	1195	456	823	1335	1065	1140	1678	1885	1164
Hastings, Nebr.	1275	1216	367	135	1222	901	967	1454	1271	1142
Hot Sprgs., Ark.	1125	955	260	490	1051	1094	825	1371	1733	897
Houghton, Mich.	849	946	926	547	827	1550	680	924	1638	870
Jacksonville, Fla.	838	548	988	1008	758	1800	703	1113	2442	958
Kansas City, Mo.	1097	1009	293	165	1037	1045	784	1800	1897	937
Los Angeles, Cal.	2446	2352	1182	1312	2388	357	2185	2631	325	2283
Louisville, Ky.	650	528	675	579	580	1512	345	892	1953	457
Memphis, Tenn.	953	778	422	529	878	1264	600	1205	1852	722
Miami, Fla.	1095	802	1233	1402	1023	1998	1014	1357	2716	831
Min'apolis, Minn.	1019	1047	692	291	985	1279	745	1145	1435	968
Missoula, Mont.	2030	2045	1162	978	1997	932	1754	2133	430	1967
Nashville, Tenn.	758	586	602	604	683	1445	472	1015	1970	526
New Orleans, La.	1173	932	575	845	1090	1318	923	1445	2063	899
New York, N. Y.	---	293	1324	1144	83	2142	313	277	2455	287
Norfolk, Va.	298	---	1186	1005	220	2027	316	565	2458	79
Oklahoma, Okla.	1824	1186	---	405	1256	843	1013	1550	1488	1122
Omaha, Nebr.	1144	1095	405	---	1094	1032	837	1318	1973	1020
Philadelphia, Pa.	83	220	1256	1094	---	2079	254	360	2419	205
Phoenix, Ariz.	2142	2027	843	1032	2079	---	1829	2345	1007	1960
Pittsburgh, Pa.	313	316	1013	837	254	1829	---	545	2174	242
Portland, Me.	277	565	1550	1318	360	2345	545	---	2563	565
Portland, Oreg.	2455	2458	1488	1373	2419	1007	2174	2563	---	2381
Richmond, Va.	287	79	1122	1020	205	1960	242	565	2381	---
St. Louis, Mo.	873	771	456	352	808	1270	561	1094	1723	699
Salt L. C., Utah	1972	1925	862	833	1923	504	1670	2127	636	1850
San Francisco	2568	2510	1364	1425	2518	652	2204	2725	536	2436
Schenectady, N.Y.	142	426	1354	1133	205	2152	350	197	2405	406
Seattle, Wash.	2419	2440	1523	1372	2388	1112	2145	2513	143	2362
Shreveport, La.	1230	1037	297	617	1153	1067	689	1484	1733	985
Spokane, Wash.	2180	2211	1324	1149	2150	1020	1918	2285	295	2133
Springfield, Mass.	120	411	1412	1205	201	2220	400	159	2438	405
Vermilion, S. D.	1189	1166	502	115	1143	1043	891	1345	1293	1089
Washington	204	145	1150	1012	122	1980	188	480	2360	96

## Air Line Distances in Statute Miles—(Continued)

FROM/TO	St. Louis, Mo.	Salt L. C., Utah	San Francisco	Schenectady, N.Y.	Seattle, Wash.	Shreveport, La.	Spokane, Wash.	Springfield, Mass.	Vermillion, S. D.	Washington
Albuq'que, N. M.	938	483	893	1823	1178	764	1028	1889	742	1648
Atlanta, Ga.	467	1580	2138	840	2180	548	1960	863	917	542
Baltimore, Md.	731	1858	2451	278	2341	1064	2110	282	1083	33
Boise, Idaho.	1889	292	516	2120	405	1438	290	2196	973	2045
Boston, Mass.	1086	2099	2696	150	2508	1410	2279	79	1314	892
Brownsville, Tex.	975	1317	1675	1770	2015	510	1852	1805	1161	1493
Buffalo, N. Y.	662	1701	2298	249	2180	1080	1900	325	916	290
Chicago, Ill.	250	1260	1855	702	1743	725	1514	774	479	594
Cincinnati, Ohio	308	1450	2037	605	1974	688	1746	659	694	403
Cleveland, Ohio.	490	1567	2163	408	2035	904	1804	478	785	803
Denver, Colo.	793	372	946	1618	1020	799	827	1692	468	1490
Des Moines, Ia.	270	952	1547	1012	1470	624	1243	1085	187	895
Detroit, Mich.	452	1490	2087	467	1945	891	1715	540	705	897
El Paso, Tex.	1033	689	993	1930	1873	752	1238	1990	920	1726
Fargo, N. Dak.	658	865	1447	1157	1206	1002	976	1240	284	1141
Fort Worth, Tex.	568	977	1454	1445	1658	200	1470	1496	689	1210
Galveston, Tex.	697	1249	1693	1487	1938	238	1753	1524	988	1214
Hastings, Nebr.	455	708	1207	1267	1288	615	1061	1340	167	1139
Hot Spngs., Ark.	325	1116	1648	1175	1759	142	1552	1224	605	936
Houghton, Mich.	591	1242	1833	776	1583	1043	1360	860	510	813
Jacksonville, Fla.	755	1840	2375	960	2450	783	2289	957	1203	647
Kansas City, Mo.	238	922	1500	1107	1505	326	1283	1173	280	943
Los Angeles, Cal.	1585	577	345	2445	956	1420	989	2515	1291	2295
Louisville, Ky.	242	1400	1983	695	1945	598	1720	745	663	473
Memphis, Tenn.	242	1250	1800	1010	1807	270	1652	1055	642	763
Miami, Fla.	1067	2098	2603	1229	2740	950	2528	1210	1510	927
Minneapolis, Minn.	484	988	1585	975	1403	859	1178	1058	238	936
Missoula, Mont.	1331	435	762	1978	895	1457	170	2060	887	1940
Nashville, Tenn.	258	1390	1958	820	1978	470	1752	863	704	567
New Orleans, La.	599	1433	1923	1259	2098	280	1898	1287	960	968
New York, N. Y.	873	1972	2568	142	2419	1230	2190	120	1189	204
Norfolk, Va.	771	1925	2510	426	2440	1037	2211	411	1166	145
Oklahoma, Okla.	456	862	1386	1354	1523	297	1324	1412	502	1150
Omaha, Nebr.	352	833	1425	1133	1372	617	1140	1205	115	1012
Philadelphia, Pa.	808	1923	2518	205	2388	1158	2159	201	1143	122
Phoenix, Ariz.	1270	504	652	2152	1112	1067	1020	2220	1043	1980
Pittsburgh, Pa.	561	1670	2264	350	2145	939	1918	400	891	188
Portland, Me.	1094	2127	2725	197	2513	1484	2285	159	1345	480
Portland, Oreg.	1723	636	536	2405	143	1738	295	2488	1293	2960
Richmond, Va.	699	1850	2436	406	2362	935	2133	407	1089	96
St. Louis, Mo.	-----	1158	1738	898	1722	466	1500	958	450	710
Salt L. C., Utah	1158	-----	592	1950	697	1155	548	2087	785	1845
San Francisco	1738	592	-----	2548	680	1655	730	2625	1383	2437
Schenectady, N.Y.	898	1950	2548	-----	2363	1290	2139	86	1165	313
Seattle, Wash.	1722	697	680	2363	-----	1820	220	2445	1282	2335
Shreveport, La.	466	1155	1655	1290	1820	-----	1621	1333	726	1035
Spokane, Wash.	1500	548	730	2139	220	1621	-----	2216	1055	2105
Springfield, Mass.	958	2027	2625	86	2445	1333	2216	-----	1242	821
Vermillion, S. D.	450	785	1383	1165	1282	726	1055	1242	-----	1073
Washington	710	1845	2437	818	2385	1035	2105	321	1073	-----

# Commission Will Reduce Stations

**NEW YORK**  
member of Federal Radio Board provides some intimate history and a review of the Commission's actions and policies in restoring order to broadcasting after breakdown of law.

By ORESTES H. CALDWELL,  
Federal Radio Commissioner from New York.

ON a dark and dreary day last March, there met in Washington, four mutual strangers, summoned by the President of the United States from the four corners of the nation to undertake the reclamation of radio broadcasting from the chaos into which it had fallen. These four men, an Army colonel, a Supreme Court judge, a broadcaster, and an electrical engineer-editor, were the four members of the new Federal Radio Commission at the moment on American soil, the fifth, their designated chairman, being still in China, where his appointment had overtaken him.

Sitting sad-heartedly down on four borrowed chairs in an uncarpeted, unfurnished office, this quorum of the newly created Commission took stock of its situation.

It had no funds. It had no staff.

Two of its members were without salaries, being unconfirmed by the Senate.

It had no offices, no furniture, no file.

It had no radio measuring equipment, no technical assistants.

And it had almost no hopes—that is, hopes of mastering the complicated task with which it was called to deal bare-handed.

Indeed, as one low point in the discussion on those first dark mornings, after reviewing the Commission's own penniless condition in contrast with the bulging U. S. Treasury a few blocks away, the propriety of returning home from an impossible task, was mentioned, but as quickly discouraged as being unworthy without first making an effort to straighten out the radio tangle even in the face of the overwhelming difficulties.

For it must be recalled that, eight months before, Attorney General Sargent had rendered his famous opinion holding that Secretary Hoover, under the old radio law of 1912, was without power to

control the radio broadcasting situation, or to assign wavelengths.

As a result of that opinion, and the consequent removal of the firm hand of Mr. Hoover, many stations at once "jumped" to new wavelengths which suited them better, quite regardless of the interference which they might thus be causing to other stations. Separation between law-abiding stations was destroyed by pirate stations jumping in and camping in the middle of any open spaces they could find, each "jumper" impairing reception of three stations—his own and two others.

Soon, instead of the necessary fifty-kilocycle separation between stations in the same community, conditions developed where separations of twenty and ten and even eight, five and two kilocycles existed. Under such separations, of course, stations were badly blanketing each other—while listeners were assailed with scrambled programs.

#### Canada's Waves

Wavelengths assigned to Canada were also violated in spite of repeated warnings from the Government and personal appeals from members of the President's cabinet that national good faith and international good will were at stake. Meanwhile, nearly three hundred new stations injected themselves into the already overcrowded situation and undertook to find perches on which to light without respect to the existing stations. Some of

the older stations also jumped their power, increasing five to ten times their output, and, as a result, delivering terrific heterodyne interference to distant stations that had been undisturbed under the orderly radio pattern developed by the former supervising authorities.

Indeed, every human ingenuity and selfish impulse seemed to have been exerted to complicate the tangle in the ether.

On February 23, 1927, Congress passed the new Radio Law, putting great powers of radio control in the hands of the present Commission, appointed by the President to serve full time for one year in clearing up the radio confusion. For the first sixty days of the law, or until April 23, no penalties were enforceable; but on April 24, when fines up to \$5,000 and penitentiary sentences up to five years became effective, the Commission began its operations to clear out the interference.

#### Temporary Permits

The first steps taken by the Commissioners, as they granted the temporary permits, were to transfer all stations to channels on even tens of kilocycles, to clear the Canadian waves, and to combine interfering stations and "tuck them in" wherever possible, in the spectrum, in order to keep them in operation without interfering with those law-abiding stations who had remained faithfully to their assigned channels.

This was accomplished for the

period of the temporary permits which came to an end June 15. During the meantime, with the public given partial relief, it was possible for the Commission to make a careful study of the situation, and by painstaking planning, make a re-allocation of all stations in the best interests of the listening public. When this re-allocation took effect, June 15, listeners at once found that, (1) for each locality local stations were well distributed along the dial, with minimum separations of 50 kilocycles; (2) stations had been recognized in terms of position and time, on the basis of their demonstrated capacities to serve the public; and (3) heterodyne interference between distant stations was in general diminished.

Sixty-day licenses were issued for June 15 to August 15, and again from August 15 to October 15, and this policy of short-period licenses is being continued.

#### Clearing Channels

Meanwhile, with city and local listeners well taken care of by the wide separations afforded locally on the spectrum, the coming of cooler weather and improved radio transmission made it evident by October 1, that reception for remote and rural listeners was being increasingly interfered with by the interaction between stations sharing the same wavelengths.

Distant listeners, instead of receiving programs, reported hearing

whistles, howls and groans, and "heterodyning" took place between widely separated stations.

Since there are some fifty millions of our American population who live 75 miles or more from a broadcasting station, and since to these good people radio is far more essential and a utility than to any other class, the Commission on October 10, went to work to re-trace its steps and to provide channels for rural, farm, ranch and mountain listeners.

In order to improve radio reception for the large audience who are situated far outside of the local service range of any broadcasting station, as well as to reduce generally interference from heterodyning between stations, the Commission on November 14, designated the channels from 600 kilocycles to 1,000 kilocycles inclusive as frequencies to be maintained free from heterodynes or other interference.

Hundreds of congratulatory messages from a pleased radio public came as the initial re-action to the Commission's active policy of improving radio reception for the rural and remote listeners.

The metropolitan fan, with a wide choice of local programs, had already had his day in court with the Commission. Hence, it was to the farmers and to millions of other listeners in remote communities, who have little or no choice of local programs, that the Commission in the closing months of

1927 gave particular heed, since it is these listeners who, after all, lean heavily on radio, both from a utility and entertainment standpoint. This group of remote listeners had been most vociferous in reporting interference, and also in expressing appreciation of the Commission's recent action in their behalf.

### Studying Interference

With twenty-five channels cleared on December 1, for long-distance reception by remote and rural listeners, the Commission is now obtaining reports from expert listeners and radio amateurs as to the results being obtained on these channels within the 600-to-1,000 kilocycle band.

Reports of interference found on the channels designated as "cleared," will be especially helpful to the Commission. Heterodynes on such cleared channels should be noted, and the identity of the offending station reported if possible.

Within the 600-1,000 kilocycle band during December and January, some eleven channels will still remain uncleared. The extent of interference and heterodyning on these uncleared channels is also information which the Commission desires to obtain. These uncleared frequencies are:

- 620 kc. (483.6 meters)
- 710 kc. (422.3 meters)
- 740 kc. (405.2 meters)

- 780 kc. (384.4 meters)
- 820 kc. (365.6 meters)
- 880 kc. (340.7 meters)
- 650 kc. (461.3 meters)
- 760 kc. (394.5 meters)
- 810 kc. (370.2 meters)
- 860 kc. (348.6 meters)
- 900 kc. (333.1 meters)

### Chain Programs

The extent to which identical "chain programs" can be heard by remote listeners in various sections, is another subject which members of the Commission are investigating thoroughly.

Each of the broadcasting stations permitted to remain (for the time being) on a cleared channel in the "non-heterodyning band" is a station which has had an individual good record in its community, for outstanding popularity, breadth of programs and excellence of transmitting apparatus. All these stations are independently owned and managed, but a number of them purchase outside programs from "chain" organizations, and so during a limited number of hours each week, identical programs may be heard on a number of cleared channels. Just how extended such duplication of programs occurs in the receiving set of individual listeners, the Commission wants to know.

Already the Commission has received applications from other high-powered stations which operate their own original programs, asking for assignments to these

cleared channels. Such stations point out that it will be in the public interest to diversify the programs available to remote listeners on the cleared channels, and that with the chain programs already repeated many times, a part of the cleared channels now having "chain" stations should properly be assigned to stations with wholly different programs. Each station so applying for cleared channels has been advised to prepare a full statement of its case, and to present this at a public hearing, upon which, after listening to full testimony, the Commissioners will undertake to assign the channel in the best public interest, for the larger remote audience, as well as the local audiences involved.

#### **Elimination of Stations**

Individual members of the Commission have, from the very first, realized that elimination of some 300 broadcasters was eventually the only real solution for the present overcrowding of the air channels. This number is approximately the total of those who came on the air during the breakdown of the law in 1926.

But the Commissioners recognized also that important constitutional questions are involved in such license denials and transfers, and that lengthy hearings and in some cases, court action could be expected. To have undertaken denying licenses at the outset might have tied up the Commis-

sion by injunction and court orders, for two or more years, preventing it from making any progress in attacking the big problems it faced back in April and May. The Commissioners, therefore, proceeded to make the best of a bad situation, and carried out both local and national reallocation of existing stations, denying licenses to none.

But now with local stations separated at 50-kilocycle intervals; with all stations on even ten-kilocycle separations; with wave jumpers and power jumpers put back into their proper places as dictated by merit; with the Canadian channels all cleared; and with a-band of some 39 non-heterodyning or cleared channels to be in operation by February 1st, the Commission finds itself in a wholly different situation.

Local and national reception will have been put in the best condition possible with the present number of stations on the air. Further improvements will have to be elimination and transfer of stations not rendering service corresponding to the interference they cause. Court injunctions in such cases cannot now interfere with the clearing that has been accomplished in the long-wave portion of the spectrum. From this time on, the Commission, therefore, can devote itself to clearing up the remainder of the broadcasting band by transfers and denials of licenses.

# Radio Commission Does "Half-Way" Job

*MOST of supposedly clear channels between 300 and 500 meters actually have not been cleared; too many chain programs on so-called cleared waves defeat purpose of the Commission.*

By THOMAS STEVENSON

**A**FTER supposedly clearing twenty-five channels, between 300 and 500 meters (1,000 to 600 kilocycles), the Federal Radio Commission seems to believe that it has gone about as far as it can toward clearing up interference without eliminating a lot of stations.

So the Commission now plans to try to put a lot of stations off the air by refusing them licenses. Court action undoubtedly will result, and the whole thing will be tied up until the constitutionality of the action is determined.

Meantime, experts are saying unkind things about the new arrangement. They believe the Commission has done a very amateurish job of the whole thing.

## Imperfections

There are three flaws in the present arrangement:

1. Most of the channels have not been cleared actually. In almost all cases, each so-called cleared-wave is used by Atlantic and Pacific coast stations. When they operate simultaneously, they interfere with each other.

2. Too large a number of the stations on cleared channels broadcast chain programs. What earthly use is there to clear channels for distance reception if all, or nearly all of the stations on them broadcast the same program?

3. In many instances, stations on the cleared waves use such small power that they cannot deliver programs to distant listeners with any degree of success.

The Commission should remove the above objections to the present arrangement before any attempt is made to "freeze" stations.



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revised Broadcasting Station Log with all Federal Radio Commission changes, in addition to these features:

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# Good Reception Depends on Antenna

*WITHOUT proper aerial and ground, most expensive set will not function satisfactorily; herewith are a few tips on construction of antenna which may produce better results.*

**Q**UANTITY of reception, undoubtedly, depends to a very large extent on the antenna and ground of the receiving set. Without a proper antenna and ground, the receiver cannot function with good results.

Most people give little or no thought to the antenna. They purchase an expensive set, and provide a poor antenna. It is like buying a high-priced car and attempting to run it without gas.

## Function of Antenna

It should be understood that the function of the antenna is to intercept and absorb energy from passing electro-magnetic waves and to deliver this energy, via the antenna lead-in wire, to the receiver.

Re-enforced steel buildings, smoke stacks, metal roofs, gutters, drain pipes, telephone and power lines, etc., in close proximity to the antenna tend to shield it from the radio waves. It is therefore advisable that the site selected for

the erection of the antenna be free from these obstructions.

From a general observation of the large network of wires strung high in the air on steel towers employed by the numerous broadcasting stations, many persons gain the idea that it is necessary for a receiving set to have an elaborate antenna of several wires.

This is an error since a single wire of the proper length is far more efficient and better adapted to the reception of broadcast programs. Many of the best long distance receiving stations use but a single wire antenna.

Here are a few tips about an antenna which, if observed, may improve reception:

The antenna should be of stranded hard copper wire, so that it will not sag. An enameled covering is desirable since it protects the wire from weather and corrosion by exposure to smoke, acid and other fumes.

The wire should be well insulated so that it does not touch the

roof, which would allow the energy collected by the wire to leak off.

If the antenna wire is not too long, the lead-in should be a continuation of the antenna proper.

The lead-in wire should not touch the building, because it will become grounded and most of the energy picked up by the antenna will be absorbed by the building. The lead-in wire should be as short as possible.

#### Entering the House

Usually a porcelain tube 8 or 10 inches long is used to insulate the lead-in wire where it passes into the building. A hole may be bored through the window casing.

If it is not practicable to bore a hole in the window casing, a lead-in strip, one approved by the Underwriters' Laboratories, may be inserted under the sash and the lead-in wire connected to the terminal provided.

#### Tree-supported Antenna

Sometimes it is necessary to support one end of an antenna from a nearby tree. Trees, or other supports, capable of swaying in the wind, are not as a rule desirable for an antenna. This is mainly because such supports are likely to break the antenna during a strong wind and for the reason that trees in the immediate vicinity of the antenna tend to shield it.

However, a tree or other unsteady supports may be used if it is possible to protect the antenna from harmful strain.

#### The Lightning Arrester

The question is often asked, "Will the installation of an outdoor antenna be a source of danger to my house during an electrical storm?"

The answer is, it will not any more than would electric light or telephone wires, provided the installation is protected with a lightning arrester and a ground wire. As a matter of fact, a properly installed and protected antenna is a safeguard against lightning.

An explanation of the protection afforded by the arrester may be of interest. Any electrical charge induced in the antenna by a flash of lightning would follow the lead-in wire to the lightning arrester. If the charge were of sufficient strength to be at all harmful, it would jump the small air, or vacuum-gap in the arrester and then follow the ground wire to earth via the water or radiator pipe to which the wire is attached. A similar method of lightning protection is used for telephone wires in the home and is fully capable of providing ample protection for the very slight risk involved.

#### The Ground

An otherwise perfect installation will not be satisfactory unless the ground is efficient. Connecting the ground wire from receiving set to a cold water pipe is usually best. Scrape the pipe with a file and sandpaper until it is bright and

clean. Place a piece of tinfoil around the pipe and put the ground clamp on top of the foil. Tighten the clamp in position. One type of ground clamp has a pointed screw which bites into the pipe when tightened and this is excellent for making a good joint.

It is suggested that No. 12 wire, or larger, be used for the ground connection to give it a low resistance. Insulated wire is preferable to prevent oxidization which would greatly increase its radio frequency resistance.

The ground wire may be soldered directly to the pipe if desired, although it is not at all necessary. It is usually more trouble than it is actually worth. Use a good ground clamp.

Gas pipes are usually insulated by a rubber coupling as they enter the meter. This is to prevent a lightning charge from igniting the gas, should the building be struck by lightning. Since the gas pipes do not, as a rule, enter the ground until they have passed through the meter, a gas pipe is not a good ground. Hot water piping is sometimes insulated in a similar manner.

In apartment houses it often happens that a cold water pipe is not available or too far from the set to be used. In such a case, a substitute ground may be had by attaching the lead to one of the screws which hold a metal electric light switch, or an outlet plate to the wall. The connection also may

be made to the grounded side of the electric line itself. But these are substitute grounds, and a cold water pipe ground is preferable.

In the country, a pipe driven into the ground, or any junk metal buried several feet in the damp soil is the best ground. If the soil is moist and the metal buried deep, this type of ground is even better than a water pipe ground.

### Indoor Antenna

In locations where an outdoor antenna is not feasible, there are two alternatives, either of which usually proves satisfactory.

The first is to loosen one of the screws holding the metal plate that covers each floor outlet or wall switches and connecting a wire from the antenna connection on the receiver to this loosened screw, making the connection tight by tightening the screw firmly on the wire. This gives an inductive connection to the house wiring system or else a direct connection to the metal conduit. In most instances it will work perfectly satisfactorily.

Then there are the regular antenna plugs which can be used which plug into any electric light socket and effect an antenna connection to the house wiring system but do not use any current.

Either of these methods is usually superior to the so-called indoor antenna which is made by stringing an antenna wire around the moldings of the room.

# Interference Can Be Eliminated

*LARGE percentage of causes of howls in the radio receiver are located in the home or in the set itself and may be disposed of by a little time and attention. Here is how.*

**A** LARGE percentage of interference that spoils radio reception is caused by electrical devices inside the home.

Most people are unable to determine the reason for the howls and shrieks which cause them to forget their New Year's resolutions.

All they know or care about is the effect. Upon the heads of innocent amateurs and broadcasters are showered epithets of impatience and rage.

Matter of fact, it is a comparatively simple task to locate the cause of many of the objectionable noises and to eliminate them.

Herewith an attempt is made to try to explain in a non-technical way how to locate the trouble and remove it.

The first thing to do is to disconnect the aerial and ground. Connect the aerial and ground terminals of the set together with a piece of bare wire.

If the noise stops, it is safe evidence that the interference is being picked up by either the aerial or ground and it becomes reasonable

to suppose that the source of trouble is not in the set.

## Check Batteries

If the noise is still observable after aerial and ground have been connected, take a look at the batteries.

B batteries begin to howl as a general rule when they have lost about thirty per cent of their initial voltage. Like all general rules this one does not always apply. Some B batteries will go on and on without a hint of protest until they have ceased to operate the set.

If a C battery is disconnected in audio circuits which call for such an animal there is a noticeable trumpeting roar.

Old and badly sulphated A batteries develop crackling noises which generally can be detected by placing the terminals of a pair of head phones across them. A normal battery producing a steady flow of current should cause no audible sounds in the head-phones. Variations, however, are readily picked up.

So, in testing the batteries begin by examining them for charge. If the B batteries have dropped ten volts out of a possible forty-five, get new ones. If the A battery crackles three courses are open: 1—Give it a charge; 2—Consult a battery man; 3—Sit down and talk to it.

C batteries do not run down rapidly inasmuch as they are subject to no drain at all. However, all dry cell combinations made to date have a shelf-life limited to the rapidity of which the zinc containers of the cells corrode. See that this battery also has something like its rated voltage.

### Corrosion

If all voltages are correct the terminal connections of the power supplies should be investigated closely. Storage batteries are subject to the operations of a phenomenon known as acid-creepage. Some sulphuric acid will collect on the surface of the most closely watched cell of the lead-acid type and it is the nature of sulphuric acid to draw moisture out of the air. Moisture makes possible further spreading of acid and likewise catches dust in quantities sufficient to put a high resistance leak across the top of the battery.

At the same time the acid creepage is certain to affect clips and leads—particularly at the positive pole. A coating of vaseline will keep down corrosion to a certain extent. A wash with a solution of

soda will remove verdigris that has already formed.

Corrosion is a noise producer in two ways: 1—It makes for a defective connection; 2—It is quite likely to eat through the insulation of battery cables and eventually a break in the wire. Such matters should be looked into carefully.

When B eliminators are used the tests are not so simple, but this is due more to lack of testing equipment than to any other cause. If you can borrow a set of B batteries known to be in good condition and substitute them temporarily for the eliminator, you can readily determine if the noise emanates from that source.

### Battery Cables

If the battery supply passes muster, the next step is to trace the connecting cable to the set. See that it is not broken. Where binding posts are employed for battery connections, make certain that they are screwed down tightly and that the leads to instruments in the set are not broken. Where connection is made by means of a plug, examine the individual prongs and set leads. Some corrosion may be found here.

If everything is all right thus far, look for a defective tube. Great varieties of apparatus are now on the market for making such tests, but the simplest method is to take a tube of known antecedents and performance and substitute it for the other tubes, one after another.

For this test it is best to reconnect the aerial and ground. Thus the difference between good and bad tubes may be readily detected by the volume of the broadcast.

Microphonic tubes may be located by the same method.

Sockets occasionally cause trouble through corroded, loose or bent prongs. Corrosion may be removed with fine sandpaper.

Examine jack springs and soldered connections, touching suspected parts with a glass rod or strip of bakelite. If the probe results in a grating noise or sputter there is a loose joint.

To test variable condensers, remove tubes and apply the leads from 22½ volts of B battery to the terminals. If a spark results, trouble is due to defective insulation or scraping plates.

Test gridleaks by replacing with other leaks of varying values until one is found that works quietly.

Test loudspeaker cords by shaking or twisting. If noises result from this treatment, replace the cords.

If none of these tests reveal the lurking place of the noise, it seems safe to look for it elsewhere. Of course, through some unusual combination of circumstances the defect still may be due to some broken or damaged apparatus inside the set—a blown audio transformer, for instance, or a leaky fixed condenser. But nowadays such difficulties are so infrequent as to be negligible.

## Electric Appliances

Note if any household appliances, such as electric irons, fans, violet-ray machines and the like are turned on. If so turn them off and note result, if any, in the loudspeaker.

This home survey immediately disposes of a multitude of suspects. If the noise stops when any kitchen gadget is switched off the conclusion is obvious.

In flat dwelling where there are a number of apartments it is obviously impossible to make this test thorough. A violet-ray machine or an unfiltered battery charger is quite capable of spoiling reception for everybody within half a block. In many a search for interference, some disturbances have been located only after long search with a radio compass.

Switch off the light current at a point where the line enters the house. See if that has any effect on the noise.

Observe the time at which the disturbance occurs and see if it coordinates with other occurrences at the same moment. For instance, thermostat trips of the trigger of an oil burning furnace. It is easy to observe whether or not the objectionable sound is increased by passing of a street car or the starting of an elevator.

If disturbances are coincident with the ringing of the door or telephone bells, or if they occur when the house is shaken by heavy

(Please turn to page 84)

# Radio Tube is Soul of Receiver

*UPON it rests responsibility for detecting, amplifying and rectifying broadcast transmissions; herewith is a simple explanation of the function of the radio tube.*

**W**HAT and why is the tube used in the radio receiving set?

Radio tubes have three functions. They "detect"—that is, allow more of the audio current variations to flow in one direction and not so much in the other. This results in audio pulsations or tones which can be heard by the human ear.

They "amplify"—that is transmit these tiny impulses to the larger current which they control, and thus enlarge, magnify or amplify them.

They "rectify"—that is, they only permit an electric current to pass in one direction.

## Sound Vibrations

Have you ever seen a "picture" of the vibrations of music or speech? Looks like a row of very jagged and irregular saw teeth.

These are the vibrations of various strengths or intensity which strike our ear drums as sound. If you look closely, you can actually see these vibrations when a tightly stretched banjo or violin string is sounding.

The loudspeaker is simply a machine or device to convert these electrical vibrations to sound vibrations which are transmitted to the ear by means of air waves. It has a diaphragm in the case of a horn type speaker and a balanced armature that transfers its vibration to a paper cone in the improved cone speaker.

Vibration of the diaphragm or armature is controlled by the trigger or valve action of the grid of the tube which in turn controls the electronic emission flow from the heated filament to the attractive positively charged plate of the tube. Hence, the electrical variations of the grid are impressed upon the

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plate in a magnified form depending upon the amplification factor of the tube.

These electrical variations of voltage in the plate or output circuit of the last audio amplifier tube are what actuate the driving mechanism of the loud speaker.

### Tube Controls Current

As long as there are no vibrations, the current will flow steadily and there is no sound. When the current or voltage stops and starts rapidly there are sounds varying in tone according to the rapidity of the original vibrations impressed upon the first audio amplifier grid because this action is repeated in each audio stage.

To represent this action by a mechanical analogy, let us suppose that we have a pipe with a very delicate valve so wonderfully balanced that the slightest touch will enable you to control a large stream of water. The pressure of the water, which is analogous to the voltage on the plate of the tube, is the force that drives the water through the pipe.

If the valve is opened slightly there will be an increased flow of water the same as the current in the tube output circuit.

The radio tube grid is so sensitive that the inconceivably tiny radio waves coming from the broadcasting station will operate it, and yet it controls the current which makes your loudspeaker diaphragm vibrate.

## INTERFERENCE CAN BE ELIMINATED

(Continued from page 62)

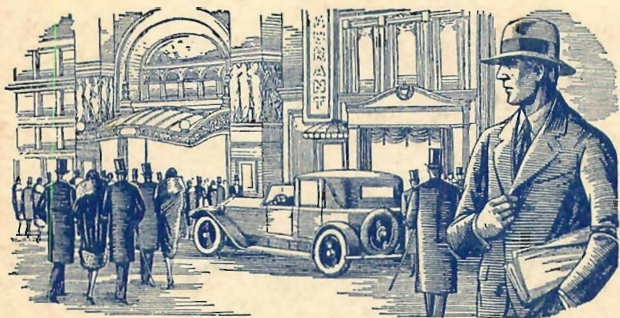
traffic outside, location of the source is not difficult—In one case the telephone company probably will leap to the rescue, in the other somebody had better start out to find a loose connection.

### Aerial and Ground

Investigate the condition of the aerial and ground. This measure, manifestly is indicated only if tests seem to show the disturbance to be of an outside origin. However, it never does any harm to look at an aerial on any pretext. They are frequently hoisted only to be forgotten, these handsome ornaments. They can develop more ailments than an office boy but one expects somehow to find them always sturdy and unharmed.

Make sure that insulators are not cracked or dirty, that the aerial itself is not touching other aerials or trailing on the surface of the roof; that it is not parallel to electric lines, that the lead-in wire is electrically connected to it; that neither the aerial nor lead-in wire is being scraped by trees, and that neither wire is anchored to telephone or electric light poles.

In most cases when a set will not function properly except on local programs, it is due to the antenna or ground or both. With a good antenna and ground, much better results will be obtained.



*Always outside of things—that's where I was just twelve short months ago. I just didn't have the cash, that was all. What a difference today! I drive my own car, have a good bank account, enjoy all the amusements I please.*

## I Couldn't Get the Good Things of Life Then I Quit My Job and "Found" Myself

How does a man go about making more money? I asked myself that question a hundred times!

I know the answer now—you bet. I know the way good money is made, and I'm making it. I own one of the finest Radio stores you ever saw.

But—it's just a year ago that I was a poorly-paid clerk, struggling along on a starvation salary, until by accident I saw just what was the matter with me. Here's the story of how it happened:

One of the big moments of my life had come. I had just popped the fatal question, and Louise had said "Yes!"

Louise wanted to go in and tell her father about it right away, so we did. He asked Louise to leave us alone.

"So you and Louise have decided to get married," he said to me when we were alone. "Well, Bill, just listen to me. I've watched you often here at the house with Louise and I think you're a pretty good, upstanding young fellow. But let me ask you just one question—how much money do you make?"

"Twenty-eight a week," I told him. He didn't say a word—just wrote it down on a piece of paper.

"Have you any prospects of a better job or a good raise sometime soon?" he asked.

"No, sir, I can't honestly say that I have," I admitted. "I'm looking for something better all the time, though."

"Looking, eh? How do you go about it?" Well, that question stopped me.

When he saw my confusion he grunted. "I thought so," he said, then he held up some figures he'd been scribbling at.

"I've just been figuring out your family budget, Bill, for a salary of twenty-eight a week. I figure you can afford a very small unfurnished apartment, with inexpensive furniture, pay your electricity, gas and water bills, buy just about one modest outfit of clothes for both of you once each year, and save three dollars a week for sickness, insurance and emergencies. But you can't eat. And you'll have to go without amusements."

I began to turn red as fire. "That's enough, Mr. Sullivan," I said. "I can see things pretty clearly now, things I was kidding myself over." And home I went, my mind in a whirl.

I began to thumb the pages of a magazine which was lying on the table beside me. Suddenly an advertisement seemed almost to leap out at my eyes, an advertisement telling of big op-

portunities for trained men to succeed in the great new Radio field. I sent the coupon in, and in a few days received a handsome 64-page book, printed in two colors, telling all about the opportunities in the Radio field and how a man can prepare quickly and easily at home to take advantage of these opportunities.

What's happened in the twelve months since that day seems almost like a dream to me now.

Now I'm making real money. Louise and I have been married six months. I'll bet that to-day I make more money than the old boy himself.

Here's a real tip. You may not be as bad off as I was. But—are you satisfied? Are you making enough money, at work that you like? Would you sign a contract to stay where you are now for the next ten years, making the same money?

This new Radio game is a live-wire field of golden rewards. The work, in any of the 20 different lines of Radio, is fascinating, absorbing, well paid. The National Radio Institute—oldest and largest Radio homestudy school in the world—will train you inexpensively in your own home to know Radio from A to Z.

Take another tip—No matter what your plans are, no matter how much or how little you know about Radio—clip the coupon below and look their free book over. You will place yourself under no obligation—the book is free, and is gladly sent to anyone who wants to know about Radio. Just address J. E. Smith, President, National Radio Institute, Dept. 3-W, Washington, D. C.

J. E. SMITH, President, National Radio Institute, Dept. 3-W, Washington, D. C.

Dear Mr. Smith: Please send me your 64-page free book, printed in two colors, giving all information about the opportunities in Radio and how I can learn quickly and easily at home to take advantage of them. I understand this request places me under no obligation, and that no salesman will call on me.

Name -----  
Address -----  
Town -----