

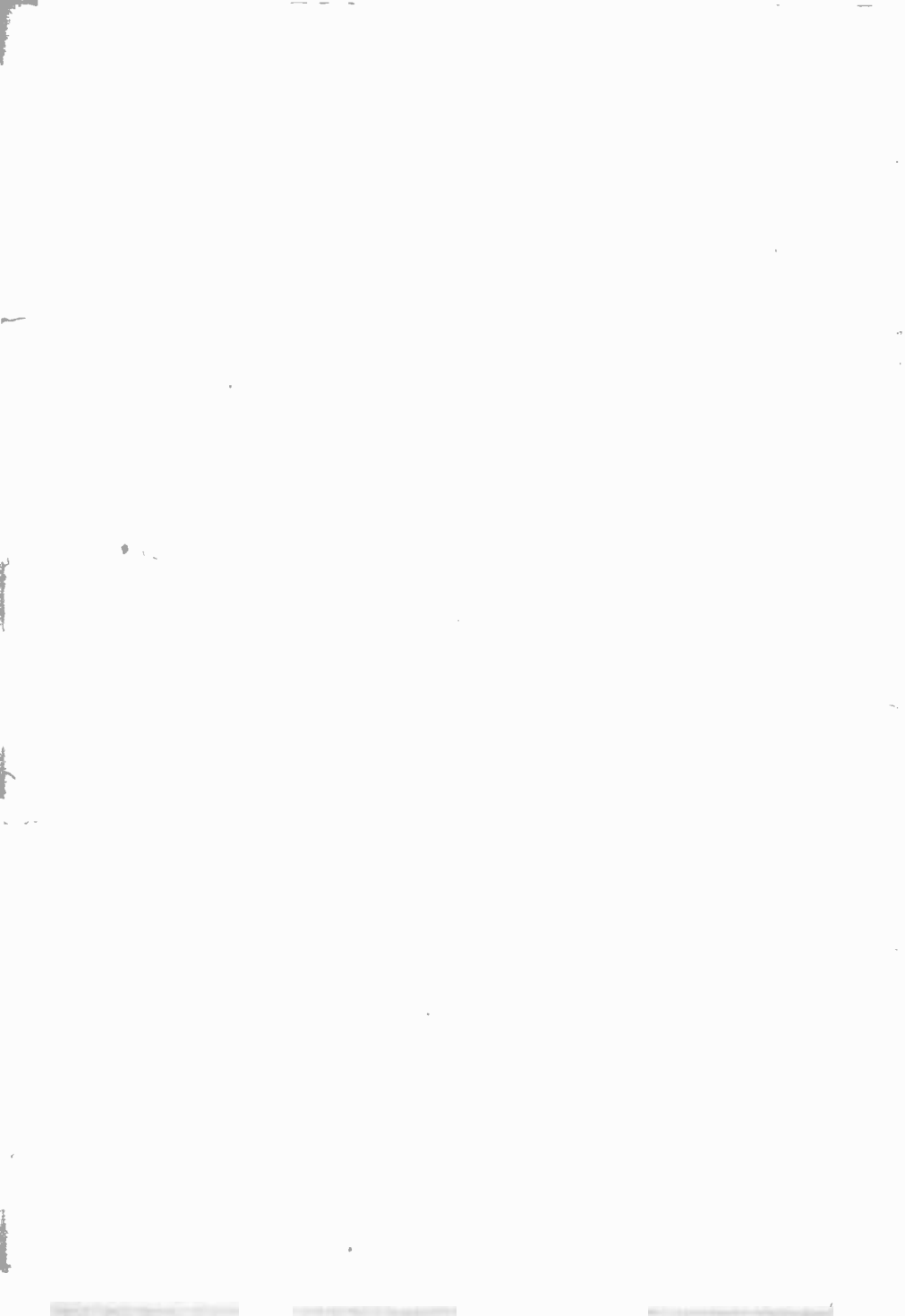
RADIO

LOG *and* CALL *Book*

By Merle Duston



*With Helpful Suggestions on Construction
... and Operation of Radio Receivers ...*



RADIO LOG AND CALL BOOK

WITH HELPFUL SUGGESTIONS ON CARE AND
OPERATION OF RADIO RECEIVERS

by MERLE DUSTON



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BROADCASTING STATIONS

CALL	STATION OWNER	. LOCATION	P ^{wr} W ^{ts}	Wave L ^{ngth}	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
AT6	135th F. A.—O. N. G.	Canton, Ohio	....	425	910				
AT9	U. S. Government	Ft. Bragg, N. C.	750	435	685				
AV7	6th Inf. Minn. Nat. Guard	St. Paul, Minn.	....	400	750				
AW5	McCook Field	Dayton, Ohio	....	.....	.....	
KDKA	Westinghouse El.&Mfg. Co.	E. Pittsburg, Pa.	1000	309.1	970	25	21	16	
KDLR	Radio El.&Wilson Ins. Agy.	Devil's Lake, N. D.	5	231					
KDPM	Westinghouse El.&Mfg. Co.	Cleveland, Ohio	750	250	1200				
KDYL	Newhouse Hotel	Salt Lake City, Utah	50	246	1220				
KDZB	Frank E. Siefert	Bakersfield, Calif.	100	209.7	1430				
KFAB	Nebraska Buick Auto Co.	Lincoln, Nebr.	1000	340.7	880	30 1/2	26 1/2		
KFAD	McArthur Bros. Merc. Co.	Phoenix, Ariz.	100	273	1100	31	27	2	
KFAF	A. E. Fowler	San Jose, Calif.	50	217.3	1380				
KFAJ	University of Colorado	Boulder, Colo.	100	261	1150				
KFAU	Boise High School	Boise, Idaho	750	282.8	1060				
KFBB	F. A. Buttrey & Co.	Havre, Mont.	50	275	1090				
KFBC	W. K. Azvill	San Diego, Calif.	70	224	1340				
KFBG	First Presbyterian Church	Tacoma, Wash.	50	250	1200				
KFBL	Leese Bros.	Everett, Wash.	100	224	1340				
KFBS	School Dist. No. One	Trinidad, Colo.	15	238	1220				
KFBU	The Cathedral	Laramie, Wyo.	500	270	1110				
KFCB	Nielson Radio Supply Co.	Phoenix, Ariz.	100	238	1260				
KFCF	Frank A. Moore	Walla Walla, Wash.	100	256	1170				
KFDD	St. Michael's Cathedral	Boise, Idaho	50	275	1080				
KFDJ	Oregon Agricultural College	Corvallis, Oregon	500	282.8	1060				
KFDM	Magnolia Petroleum Co.	Beaumont, Texas	500	315.6	952				
KFDX	First Baptist Church	Shreveport, La.	100	250	1200				
KFDY	S. Dak. College of Agric.	Brookings, S. Dak.	100	273	1100				
KFDZ	Harry O. Iverson	Minneapolis, Minn.	10	231	1300				
KFEC	Meyer & Frank Co.	Portland, Oregon	50	248	1210				

BROADCASTING STATIONS

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CALL	STATION OWNER	LOCATION	P ^{wr} W ^{ts}	Wave L ^{ngth}	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
KFEL	W. L. Winner Radio Shop	Denver, Colo.	50	254	1180				
KFEQ	Scroggin & Co. Bank	Oak, Nebraska	500	268	1120				
KFEY	Bunker Hill & Sullivan Mining & Concentrating Co.	Kellogg, Idaho	10	233	1290				
KFFP	First Baptist Church	Moberly, Mo.	50	242	1240				
KFGC	Louisiana State University	Baton Rouge, La.	100	268	1120				
KFGH	Leland Stanford University	Stanford Univ. Cal.	500	270	1110				
KFGQ	Crary Hardware Co.	Boone, Iowa	10	226	1330				
KFHA	Western State Col. of Colo.	Gunnison, Colo.	50	252	1190				
KFHL	Penn. College	Oskaloosa, Iowa	10	240	1250				
KFI	Earl C. Anthony, Inc.	Los Angeles, Calif.	3000	467	640				
KFIF	Benson Polytechnic Inst.	Portland, Oregon	100	248	1210				
KFIQ	First Methodist Church	Yakima, Wash.	100	256.3	1170				
KFIU	Alaska Elec. Lt. & Pr. Co.	Juneau, Alaska	10	226	1330				
KFIZ	Daily Commonwealth & Wisconsin Radio Sales	Fond du Lac, Wis.	100	273	1100				
KFJB	Marshall Elec. Co.	Marshalltown, Iowa	10	248	1210				
KFJC	Episcopal Church	Junction City, Kans.	10	218.8	1370				
KFJF	Nat'l. Radio Mfg. Co.	Oklahoma City, Ok.	500	261	1150				
KFJI	Liberty Theatre	Astoria, Oregon	10	246	1220				
KFJM	University of N. Dak.	Grand Forks, N. D.	100	278	1080				
KFJR	A. C. Dixon & Son	Portland, Oregon	50	263	1140				
KFJX	Ia. State Teacher's College	Cedar Falls, Iowa	50	258	1160				
KFJY	Tunwall Radio Co.	Fort Dodge, Iowa	50	246	1220				
KFJZ	Southwestern Baptist Theol. Seminary	Fort Worth, Texas							
KFKA	Colo. State Teacher's Col.	Greeley, Colo.	50	273	1100				
KFKU	University of Kansas	Lawrence, Kans.	500	275	1090				
KFKX	Westinghouse Electric & Manufacturing Co.	Hastings, Nebr.	5000	288.3	1040				
KFKZ	F. M. Henry	Kirksville, Mo.	10	266	1330				

BROADCASTING STATIONS

CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
KFLR	University of New Mexico	Albuquerque, N.M.	100	254	1180				
KFLU	San Benito Radio Club	San Benito, Texas	10	236	1270				
KFLV	Swedish Eva. Mission Ch.	Rockford, Ill.	200	229	1310				
KFLX	Geofge R. Clough	Galveston, Texas	10	240	1250				
KFLZ	Atlantic Automobile Co.	Atlantic, Iowa	100	273	1250				
KFMQ	University of Arkansas	Fayetteville, Ark.	750	299.8	1000				
KFMR	Morningside College	Sioux City, Iowa	100	261	1150				
KFMW	M. G. Sateren	Houghton, Mich.	50	263	1140				
KFMX	Carleton College	Northfield, Minn.	500	336.9	890				
KFNF	Henry Field Seed Co.	Shenandoah, Iowa	500	263	1140		64	61	
KFOA	Rhoades Department Store	Seattle, Wash.	1000	454.3	660				
KFOB	Albert Sherman	Burlingame, Calif.	50	226	1330				
KFOJ	Moberly High School	Moberly, Mo.	10	242	1240				
KFON	Echophone Radio Shop	Long Beach, Calif.	500	233	1290				
KFOO	Latter Day Saints Univ.	Salt Lake City, Utah	250	236	1270				
KFOR	David City Tire & Elec. Co.	David City, Nebr.	100	226	1330				
KFOT	College Hill Radio Club	Wichita, Kans.	50	231	1300				
KFOX	Technical High School	Omaha, Nebr.	100	248	1210				
KFOY	Beacon Radio Service	St. Paul, Minn.	50	252	1190				
KFPL	C. C. Baxter	Dublin, Texas	15	252	1190				
KFPM	New Furniture Co.	Greenville, Texas	10	242	1240				
KFPR	Los Angeles Co. Forest Dep.	Los Angeles, Calif.	500	231	1300				
KFPW	St. John's Church	Cartersville, Mo.	20	258	1160				
KFPY	Symons Investment Co.	Spokane, Wash.	100	266	1130				
KFQA	The Principia	St. Louis, Mo.	50	261	1150				
KFQB	Searchlight Pub. Co.	Fort Worth, Texas	200	263	1140		78	76	
KFQP	G. S. Carson, Jr.	Iowa City, Iowa	10	224	1340				
KFQU	W. E. Riker	Alma, Calif.	100	217.3	1380				
KFQW	C. F. Knierim	North Bend, Wash.	50	215.7	1390				

BROADCASTING STATIONS

CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
KEQZ	Taft Prod. Co.	Hollywood, Calif.	50	226	1330				
KFRB	Hall Bros.	Beeville, Texas	250	248	1210				
KFRC	City of Paris DryGoods Co.	San Francisco, Calif.	50	268	1120				
KFRM	Lt. James P. Boland, U.S.A.	Fort Sill, Okla.	50	242	1240				
KFRU	Stephens College	Columbia, Mo.	500	499.7	600				
KFRW	United Churches of Olympia	Olympia, Wash.	50	218	1370				
KFRY	N. Mex. College of Agri. & Mechanical Arts	State Col. N. M.	50	266	1130				
KFSG	Echo Park Evangelistic Association	Los Angeles, Calif.	500	275	1090				
KFUJ	Hopper Plumbing Co.	Breckenridge, Minn.	50	242	1240				
KFUL	Thos. Goggan & Bros.	Galveston, Texas	50	258	1160				
KFUM	W. D. Corley	Colo. Springs, Colo.	100	242	1240				
KFUO	Concordia Seminary	St. Louis, Mo.	500	545.1	550		92	90	65
KFUP	Fitzsimmons Gen'l. Hosp.	Denver, Colo.	50	234	1280				
KFUR	Peery Bldg. Co.	Ogden, Utah	100	224	1340				
KFUS	Louis L. Sherman	Oakland, Calif.	50	256	1170				
KFUT	University of Utah	Salt Lake City, Utah	100	261	1150				
KFUU	Colburn Radio Lab.	Oakland, Calif.	50	220	1360				
KFUV	G. Pearson Ward	Springfield, Mo.	10	252	1190				
KFVD	McWhinnie Electric Co.	San Pedro, Calif.	50	205.4	1460				
KFVE	Film Corp. of America	St. Louis, Mo.	500	240	1250				
KFVG	First Methodist Episc. Ch.	Independence, Kans.	10	236	1270				
KFVH	Whan Radio Shop	Manhattan, Kans.	15	218.8	1370				
KFVI	56th Cav. Brig. Hdq. Troop	Houston, Texas	10	240	1250				
KFVN	Carl E. Bagley	Welcome, Minn.	50	227	1320				
KFVR	Eugene Rossi	Denver, Colo.	50	244	1230				
KFVS	Cape Girardeau Bat. Sta.	Cape Girardeau, Mo.	50	224	1340				
KFVU	Standard Publishing Co.	Eureka, Calif.	5	209.7	1430				
KFVW	Airfan Radio Corp.	San Diego, Calif.	500	246	1200				

BROADCASTING STATIONS

CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
KFVY	Radio Supply Co.	Albuquerque, N.M.	10	250	1200				
KFWA	Browning Bros. Co.	Ogden, Utah	500	261	1150				
KFWB	Warner Bros. Pictures, Inc.	Hollywood, Calif.	500	252	1190				
KFWC	L. E. Wall	Upland, Calif.	50	211.1	....			
KFWD	Arkansas Lt. & Pr. Co.	Arkadelphia, Ark.	500	266	1130				
KFWF	St. Louis Truth Center	St. Louis, Mo.	250	214.2	1400				
KFWH	F. Wellington Morse, Jr.	Chico, Calif.	100	254	1180				
KFWI	Radio Entertainments, Inc.	S. San Francisco, Cal.	500	226	1330				
KFWM	Oakland Educ. Society	Oakland, Calif.	500	206.8	1450				
KFWO	Lawrence Mott	Avalon, Calif.	250	211.1	1420				
KFWP	Rio Grande Radio Sup. Co.	Brownsville, Texas	10	214.2	1400				
KFWU		Pineville, La.	100	238	1260				
KFWV	Wilbur Jerman	Portland, Oregon	50	212.6	1410				
KFXB	B. O. Heller	Big Bear Lake, Calif.	500	202.6	1480				
KFXC	Santa Maria Val. R.R. Co.	Santa Maria, Calif.	100	209.7	1430				
KFXD	L. H. Strong	Logan, Utah	10	205.4	1460				
KFXE	Elec. Research & Mfg. Co.	Waterloo, Iowa	10	236	1270				
KFXF	Pikes Peak Broadcast Co.	Colo. Springs, Colo.	500	250	1200				
KFXH	Bledsoe Radio Co.	El Paso, Texas	50	242	1240				
KFXJ	Mt. States Radio Distribtrs	Portable, Denver,	10	215.7	1390				
KFXM	Neches Elec. Co.	Beaumont, Texas	10	227	1320				
KFXR		Oklahoma City, Ok.	15	214	1400				
KFXY	Mary Costigan	Flagstaff, Ariz.	50	205.4	1460				
KFYF	Carl's Radio Den	Oxnard, California	10	205.4	1460				
KFYJ	Houston Chronicle Pub. Co	Houston, Tex.	10	238	1260				
KFYR	Hoskins-Meyer	Bismarck, N. Dak.	10	248	1210				
KGB	Tacoma Daily Ledger	Tacoma, Wash.	100	250	1200				
KGO	General Electric Co.	Oakland, Calif.	3000	361.2	830				
KGTT	Glad Tidings Tabernacle	San Francisco, Calif.	50	234	1280				

BROADCASTING STATIONS

CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
KGU	Marion A. Mulrony	Honolulu, Hawaii	500	270	1110				
KGW	Portland Morn. Oregonian	Portland, Oregon	500	491.5	610				
KGY	St. Martin's College	Lacey, Wash.	50	246	1220				
KHJ	Times Mirror Co.	Los Angeles, Calif.	500	405.2	1220				
KHQ	Louis Wasmer	Spokane, Wash.	500	273	1100				
KIAF	Steele Co.	Sihtipoc, Minn.	500	421	712				
KJBS	Julius Branton & Sons Co.	San Francisco, Calif.	5	220	1360				
KJR	Northwest Radio Serv. Co.	Seattle, Wash.	1000	384.4	780				
KLDS	Re-organized Church of Jesus Christ of Latter Day Saints	Independence, Mo.	1000	440.9	680				
KLS	Warner Bros. Radio Sup. Co.	Oakland, Calif.	250	252	1200				
KLX	Tribune Publishing Co.	Oakland, Calif.	500	508.2	590				
KLZ	Reynolds Radio Co.	Denver, Colo.	250	266	1130				
KMA	May Seed & Nursery Co.	Shenandoah, Iowa	500	252	1190	6461			
KMJ	Fresno Bee	Fresno, Calif.	50	234	1280				
KMMJ		Clay Center, Nebr.	500	229	1310		4145		
KMO	Love Electric Co.	Tacoma, Wash.	100	250	1200				
KMTR	Olive S. Garretson	Los Angeles, Calif.	500	238	1260				
KNRC	Kierulff & Ravencroft	Los Angeles, Calif.	250	208.2	1430				
KNX	Los Angeles Express	Los Angeles, Calif.	500	336.9	890				
KOA	General Electric Co.	Denver, Colo.	5000	322.4	930				
KOB	N.M. Col. of Agri. & Mech. Art	State College, N.M.	1000	348.6	860				
KOCH	Central H. S.	Omaha, Nebr.	250	258	1160				
KOCW	Okla. College for Women	Chickasha, Okla.	200	252	1190				
KOIL	Monarch Mfg. Co.	Council Bluffs, Iowa	500	278	1080				
KPO	Hale Bros.	San Francisco, Calif.	1000	428.3	700				
KPPC	Pasadena Pres. Church	Pasadena, Calif.	50	229	1310				
KPRC	Post Dispatch	Houston, Texas	500	296.9	1010				
KPSN	Pasadena Star-News	Pasadena, Calif.	1000	315.6	950				

BROADCASTING STATIONS

CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
KQP	H. B. Read	Portland, Oregon	500	212.6	1410				
KQV	Doubleday-Hill Elec. Co.	Pittsburg, Pa.	500	275	1090				
KQW	1st Baptist Church	San Jose, Calif.	500	231	1300				
KRE	Berkeley Daily Gazette	Berkeley, Calif.	150	256	1170				
KSAC	Kansas State Agri. College	Manhattan, Kans.	500	340.7	880				
KSD	Post Dispatch	St. Louis, Mo.	500	545.1	550				
KSL	Desert News	Salt Lake City, Utah	1000	299.8	1000				
KSO	A. A. Berry Seed Co.	Clarinda, Iowa	500	242	1240				
KTAB	Tenth Ave. Baptist Church	Oakland, Calif.	1000	240	1250				
KTBI	Bible Inst. of Los Angeles	Los Angeles, Calif.	750	293.9	1020				
KTBR	Brown's Radio Shop	Portland, Oregon	50	263	1140				
KTCL	American Radio & Tel. Co.	Seattle, Wash.	1000	305.9	980				
KTHS	New Arlington Hotel	Hot Springs, Ark.	750	374.8	800				
KTNT	Norman Baker	Muscataine, Iowa	500	256	1170				
KTW	First Presbyterian Church	Seattle, Wash.	1000	454.3	660				
KUO	Examiner Printing Co.	San Francisco, Calif.	150	250	1200				
KUOM	University of Montana	Missoula, Mont.	250	244	1230				
KUSD	University of S. D.	Vermillion, S. D.	200	278	1080				
KUT	University of Texas	Austin, Texas	500	231	1300				
KVOO	Voice of Oklahoma	Bristow, Okla.	500	374.8	800				
KWCR	H. F. Paar	Cedar Rapids, Iowa	500	278	1080				
KWG	Portable Wireless Tel. Co.	Stockton, Calif.	50	248	1210				
KWKC	Wilson Duncan Studios	Kansas City, Mo.	100	236	1270				
KWKH	W. G. Patterson	Kennonwood, La.	500	261	1150				
KWSC	Wash. State College	Pullman, Wash.	500	348.6	860				
KWUC	Western Union College	LeMars, Iowa	50	252	1190				
KWWG	City of Brownsville	Brownsville, Texas	500	278	1080				
KYW	Westinghouse El.&Mfg. Co.	Chicago, Ill.	2000	535.4	560				
KZKZ	Radio Corp. of Philippines	Manila, P. I.	500	272	1100				

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44 37

88 62 85

BROADCASTING STATIONS

CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
KZRQ	Far Eastern Radio, Inc.	Manila, P. I.	500	375	800				
KZM	Hotel Oakland	Oakland, Calif.	100	240	1250				
KZUY	F. Johnson Elser	Bagio, P. I.	500	360	833				
NAA	U. S. Navy	Radio, Va.	1000	434.5	1290				
PWX	International Tel. & Tel. Co.	Havana, Cuba	500	400	750				
WAAB	Valdemar Jensen	New Orleans, La.	100	268	1120				
WAAD	Ohio Mechanics Institute	Cincinnati, Ohio	25	258	1160				
WAAF	Chgo. Daily Drivers Jm'l.	Chicago, Ill.	200	278	1080				
WAAM	I. R. Nelson Co.	Newark, N. J.	500	263	1140				
WAAW	Omaha Grain Exchange	Omaha, Nebr.	500	384.4	780				
WABB	Harrisburg Sporting Goods	Harrisburg, Pa.	10	266	1130				
WABC	Asheville Battery Co.	Asheville, N. C.	20	254	1180				
WABD	Parker High School	Dayton, Ohio	5	283	1060				
WABI	First Univ. Church	Bangor, Maine	100	240	1250				
WABO	Lake Ave. Baptist Church	Rochester, N. Y.	100	278	1080				
WABQ	Haverford Col. Radio Club	Haverford, Pa.	100	261	1150				
WABR	Scott High School	Toledo, Ohio	50	263	1140				
WABW	College of Wooster	Wooster, Ohio	50	206.8	1450				
WABX	Henry B. Joy	Mt. Clemens, Mich.	500	246	1220				
WABY	John Magaldi, Jr.	Philadelphia, Pa.	50	242	1240				
WABZ	Coliseum Pl. Baptist Ch.	New Orleans, La.	50	275	1090				
WADC	Allen Theatre	Akron, Ohio	500	258	1160				
WAFD	Albert B. Parfet Co.	Pt. Huron, Mich.	500	275	1090				
WAGM	R. L. Miller	Royal Oak, Mich.	50	258.6	1160				
WAHG	A. H. Grebe & Co.	Richmond Hill, N.Y.	500	315.6	950				
WAIT	A. H. Waite & Co.	Taunton, Mass.	10	229	1310				
WAIU	American Insurance Union	Columbus, Ohio	500	293.9	1020				
WAMD	Hubbard & Company	Minneapolis, Minn.	1000	244	1230				
WBAA	Purdue University	Lafayette, Ind.	250	273	1100				

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BROADCASTING STATIONS

CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngh	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
WBAK	Penn. State Police	Harrisburg, Pa.	500	275	1090				
WBAL	Consol. Gas, Electric Light & Power Co.	Baltimore, Md.	1000	374.8	800				
WBAO	James Milliken University	Decatur, Ill.	100	270	1110				
WBAP	Wortham-Carter Pub. Co.	Ft. Worth, Texas	1500	475.9	630		67 1/2		7674
WBAR	Kopp Radio Co.	Sisih, Wis.	500	406	739				
WBAX	John H. Stenger, Jr.	Wilkes Barre, Pa.	100	256	1170				
WBAY	Western Electric Co.	New York, N. Y.	500	492	610				
WBBF	Georgia Tech. Institute	Atlanta, Ga.	500	270	1110				
WBBL	Grace Covenant Church	Richmond, Va.	100	229	1310				
WBBM	Atlas Investment Co.	Chicago, Ill.	1500	226	1330		9 1/2	4 1/2	
WBBP	Petoskey High School	Petoskey, Mich.	200	238	1260				
WBBR	Peoples Pulpit Association	Rossville, N. Y.	500	273	1100				
WBBS	First Baptist Church	New Orleans, La.	50	252	1190				
WBBW	Ruffner Junior High School	Norfolk, Va.	50	222	1350				
WBBY	Washington Light Infantry	Charleston, S. C.	20	268	1120				
WBBZ	C. L. Carrell	Chicago, Ill.	50	215.7	1390				
WBCN	Foster & McDonnell	Chicago, Ill.	500	266	1130				
WBDC	Baxter Laundry Co.	Grand Rapids, Mich.	50	256	1770				
WBES	Bliss Electrical School	Tacoma Park, Md.	100	222	1350				
WBNY	Shirley Katz	New York, N. Y.	500	209.7	1430				
WBOQ	A. H. Grebe & Co.	Richmond Hill, N. Y.	100	236	1270				
WBR	Penn. State Police	Butler, Pa.	250	1599	1090				
WBRC	Bell Radio Corporation	Birmingham, Ala.	50	248	1210				
WBRE	Baltimore Radio Exchange	Wilkes Barre, Pa.	100	231	1300				
WBT	Charlotte Chamber Com.	Charlotte, N. C.	250	275	1090				
WBZ	Westinghouse Elec. & Mfg. Company	Springfield, Mass.	2000	331.1	900				
WBZA	Westinghouse Elec. & Mfg. Company	Boston, Mass.	250	242	1240				

BROADCASTING STATIONS

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CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
WCAC	Conn. Agric. College	Mansfield, Conn.	500	275	1090				
WCAD	St. Lawrence University	Canton, N. Y.	250	263	1140				
WCAE	Kaufman & Baer Co.	Pittsburg, Pa.	500	461.3	650				
WCAH	Entrekin Elec. Co.	Columbus, Ohio	500	266	1130				
WCAJ	Nebr. Wesleyan University	University Pl. Neb.	300	254	1180				
WCAL	St. Olaf College	Northfield, Minn.	500	336.9	890				
WCAO	A G. & A. S. Brager	Baltimore, Md.	100	275	1090				
WCAP	Chesapeake & Potomac Tel. Company	Washington, D. C.	500	468.5	640		65	64	47
WCAR	Southern Radio Cp. of Tex.	San Antonio, Tex.	500	263	1140				
WCAT	S.D. State School of Mines	Rapid City, S. D.	50	240	1250				
WCAU	Durham & Co.	Philadelphia, Pa.	500	278	1080				
WCAX	University of Vermont	Burlington, Vt.	100	250	1200				
WCBA	Queen City Radio Station	Allentown, Pa.	15	254	1180				
WCBD	Wilbur G. Voliva	Zion, Ill.	5000	344.6	870				
WCBE	Uhalt Bros. Radio Co.	New Orleans, La.	5	263	1140				
WCBG	Howard S. Williams	Pascaugala, Miss.	10	268	1120				
WCBH	University of Mississippi	Oxford, Miss.	50	242	1240				
WCBM	Charles Chateau	Baltimore, Md.	50	299	1310				
WCBQ	First Baptist Church	Nashville, Tenn.	100	242	1240				
WCCO	Washburn Crosby Co.	St. Paul and Minneapolis, Minn.	5000	416.4	720				
WCLO	C. E. Whitmore	Camp Lake, Wis.	50	231	1300				
WCLS	H. M. Couch	Joliet, Ill.	150	214.2	1400				
WCSH	Congress Square Hotel Co.	Portland, Maine	500	256	1170		70	20	
WCSO	Wittenberg College	Springfield, Ohio	100	248	1200				
WCUW	Clark University	Worcester, Mass.	250	238	1260				
WCWS	C. W. Selen	Providence, R. I.	100	209.7	1430				
WCX	Detroit Free Press	Pontiac, Mich.	2500	516.6	820		80	80	

BROADCASTING STATIONS

CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
WDAD	Dad's Auto Accessories, Inc	Nashville, Tenn.	150	226	1330				
WDAE	Tampa Daily Times	Tampa, Fla.	250	273	1100				
WDAF	Kansas City Star	Kansas City, Mo.	500	365.6	820				
WDAG	J. Laurance Nartin	Amarillo, Texas	100	263	1140				
WDAH		El Paso, Texas	50	268	1120				
WDAY	Radio Equipment Corp.	Fargo, N. D.	50	261	1150				
WDBC	Kirk, Johnson & Co.	Lancaster, Pa.	50	258	1160				
WDBE	Gilham-Schoen Elec. Co.	Atlanta, Ga.	100	270	1110				
WDBJ	RichardsonWaylandEl.Cp.	Roanoke, Va.	50	229	1310				
WDBK	M. F. Broz. Furn. Store	Cleveland, Ohio	100	227	1320				
WDBO	Rollins College	Winter Park, Fla.	500	240	1250				
WDBR	Tremont Temple Bap. Ch.	Boston, Mass.	100	261	1150				
WDBZ	Boy Scouts of America	Kingston, N. Y.	10	233	1290				
WDCH	Dartmouth College	Hanover, N. H.	100	256	1170				
WDOD	Chattanooga Radio Co.	Chattanooga, Tenn.	500	256	1170				
WDRG	Doolittle Radio Corp.	New Haven, Conn.	100	268	1120				
WDWF	Dutge W. Flint	Cranston, R. I.	500	440.9	680				
WDZ	James L. Bush	Tuscola, Ill.	100	278	1080				
WEAF	American Tel. & Tel. Co.	New York, N. Y.	5000	491.5	610				
WEAH	Hotel Lassen	Wichita, Kans.	50	268	1120				
WEAI	Cornell University	Ithaca, N. Y.	500	286	1050				
WAEM	Borough of N. Plainfield	N. Plainfield, N. J.	250	261	1150				
WEAN	Shepard Co.	Providence, R. I.	500	270	1110				
WEAO	Ohio State University	Columbus, Ohio	500	293.9	1020				
WEAR	Goodyear Tire & Rub. Co.	Cleveland, Ohio	750	389.4	770				
WEAU	Davidson Bros. Co.	Sioux City, Iowa	100	275	1090				
WEAY	Iris Theatre	Houston, Texas	500	270	1110				
WEBC	W. C. Bridges	Superior, Wis.	100	242	1240				
WEBD	Electric Equip. Service Co.	Anderson, Ind.	15	246	1220				

BROADCASTING STATIONS

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CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
WEBE	R. W. Waller	Cambridge, Ohio	10	234	1280				
WEBH	Edgewater Beach Hotel	Chicago, Ill.	1500	370.2	810		38	34	
WEBJ	Third Ave. Railway Co.	New York, N. Y.	500	272.6	1100				
WEBK	Grand Rapids Radio Co.	Grand Rapids, Mich	100	242	1240				
WEBL	R. C. A. U. S.	Portable	100	226	1330				
WEBM	R. C. A.	Mobile, Alabama	100	226	1330				
WEBQ	Jos. R. Tate	Harrisburg, Ill.	10	226	1330				
WEBR	H. H. Howell	Buffalo, N. Y.	100	244	1230				
WEBT	Dayton Co-op. Ind. H. S.	Dayton, Ohio	5	256	1170				
WEBW	Beloit College	Beloit, Wis.	500	268	1120				
WEBZ	Savannah Radio Corp.	Savannah, Ga.	5	263	1140				
WEEI	Edison Elec. Illum. Co.	Boston, Mass.	500	348.6	860				
WEHS	Robert E. Hughes	Evanston, Ill.	10	202.6	1480				
WEMC	Emanuel Missionary Col.	Berrien Sprgs. Mich.	500	285.5	1050				
WENR	All American Radio Corp.	Chicago, Ill.	1000	266	1120		15	11	
WEW	St. Louis University	St. Louis, Mo.	100	248	1200				
WFAA	Dallas News & Dallas Journal	Dallas, Texas	500	476	630			67	49
WFAM	Times Publishing Co.	St. Cloud, Minn.	10	273	1100				
WFAV	University of Nebr. Dept. of Electric Engineering	Lincoln, Nebr.	500	275	1090				
WFBC	First Baptist Church	Knoxville, Tenn.	50	250	1200				
WFBD	Gethsemane Baptist Ch.	Philadelphia, Pa.	5	234	1280				
WFBE	John Van DeWalle Music & Radio Company	Seymour, Ind.	10	226	1330				
WFBG	William F. Gable Co.	Altoona, Pa.	100	278	1080				
WFBH	Concourse Radio Corp.	New York, N. Y.	500	273	1100				
WFBI	Galvin Radio Supply Co.	Camden, N. J.	500	236	1270				
WFBJ	St. John's University	Collegeville, Minn.	100	236	1270				
WFBL	Onandaga Hotel Co.	Syracuse, N. Y.	100	252	1190				
WFBM	Merchants Heat & Lt. Co.	Indianapolis, Ind.	250	268	1120				

BROADCASTING STATIONS

CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
WFBR	Fifth Infantry, M. N. G.	Baltimore, Md.	100	254	1180				
WFBZ	Knox College	Galesburg, Ill.	20	254	1180				
WFDF	F. D. Fallain	Flint, Mich.	100	234	1280				
WFI	Strawbridge & Clothier	Philadelphia, Pa.	500	394.5	760				
WFKB	Francis K. Bridgman	Chicago, Ill.	500	217.3	1380				
WFRL	Robert M. Lacey	Brooklyn, N. Y.	100	205.4	1460				
WGAL	Lancaster Electric Supply & Construction Co.	Lancaster, Pa.	10	248	1210				
WGBB	Harry H. Carman	Freeport, N. Y.	100	244	1240				
WGBC	First Baptist Church	Memphis, Tenn.	10	278	1080				
WGBF	The Fink Furniture Co.	Evansville, Ind.	100	236	1270				
WGBI	Frank S. Megargee	Scranton, Pa.	10	240	1250				
WGBK	Lawrence W. Campbell (Fontaine Chateau)	Johnstown, Pa.	5	248	1210				
WGBM	Theodore N. Saaty	Providence, R. I.	30	234	1280				
WGBQ	Stout Institute	Menomonie, Wis.	100	234	1280				
WGBR	G. S. Ives	Marshfield, Wis.	10	229	1310				
WGBS	Gimbel Bros.	New York City	500	315.6	950				
WGBT	Furman University	Greenville, S. C.	15	236	1270				
WGBU	Florida Cities Finance Co.	Fulford-by-the-Sea, Florida	500	278	1080				
WGBX	University of Maine	Orono, Maine	100	252	1190				
WGCP	Grand Central Palace	Newark, N. J.	500	252	1190				
WGES	Coyne Electrical School	Oak Park, Ill.	500	250	1200				
WGHB	G. H. Bowles Devel. Co.	Clearwater, Fla.	500	266	1130				
WGHP	Geo. H. Phelps	Detroit, Mich.	1500	270	1110				
WGMU	A. H. Grebe & Co. (Port.)	Richmond Hill, N. Y.	100	236	1270				
WGN	Chgo. Trib. (Drake Hotel)	Chicago, Ill.	1000	370.2	810				
WGR	Federal Radio Corp.	Buffalo, N. Y.	750	319	940				
WGST	Georgia School Technology	Atlanta, Ga.	500	270	1110				

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BROADCASTING STATIONS

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CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
WGY	General Electric Company	Schenectady, N. Y.	5000	379.5	790		41	37	
WHA	University of Wisconsin	Madison, Wis.	750	535.4	560				
WHAD	Marquette University	Milwaukee, Wis.	500	275	1090				
WHAG	University of Cincinnati	Cincinnati, Ohio	100	233	1290				
WHAM	University of Rochester	Rochester, N. Y.	100	278	1080				
WHAP	Wm. H. Taylor Fin. Corp.	New York, N. Y.	500	240	1250				
WHAR	Seaside House	Atlantic City, N. J.	500	275	1090				
WHAS	Courier Journal and Louisville Times	Louisville, Ky.	500	399.8	750				
WHAT	Twin City Business Men's Broadcasting Station	Minneapolis, Minn.	500	263	1120				
WHAV	Wilmington Elec. Spec. Co.	Wilmington, Del.	100	266	1130				
WHAZ	Rensselaer Polytechnic Inst	Troy, N. Y.	1000	379.5	790	46		37	
WHB	Sweeney School Company	Kansas City, Mo.	500	365.6	820				
WHBA	Shaffer Music House	Oil City, Pa.	10	250	1200				
WHBC	Rev. E. P. Graham	Canton, Ohio	10	254	1180				
WHBD	Chas. W. Haward	Bellefontaine, Ohio	20	222	1350				
WHBF	Beardsley Specialty Co.	Rock Island, Ill.	100	222	1350				
WHBG	John S. Skane	Harrisburg, Pa.	20	231	1300				
WHBH	Culver Military Academy	Culver, Ind.	100	222	1350				
WHBJ	Laue Auto Co.	Ft. Wayne, Ind.	50	234	1280				
WHBK	Franklin Street Garage	Ellsworth, Maine	10	231	1300				
WHBL	James H. Slusser	Logansport, Ind.	50	215.7	1390				
WHBM	O.L. Carroll (Port. Sta.)	Chicago, Ill.	20	233	1290				
WHBN	First Ave. Methodist Ch.	St. Petersburg, Fla.	10	230	1260				
WHBP	Johnstown Automobile Co.	Johnstown, Pa.	100	256	1170				
WHBQ	St. John's M.E. Church	Memphis, Tenn.	50	233	1290				
WHBR	Scientific Electrical & Manufacturing Company	Cincinnati, Ohio	20	215.7	1290				
WHBU	B. L. Bing's Sons	Anderson, Ind.	10	218.8	1370				

BROADCASTING STATIONS

CALL	STATION OWNER	LOCATION	P ^{wr} W ^{ts}	Wave L ^{ngth}	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
WHBW	D. R. Kienzle	Philadelphia, Pa.	100	242	1240				
WHBY	St. Norbert's College	W. DePere, Wis.	50	250	1200				
WHDI	William Hood Dunwoody Industrial Institute	Minneapolis, Minn.	500	278	1080				
WHEC	Hickson Electric Co.	Rochester, N. Y.	100	258	1160				
WHK	Radio Air Service Corp.	Cleveland, Ohio	250	273	1100				
WHN	Loew's State Brdcast'g. Sta.	New York City	500	361.2	830				
WHO	Bankers Life Company	Des Moines, Iowa	5000	526	570		85	60	
WHT	Radiophone B'dcast'g. Corp.	Deerfield, Ill.	2500	400	750		45	42	32
WIAD	Howard R. Miller	Philadelphia, Pa.	100	250	1200				
WIAS	Home Electric Company	Burlington, Iowa	100	254	1180				
WIBA	Capital Times Studio	Madison, Wis.	100	236	1270				
WIBC	L.M. Tate Post39 V.ofF.W.	St. Petersburg, Fla.	100	222	1350				
WIBG	St. Paul's Protest. Esp. Ch.	Elkins Pk., Pa.	50	222	1350				
WIBH	Elite Radio Stores	New Bedford, Mass.	5	209.7	1430				
WIBI	Frederick B. Zittell, Jr.	Flushing, N. Y.	50	218.8	1370				
WIBJ	C. L. Carrell (Port. Sta.)	Chicago, Ill.	50	215.7	1390				
WIBK	Univ. of City of Toledo	Toledo, Ohio	100	205.4	1460				
WIBM	Billy Maine (Port.)	Chicago, Ill.	10	215.7	1390				
WIBO	Nelson Brothers	Chicago, Ill.	1000	226	1330		50	47	
WIBR	Thrumman A. Owings	Weirton, W. Va.	50	246	1220				
WIBS	N. J. National Guard (Port.)	Elizabeth, N. J.	10	202.6	1480				
WIBU	The Electric Farm	Poynette, Wis.	20	222	1350				
WIBV	Jewell Radio Co.	Henderson, N. C.	20	263	1140				
WIBW	Dr. L. L. Dill	Logansport, Ind.	100	220	1360				
WIBX	Grid Leak, Inc.	Utica, N. Y.	150	205.4	1460				
WIBZ	Powell Elec. Co.	Montgomery, Ala.	10	231	1300				
WIL	Benson Radio Co. (Port. Sta.)	St. Louis, Mo.	250	273	1100				
WIP	Gimbel Bros.	Philadelphia, Pa.	500	508.2	590				

BROADCASTING STATIONS

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CALL	STATION OWNER	LOCATION	P ^{wr} W ^{ts}	Wave L ^{ngth}	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
WJAD	Jackson's Radio Eng. Lab.	Waco, Texas	500	352.7	850				
WJAG	Norfolk Daily News	Norfolk, Nebr,	200	270	1110				
WJAK	Clifford L. White	Greentown, Ind.	50	254	1180				
WJAM	D. M. Perham	Cedar Rapids, Iowa	100	268	1120				
WJAR	The Outlet Company	Providence, R. I.	500	309.9	980				
WJAS	Pittsburg Radio Sup. House	Pittsburg, Pa.	500	275	1090				
WJAX	City of Jacksonville	Jacksonville, Fla.	1000	336.9	890				
WJAZ	Zenith Radio Corporation	Mt. Prospect, Ill.	1500	322.4	930		28	2	20
WJBA	D. H. Lentz, Jr.	Joliet, Ill.	50	206.8	1450				
WJBB	L. W. McClung	St. Petersburg, Fla.	10	254	1180				
WJBC	Hummer Furniture Co.	La Salle, Ill.	100	234	1280				
WJBD	Ashland Broadcasting Co.	Ashland, Wis.	100	233	1290				
WJBI	R. S. Johnson	Red Bank, N. J.	250	218.8	1370				
WJBG	Interstate Radio, Inc.	Charlotte, N. C.	10	224	1340				
WJBL	Wm. Gushard D. G. Co.	Decatur, Ill.	500	270	1110				
WJBK	E. F. Goodwin	Ypsilanti, Mich.	10	233	1290				
WJBN	St. Johns Evan. Luth. Ch.	Sycamore, Ill.	10	256	1170				
WJBP	Seneca Vocational School	Buffalo, N. Y.	50	218.8	1370				
WJBQ	Bucknell University	Lewisburg, Pa.	100	211.1	1420				
WJD	Denison University	Granville, Ohio	10	217.3	1380				
WJJD	Supreme Lodge L.O.O.M.	Moosehart, Ill.	1000	302.8	990				
WJR	Jewett Radio Co.	Pontiac and Detroit, Michigan	2500	516.9	580				#7 60-50-59
WJY	R. C. A.	New York City	1000	405.2	740				
WJZ	R. C. A.	New York City	1000	454.3	660				61 44 59
WKAJ	WKAJ Broadcasting Co.	Milwaukee, Wis.	500	261	1150				
WKAQ	Radio Corp. of Porto Rico	San Juan, Porto Rico	500	340.7	880				
WKAR	Michigan State College	E. Lansing, Mich.	1000	285.5	1050				
WKAU	Laconia Radio Club	Laconia, N. H.	60	224	1340				

BROADCASTING STATIONS

CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
WKBB	Sanders Bros.	Joliet, Ill.	100	214.2	1400				
WKBE	K & B Electric Co.	Webster, Mass.	100	231	1300				
WKBG	C. L. Carrell (Portable)	Chicago, Ill.	100	215.7	1390				
WKBK	Shirley Katz	New York, N. Y.	500	209.7	1430				
WKRC	Kodel Radio Corp.	Cincinnati, Ohio	1000	422.3	920		51	49	
WKY	Hull & Richards	Oklahoma, Okla.	100	275	1090				
WLAL	First Christian Church	Tulsa, Okla.	100	250	1200				
WLAP	W. V. Jordan	Louisville, Ky.	20	275	1090				
WLAX	Greencastle Community Broadcasting Station	Greencastle, Ind.	10	231	1300				
WLB	University of Minnesota	Minneapolis, Minn.	500	278	1080				
WLBL	Wis. Dept. of Markets	Stevens Point, Wis.	500	278	1080				
WLIB	Liberty Weekly	Elgin, Ill.	1000	275.1	1090				
WLIT	Lit Brothers	Philadelphia, Pa.	500	394.5	760				
WLS	Sears, Roebuck & Co.	Crete, Ill.	1500	344.6	870				
WLTS	Lane Tech. High School	Chicago, Ill.	100	258	1160				
WLW	Crosley Radio Corporation	Cincinnati, O. 500to	5000	422.3	710				
WLWL	Missionary Society of St. Paul the Apostle	New York, N. Y.	1500	288.3	1040				
WMAC	Clive B. Meredith	Cazenovia, N. Y.	100	275	1090				
WMAF	Round Hill's Radio Corp.	Dartmouth, Mass.	1000	440.9	680				
WMAK	Norton Laboratory	Lockport, N. Y.	500	266	1130		12		
WMAL	M. A. Leese Optical Co.	Washington, D. C.	15	212.6	1410				
WMAN	First Baptist Church	Columbus, Ohio	50	278	1080				
WMAQ	Chicago Daily News	Chicago, Ill.	500	447.5	670		54	57	
WMAY	Kings Highway Pres. Ch.	St. Louis, Mo.	100	248	1210				
WMAZ	Mercer University	Macon, Ga.	500	261	1150				
WMBB	Am. Bond & Mortgage Co.	Chicago, Ill.	500	250	1200				
WMBC	Mich. Broadcasting Co.	Detroit, Mich.	100	256.4	1170				
WMBF	Fleetwood Hotel	Miami Beach, Fla.	500	348.4	780				
WMC	Commercial Appeal	Memphis, Tenn.	500	499.7	600		25	23	53

BROADCASTING STATIONS

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CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
WMCA	Greeley Square Hotel Co.	Hoboken, N. J.	500	340.7					
WNAB	Shepard Stores	Boston, Mass.	100	250	1200				
WNAC	Shepard Stores	Boston, Mass.	500	280.2	1070				
WNAD	University of Oklahoma	Norman, Okla.	500	254	1180				
WNAL	Central H. S.	Omaha, Nebr.	50	258	1160				
WNAR	First Christian Church	Butler, Mo.	20	231	1300				
WNAT	Lenning Bros. Company	Philadelphia, Pa.	100	250	1200				
WNAX	Dak. Radio Apparatus Co.	Yankton, S. D.	100	244	1230				
WNBH	I. J. Vermilya & A. J. Lopez	New Bedford, Mass.	250	248	1210				
WNJ	Radio Shop of Newark	Newark, N. J.	150	252	1190				
WNOX	Peoples Tel. & Tel. Co.	Knoxville, Tenn.	500	268	1120				
WNYC	City of New York	New York City	1000	526	570				
WOAC	Page Organ Co. (H.C.Maus)	Lima, Ohio	50	261	1150				
WOAI	Southern Equipment Co.	San Antonio, Tex.	2000	394.5	760				
WOAN	James B. Vaughan	Lawrenceburg, Tenn.	500	282.8	1060				
WOAW	Woodmen of the World	Omaha, Nebr.	1000	526	570				
WOAX	Franklin J. Wolff	Trenton, N. J.	500	240	1250				
WOC	Palmer School Chiropractic	Davenport, Iowa	5000	483.6	620				
WOCG	Triple Alliance Radio Sta.	Sycamore, Ill.	10	205.4	1460				
WOCL	Hotel Jamestown, Inc.	Jamestown, N. Y.	15	275.2	1090				
WODA	James K. O'Dea Radio-Vic- trola Shop	Paterson, N. J.	250	224	1340				
WOI	Iowa State College	Ames, Iowa	750	270	1110				
WOK	Neutrowound Radio Mfg. Company	Homewood, Ill.	5000	217.3	1380				
WOKO	Dyckman Radio Shop	New York, N. Y.	50	233	1290				
WOO	John Wanamaker	Philadelphia, Pa.	500	508.2	590				
WOQ	Unity School Christianity	Kansas City, Mo.	1000	278	1080				
WOR	L. Bamberger & Co.	Newark, N. J.	500	405.2	740				
WORD	Peoples Pulpit Association	Batavia, Ill.	5000	275	1090				

85 84 61

70 68 51

BROADCASTING STATIONS

CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
WOS	Mo. State Mgt'g. Bureau	Jefferson City, Mo.	500	440.9	680		56	52	41
WOWL	Owl Battery Co.	New Orleans, La.	10	270	1110		67	65	
WOWO	Main Auto Supply Co.	Fort Wayne, Ind.	500	227	1320		67	65	1774
WPAK	N. Dak. Agric. College	Agric. College, N.D.	100	275	1090				
WPCC	No. Shore Cong. Church	Chicago, Ill.	500	258	1160				
WPDQ	H. T. Turner	Buffalo, N. Y.	50	205.4	1460				
WPG	Municipality of Atlantic City, New Jersey	Atlantic City, N. J.	500	299.8	1000				
WPRC	Wilson Ptg. & Radio Co.	Harrisburg, Pa.	100	215.7	1390				
WPSC	Penn. State College	State College, Pa.	500	261	1150				
WQAA	Horace A. Beale, Jr.	Parkersburg, Pa.	500	220	1360				
WQAE	Moore Radio News Station	Springfield, Vt.	50	246	1220				
WQAM	Electrical Equipment Co.	Miami, Fla.	100	263	1140				
WQAN	Scranton Times	Scranton, Pa.	100	250	1200				
WQAO	Calvary Baptist Church	New York, N. Y.	100	360	833				
WQJ	Calumet Rainbo Broadcast- ing Company	Chicago, Ill.	500	447.5	670		59	42	56
WRAF	Radio Company	LaPorte, Ind.	100	224	1340				
WRAK	Economy Light Co.	Escanaba, Mich.	100	256	1170				
WRAM	Lombard College	Galesburg, Ill.	100	244	1230				
WRAV	Antioch College	Yellow Springs, O.	100	263	1140				
WRAW	Ave. Radio & Elec. Shop	Reading, Pa.	10	238	1260				
WRAX	Flaxon's Garage	Gloucester City, N.J.	500	268	1120				
WRBC	Immanuel Luth. Church	Valparaiso, Ind.	500	278	1080				
WRC	Radio Corp. of America	Washington, D. C.	1000	468.5	640		63	59	
WRCO	Wynne Radio Co.	Raleigh, N. C.	100	252	1190				
WREC	Wooten's Radio & Elec. Co.	Coldwater, Miss.	10	254	1180				
WREO	Reo Motor Car Co.	Lansing, Mich.	500	285.5	1050				
WRHM	Rosedale Hospital	Minneapolis, Minn.	50	252	1190				
WRK	Doron Bros. Elec. Co.	Hamilton, Ohio	200	270	1110				

BROADCASTING STATIONS

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CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
WRM	University of Illinois	Urbana, Ill.	500	273	1100				
WRMU	A. H. Grebe & Co.	New York, N. Y.	100	236	1270				
WRNY	Experimenter Pub. Co.	New York, N. Y.	500	258.5	1160				
WRR	City of Dallas Police and Fire Signal Dept.	Dallas, Texas	500	246	1220				
WRST	Radiotel Mfg. Co.	Bay Shore, N. Y.	250	215.7	1390				
WRVA	Larus & Brother Co.	Richmond, Va.	1000	256	1170				
WRW	Tarrytown Radio Research Lab.	Tarrytown, N. Y.	500	273	1100				
WSAI	U. S. Playing Card Co.	Mason, Ohio	5000	325.9	920				
WSAJ	Grove City College	Grove City, Pa.	250	229	1310				
WSAN	Allentown Call Pub. Co.	Allentown, Pa.	100	229	1310				
WSAR	Doughty & Welch Elec'l. Co.	Fall River, Mass.	100	254	1180				
WSAU	Camp Marienfield	Chesham, N. H.	10	229	1310				
WSAX	Zenith Radio Corp.	Chicago, Ill.	100	208	1120				
WSAZ	Chase Elec. Shop	Pomeroy, Ohio	50	244	1230				
WSB	Atlanta Journal	Atlanta, Ga.	1000	428.3	700				
WSBC	World Battery Co.	Chicago, Ill.	500	209.7	1430				
WSBF	Stix, Baer & Fuller D.G.Co.	St. Louis, Mo.	250	273	1100				
WSBT	South Bend Tribune	South Bend, Ind.	250	275	1090				
WSDA	The City Temple	New York City	250	263	1140				
WSKC	World's Star Knitting Co.	Bay City, Mich.	100	261	1150				
WSM	National Life & Accident Insurance Company	Nashville, Tenn.	1000	282.8	1060				
WSMB	Saenger Amusement and Maison Blanche Co.	New Orleans, La.	500	319	940				
WSMH	Shattuck Music House	Owosso, Mich.	20	240	1250				
WSMK	S. K. Radio Corporation	Dayton, Ohio	500	275.2	1090				
WSOE	School of Eng. of Milw.	Milwaukee, Wis.	500	246	1220				
WSRO	Radio Co. (Harry W. Fahr- lander)	Hamilton, Ohio	100	252	1190				

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BROADCASTING STATIONS

CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
WSUI	State University of Iowa	Iowa City, Iowa	500	483.6	620		72	69	
WTAB	F. River Dly. Hr'ld. Pub. Co.	Fall River, Mass.	100	266	1130				
WTAC	Penn Traffic Co.	Johnstown, Pa.	100	267.8	1120				
WTAD	R. E. Compton	Carthage, Ill.	50	236	1270				
WTAG	Worcester Telegram	Worcester, Mass.	500	268	1120				
WTAL	Toledo Radio & Elec. Co.	Toledo, Ohio	10	252	1190	13	8		
WTAM	Willard Storage Battery Co.	Cleveland, Ohio	3500	389.4	770				
WTAP	Cambridge Radio & El. Co.	Cambridge, Ill.	100	242	1240				
WTAQ	S. H. VanGordon & Son	Osseo, Wis.	100	254	1180				
WTAR	Reliance Electric Co.	Norfolk, Va.	100	261	1150				
WTAT	Edison Elec. Illum. Co.	Boston, Mass.	100	244	1230				
WTAW	Agricultural & Mechanical College of Texas	College Sta., Tex.	500	270	1110				
WTAX	Williams Hardware Co.	Streator, Ill.	50	231	1300				
WTAZ	Thomas McQuire	Lambertville, N. J.	15	261	1150				
WTG	Kans. State Agric. College	Manhattan, Kans.	50	273	1100				
WTIC	Travelers Insurance Co.	Hartford, Conn.	500	475.9	630				
WWAD	Wright & Wright	Philadelphia, Pa.	250	250	1200				
WWAE	Electric Park	Plainfield, Ill.	5000	242	1240				
WWGL	Radio Eng. Corp.	Richmond Hill, N. Y.	500	212.6	1410				
WWAO	Mich. College of Mines	Houghton, Mich.	250	263	1140				
WWI	Ford Motor Co.	Dearborn, Mich.	500	266	1130				
WWJ	Detroit News	Detroit, Mich.	1500	352.7	850	34	30	24	
WWL	Loyola University	New Orleans, La.	100	275	1090				

W. J. A. G.

Cleveland

5652

W. C. F. Y. 77-72

Chu.

714 96
12 96

W. 219 10 35 1/2 - 32

W. R. Y.

31-27

W. T. H. 0.4 5 1/2 - 42 1/2

W. O. R. 48-44 Chu.

BROADCASTING STATIONS

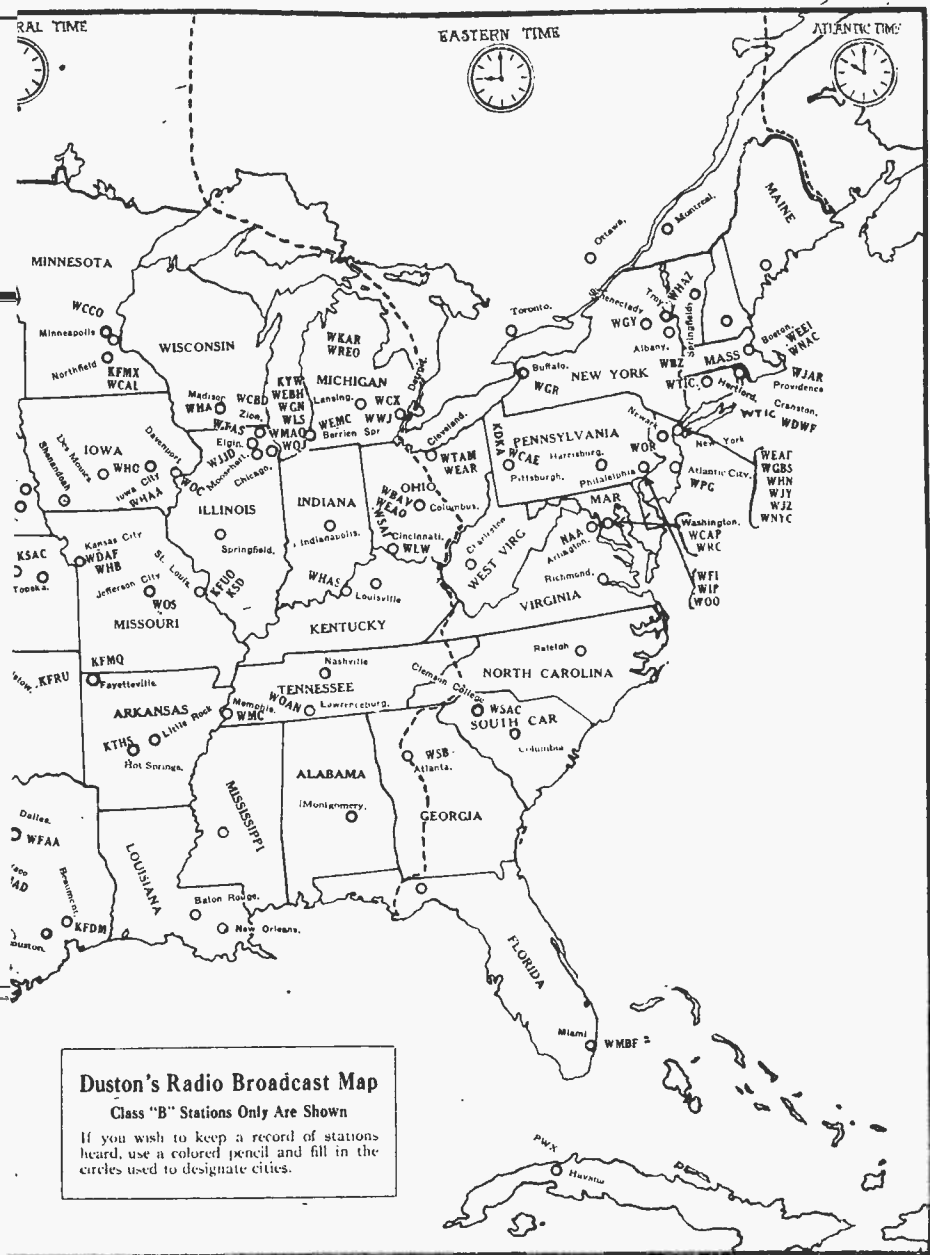
Location	Calls
Agricultural College, N. D.	WPAK
Akron, Ohio	WADC
Albuquerque, N. Mex.	KFLR, KFVY
Allentown, Pa.	WSAN, WCBW
Altoona, Pa.	WFBG
Amarillo, Texas	WDAG
Ames, Iowa	WOI
Anderson, Ind.	WHBU, WEBD
Arkadelphia, Ark.	KFWD
Arlington, Va.	NHA
Ashland, Wis.	WJBD
Asheville, N. C.	WABC
Astoria, Oregon	KFJI
Atlanta, Ga.	WBBF, WDBE, WGST, WSB
Atlantic, Iowa	KFLZ
Atlaxtic City, N. J.	WHAR, WPG
Austin, Texas	KUT
Avalon, Calif.	KFWD
Bakersfield, Calif.	KDZB
Baltimore, Md.	WBAL, WCAO, WCBM, WFBR
Bangor, Maine	WABI
Batavia, Ill.	WORD
Baton Rouge, La.	KFGC
Bay City, Mich.	WSKC
Bay Shore, N. Y.	WRST
Beaumont, Texas	KFDM, KFXM
Beeville, Texas	KFRB
Bellefontaine, Ohio	WHBD
Beloit, Wis.	WEBW
Berkeley, Calif.	KRE
Berrien Springs, Mich.	WEMC
Big Bear Lake, Calif.	KFXB
Birmingham, Ala.	WBRC
Bismarck, N. D.	KFYR
Boise, Idaho	KFAU, KFDD
Boone, Iowa	KFGQ
Boston, Mass.	WBZA WDBR, WEEI, WNAB, WNAC, WTAT
Boulder, Colo.	KFAJ
Breckenridge, Minn.	KFUJ
Bristow, Okla.	KVOO
Brookings, S. D.	WFRL, KFDD
Brooklyn, N. Y.	WFRL WHAP
Brownville, Texas	KFWP, KWWG
Buffalo, N. Y.	WEBR, WGR, WJBP, WPDQ
Burlingame, Calif.	KFQH
Burlington, Iowa	WIAS
Burlington, Vt.	WCAX
Butler, Pa.	WBR
Cambridge, Ill.	WTAP
Cambridge, Ohio	WEBE
Camden, N. J.	WFB
Camp Lake, Wis.	WCLO
Canton, N. Y.	WCAD
Canton, Ohio	AT6 WHBC
Cape Girardeau, Mo.	KFVS
Cartersville, Mo.	KFPW
Carthage, Ill.	WTAD
Cazenovia, N. Y.	WMAC
Cedar Falls, Iowa	KFJX
Cedar Rapids, Iowa	WJAM, WKAA
Charleston, S. C.	WBBY
Charlotte, N. C.	WBT, WJBG
Chattanooga, Tenn.	WDOD
Chesham, N. H.	WSAU
Chicago, Ill.	KYW, WAAF, WBBZ, WBCN, WDBY, WEBH, WENR, WFKB, WGN, WHBM, WIBM, WIBO, WJBJ, WJAZ, WKBG, WLS, WLTS, WMAQ, WMBB, WQJ, WSCB, WSHX
Chickasha, Okla.	KFGD
Chico, Calif.	KFWH
Cincinnati, Ohio	WAAD, WHAG, WHBR, WKRC, WLW
Clarinda, Iowa	KSO

Location	Calls
Clay Center, Nebr.	KMMJ
Clearwater, Fla.	WGHB
Cleveland, O.	KDPM, WEAR, WDBK, WHK, WTAM
Coldwater, Miss.	WREC
College Station, Texas	WTAW
Collegeville, Minn.	WFBJ
Colorado Springs, Colo.	KFUM, KFXF
Columbia, Mo.	KFRU
Columbus, O.	WAIV, WCAH, WEAO, WMAN
Corvallis, Oregon	KFDJ
Council Bluffs, Iowa	KOIL
Cranston, R. I.	WDWF
Culver, Ind.	WHBH
Dallas, Texas	WFAA, WRR
Dartmouth, Mass.	WMAF
Davenport, Iowa	WOC
David City, Nebr.	KFOR
Dayton, Ohio	AWS, WABD, WEBT, WSMK
Dearborn, Mich.	WWI
Decatur, Ill.	WBAA, WJBL
Deerfield, Ill.	WHT
Denver, Colo.	KFEL, KFUP, KFVR, KFXJ, KLZ, KOA
Des Moines, Iowa	WHO
Detroit, Mich.	WCX, WGHP, WJR, WWJ, WMBC
Devils Lake, S. D.	KDUR
Dublin, Texas	KFPL
East Lansing, Mich.	WKAR
East Pittsburg, Pa.	KDKA
Elgin, Ill.	WLJB
Elkins Park, Pa.	WIBG
Ellsworth, Maine	WHBK
El Paso, Texas	WDAH, KFXH
Elyria, Ohio	WGBL
Escanaba, Mich.	WRAK
Eureka, Calif.	KFVU
Evansville, Ind.	WGBF
Evanston, Ill.	WEHS
Everett, Wash.	KFBL
Fall River, Mass.	WSAR, WTAB
Fargo, N. D.	WDAY
Fayetteville, Ark.	KFMQ
Flagstaff, Ariz.	KFXV
Flint, Mich.	WFDF
Flushing, N. Y.	WIBI
Fond du Lac, Wis.	KFIZ
Fort Bragg, N. C.	AT9
Fort Dodge, Iowa	KFIY
Fort Sill, Okla.	KFRM
Fort Wayne, Ind.	WHBJ, WOWO
Fort Worth, Texas	KFQB, WBAF
Freeport, N. Y.	WBBB
Fresno, Calif.	KMJ
Galesburg, Ill.	WFBZ, WRAM
Galveston, Texas	KFLX, KFUL
Gloucester City, N. J.	WRAX
Grand Forks, N. D.	KFJM
Grand Rapids, Mich.	WEBK, WBDG
Granville, Ohio	WJD
Greeley, Colo.	KFKA
Greencastle, Ind.	WLAX
Greentown, Ind.	WIAQ
Greenville, S. C.	WGAT
Greenville, Texas	KFPM
Gridley, Calif.	KFU
Grove City, Pa.	WSAJ
Gunnison, Colo.	KFHA
Hamilton, Ohio	WRK, WSRQ
Hanover, N. H.	WDCH
Harrisburg, Ill.	WBBQ
Harrisburg, Pa.	WABB, WBAK, WHBG, WPRC
Harrison, Ohio	WTC
Hartford, Conn.	WTIC
Hastings, Neb.	KFKX

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BROADCAST MAP





26 BROADCASTING STATIONS

Location	Calls	Location	Calls
Havana Cuba	PWX	New Bedford, Mass.	WIBH, WNBH
Haverford Pa.	WABQ	New Haven, Conn.	WDRC
Havre, Mont.	KFBB	New Orleans, La.	WAAB, WABZ, WBBS,
Hendersen, N. C.	WIBV	WCBE, WOWL, WSMB, WWL	
Hollywood, Calif.	KFQZ, KFVB, KNRC	New York, N. Y.	WBAY, WBNY, WEAF,
Holy City, Calif.	KFOU	WEBJ, WFBH, WGBS, WHN, WJY, WJZ,	
Homewood, Ill.	WOK	WKBK, WLWL, WMCA, WNYC, WOKO,	
Honolulu, Hawaii	KGU	WQAO, WRMU, WRNY, WSDA	
Hot Springs, Ark.	KTSH	Norfolk, Nebr.	WJAG
Houghton, Mich.	KFMW	Norfolk, Va.	WBBW, WTAR
Houston, Texas	KFVI, KFYJ, KPRC, WEAY	Norman, Okla.	WNAD
Independence, Kans.	KFVG	North Bend, Wash.	KFOV
Independence, Mo.	KLDS	Northfield, Minn.	KFMX, WCAL
Indianapolis, Ind.	WFBM	North Plainfield, N. J.	WEAM
Iowa City, Iowa	KFQP, WSUI	Oak, Nebr.	KFEQ
Ithaca, N. Y.	WEAI	Oakland, Calif.	KFUS, KFWM, KGO, KLS,
Jacksonville, Fla.	WJAX	KLX, KTAB, KZM, KZUY	
Jamestown, N. Y.	WOCL	Oak Park, Ill.	WGES
Jefferson City, Mo.	WOS	Ogden, Utah	KFUR, KFWA
Johnstown, Pa.	WGBK, WHBP, WTAC	Oil City, Pa.	WHBA
Joliet, Ill.	WCLS, WJBA, WJBI, WKBB	Oklahoma City, Okla.	KFJF, KFJR, WKY
Junction City, Kans.	KFCJ	Olympia, Wash.	KFRW
Juneau, Alaska	KFIU	Omaha, Nebr.	KFOX, WAAW, WNAL, WOAW
Kansas City, Mo.	KWKC, WDAF, WHB, WOO	Orono, Maine	WGBX
Kellogg, Idaho	KFEY	Oskaloosa, Iowa	KFHL
Kingston, N. Y.	WDBZ	Osseo, Wis.	WTAQ
Kirksville, Mo.	KFKZ	Owosso, Mich.	WSMH
Knoxville, Tenn.	WFBC, WNOX	Oxford, Miss.	WCBH
Lacey, Wash.	KGY	Oxnard, Calif.	KFYF
Laconia, N. H.	WKAU	Parkersburg, Pa.	WQAA
Lambertville, N. J.	WTAZ	Pasadena, Calif.	KPPC, KFSP
Lancaster, Pa.	WDRC, WGAL	Pascaugula, Miss.	WCBG
Lansing, Mich.	WREO	Pateron, N. J.	WODA
Laporte, Ind.	WRAF	Petoskey, Mich.	WBPP
Laramie, Wyo.	KFBV	Philadelphia, Pa.	WABY, WCAU, WFBD,
LaSalle, Ill.	WJBC	WFI, WHBW, WIAD, WIP, WLIT, WNAT,	
Lawrence, Kans.	KFKU	WOO, WWAD	
Lawrenceburg, Tenn.	WOAN	Phoenix, Ariz.	KFAD, KFCE
LeMars, Iowa	KFCY	Pittsburgh, Pa.	KQV, WCAE, WJAS
Lewisburg, Pa.	WBJO	Pineville, La.	KFWU
Lima, Ohio	WOAC	Plainfield, Ill.	WWAE
Lincoln, Ill.	WBBM	Pomeroy, Ohio	WSAZ
Lincoln, Nebr.	KFAB, WFAV	Port Huron, Mich.	WAFD
Lockport, N. Y.	WMAK	Portland, Maine	WCSH
Logan, Utah	KFXD	Portland, Oregon	KFEC, KFIF, KFJR,
Logansport, Ind.	WHBL, WIBW	KGW, KFVV, KQP, KTBR	
Long Beach, Calif.	KPON	Poynette, Wis.	WIBU
Los Angeles, Calif.	KFI, KFPG, KFPR,	Providence, R. I.	WCWS, WEAN, WGBM,
KFSG, KHJ, KNX, KTBI			
WJAR			
Louisville, Ky.	WHAS, WLAP	Pullman, Wash.	KWSC
Macon, Ga.	WMAZ	Portable	WEBL
Madison, Wis.	WHA, WIBA	Radio, Va.	NAA
Manhattan, Kans.	KFVH, KSAC, WTG	Raleigh, N. C.	WRCO
Manila, P. I.	KZKZ, KZRQ	Rapid City, S. D.	WCAT
Mansfield, Conn.	WCAC	Reading, Pa.	WRAW
Marshalltown, Iowa	KFJB	Richmond, Va.	WBBL, WRVA
Marshfield, Wis.	WGFR	Richmond Hill, N. Y.	WAHG, WBOQ, WGMU,
Mason, Ohio	WSAI	WWGL	
Medford Hillside, Mass.	WARC	Roanoke, Va.	WDBJ
Memphis, Tenn.	WGBC, WHBQ, WMC	Rochester, N. Y.	WABO, WHAM, WHEC
Menomonic, Wis.	WGBQ	Rockford, Ill.	KFLV
Miami, Fla.	WGBU, WQAM	Rock Island, Ill.	WHBF
Miami Beach, Fla.	WMBF	Rossville, N. Y.	WBRR
Milwaukee, Wis.	WKAF, WHAD, WSOE	Royal Oak, Mich.	WAGM
Minneapolis, Minn.	KFDZ, WAMD, WCCO,	Salt Lake City, Utah	KDYL, KFOO, KFUT, KSL
WHEAT, WHDI, WLB, WRHM			
San Antonio, Texas	WCAR, WOAI	San Diego, Calif.	KFBC, KFWV
San Benito, Texas	KFLU	San Francisco, Calif.	KFRC, KFWI, KGTT,
San Diego, Calif.	KFBC, KFWV	KJBS, KPO, KUO	
San Francisco, Calif.	KFRC, KFWI, KGTT,	San Jose, Calif.	KFAF, KQW
KJBS, KPO, KUO			
San Juan, P. R.	WKAQ		
San Jose, Calif.	KFAF, KQW		
San Juan, P. R.	WKAQ		
San Leandro, Calif.	KFUD		
San Pedro, Calif.	KFUD		
Santa Maria, Calif.	KFXC		
Newark, N. J.	WAAM, WGCP, WNJ, WOR		

BROADCASTING STATIONS

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Location	Calls	Location	Calls
Savannah, Ga.	WEBZ	Toledo, Ohio.	WABR, WIBK, WTAL
Schenectady, N. Y.	WGJ	Trenton, N. J.	WOAX
Scranton, Pa.	WGBI, WOAN	Trinidad, Colo.	KFBS
Seattle, Wash.	KFOA, KHQ, KJR, KTCL, KTW	Troy, N. Y.	WHAZ
Seymour, Ind.	WFBE	Tulsa, Okla.	WLAL
Shenandoah, Iowa.	KFNF, KMA	Tuscola, Ill.	WDZ
Shreveport, La.	KFDX, KWKH	U. S. (Portable) Woolworth Bldg.	WEBM
Sihtipoc, Minn.	KIAP	University Place, Nebr.	WCAJ
Sioux City, Iowa.	KFMR, WEAU	Upland, Calif.	KFWC
Sisih, Wis.	WAR	Urbana, Ill.	WRM
South Bend, Ind.	WSBT	Utica, N. Y.	WIBX
Spokane, Wash.	KFPY	Valparaiso, Ind.	WRBC
Springfield, Mo.	KFUV	Vermillion, S. D.	KUSD
Springfield, Mass.	WBZ	Waco, Texas.	WIAD
Springfield, Ohio.	WCSS	Walla Walla, Wash.	KCFE
Springfield, Vermont.	WQAE	Washington, D. C.	WCAP, WMAL, WRC
Stanford University, Calif.	KFGH	Waterloo, Iowa.	KFXE
State College, N. M.	KFRY, KOB	Webster, Mass.	WKBE
State College, Pa.	WPSC	Welcome, Minn.	KFVN
St. Cloud, Minn.	WFAM	Weirton, W. Va.	WIBR
Stevens Point, Wis.	WLBL	West De Pere, Wis.	WHBY
St. Louis, Mo.	KFOA, KFUP, KFVE, KFVF, KSD, WEW, WIL, WMAJ, WSBF	West LaFayette, Ind.	WBAA
Stockton, Calif.	KWG	West Palm Beach, Fla.	WBBJ
St. Paul, Minn.	AV7, KFOY	Wichita, Kans.	KFOT, WEAH
St. Petersburg, Fla.	WHBN, WIBC, WJBB	Wichita Falls, Texas.	WKAF
Streator Ill.	WTAX	Wilkes-Barre, Pa.	WBAX, WBRE
Superior Wis.	WEBC	Wilmington, Delaware.	WHAV
Sycamore, Ill.	WJBN, WOCG	Winter Park, Fla.	WDBO
Syracuse, N. Y.	WFBL	Wooster, Ohio.	WABW
Tacoma, Wash.	KFBG, KGB, KMO	Worcester, Mass.	WCUW, WTAG
Takoma Park, Md.	WBES	Yakima, Wash.	KFIQ
Tampa, Fla.	WDAE	Yankton S. D.	WNAX
Tarrytown, N. Y.	WRW	Yellow Springs, Ohio.	WRAW
Taunton, Mass.	WAIT	Ypsilanti, Mich.	WJBK
		Zion, Ill.	WCBZ

BROADCASTING STATIONS OUTSIDE OF THE UNITED STATES

CANADA

CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
CFAC	Calgary Herald	Calgary	500	434.5	685				
CFCA	Star Pub. & Ptg. Co.	Toronto	500	356.9	840				
CFCF	Marconi Wireless Tel. Co. of Canada	Montreal	1650	410.7	731				
CFCH	Ahithi Power Co.	Iroquois Falls, Ont.	250	499.7	600				
CFCK	Radio Supply Co.	Edmonton, Alta.	100	516.9	820				
CFCN	W. W. Grant, Ltd.	Calgary, Alta.	1800	434.5	685				
CFCQ	Radio Specialties, Ltd.	Vancouver, B. C.	5	410.7	731				
CFCT	Deauville Station	Victoria, B. C.	500	329.5	910				
CFCU	J. V. Elliott, Ltd.	Hamilton, Ont.	500	340.7	882				
CFCY	Island Radio Co.	Charlottetown, P. E. I.	50	312.3	96				
CFDC	Western Auto Elec. Co.	Vancouver, B. C.	10	410.7	731				

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CANADA—Continued

CALL	STATION OWNER	LOCATION	Pwr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
CFKC	D. J. Fendell	Thorold, Ont.	75	247.8	1210				
CFMC	Monarch Battery Co.	Kingston, Ont.	20	267.7	1120				
CFQC	Electric Shop, Ltd.	Saskatoon, Sask.	500	329.5	910				
CFRC	Queen's University	Kingston	500	267.7					
CFXC	Westminister Trust Co.	Barnaby, B. C.	50	291.1	1030				
CFYC	Commercial Radio, Ltd.	Barnaby, B. C.	500	410.7	731				
CHCS	Hamilton Spectator	Hamilton, Ont.	10	340.7	882				
CHIC	Northern Elec. Co.	Toronto, Ont.	500	356.9	840				
CHNC	Toronto Radio Research	Toronto, Ont.	500	356.9	840				
CHSC	H. V. Stonin	Unity, Sask.	250	356.9	840				
CHUC	International Bible Assoc.	Saskatoon, Sask.	50	329.5	910				
CHXC	J. R. Booth	Ottawa, Ont.	250	434.5	685				
CHYC	Northern Elec. Co.	Montreal, Que.	850	410.9	731				
CJBC	Jarvis St. Baptist Church	Toronto, Ont.	...	356.9	840				
CJCA	Edmonton Journal	Edmonton, Alta.	500	516.9	820				
CJCD	T. Eaton Co., Ltd.	Toronto, Ont.	50	356.9	840				
CJGC	London Free Press	London, Ont.	50	329.5	910				
CJKC	Pyramid Temple Society	Burnaby, B. C.	500	410.7	731				
CJSC	Evening Telegram	Toronto, Ont.	500	356.9	840				
CJWC	Wheaton Elec. Co.	Saskatoon, Sask.	250	329.5	910				
CJYC	DeForest Radio Corp.	Toronto, Ont.	500	291.1	1030				
CKAC	La Presse, Ltd.	Montreal, Que.	1200	410.7	731				
CKCD	Vancouver Daily Province	Vancouver, B. C.	1000	410.7	731				
CKCK	Leader Pub. Co., Ltd.	Regina, Sask.	500	312.3	961				
CKCL	Dominion Battery Co.	Toronto, Ont.	500	356.9	840				
CKCO	Dr. G. M. Geldert	Ottawa, Ont.	100	434.5	685				
CKCW	Canadian Broadcasting Corporation	Burketon Junction, Ont.	5000	329.5	910				

CANADA—Continued

CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
CKFC	First Congreg. Church	Vancouver, B. C.	50	410.7	731				
CKNC	Canadian Nat. Carbon Co.	Toronto, Ont.	500	356.9	840				
CKY	Manitoba Tel. System	Winnipeg, Man.	500	384.4	780				
CKOC	Wentworth Radio Sup. Co.	Hamilton, Ont.	50	340.7	882				
CNRA	Canadian Nat. Ry's.	Moncton, N. B.	500	291.1	1030				
CNRC	Canadian Nat'l. Railways	Calgary, Alta.	1000	430	700				
CNRE	Canadian Nat'l. Railways	Edmonton, Alta.	500	516.9	820				
CNRS	Canadian Nat'l. Railways	Saskatoon, Sask.	500	329.5	910				
CNRV	Canadian Nat'l. Railways	Vancouver, B. C.	500	291.1	1030				
CNRW	Canadian Nat'l. Railways	Winnipeg, Man.	500	384.4	780				
CNRT	Canadian Nat'l. Railways	Toronto, Ont.	500	357	840				
CNRR	Canadian Nat'l. Railways	Regina, Sask.	500	435	690				
CNRO	Canadian Nat'l. Railways	Ottawa, Ont.	500	435	690				
CNRM	Canadian Nat'l. Railways	Montreal, Que.	1000	410	731				

ALASKA

KNT	Walter Hemrich	Kukak Bay	100	263	1140				
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AUSTRALIA

2BL	Broadcasters, Ltd.	Sydney	5000	350	854				
2FC	Farmers & Co., Ltd.	Sydney	5000	1100	272				
3AR	Asso. Radio Co. of Aust.	Melbourne	1600	480	625				
3LO	Broadcasting Co. of Aust.	Melbourne	5000	1720	174				
6AR	Associated Radio Co.	Perth	1600	360	833				
5CL	Central Broadcasters	Adelaide	5000	395	961				
6WF	Westralian Farms, Ltd.	Perth	5000	1250	240				

ENGLAND

2BD	Aberdeen Steam Laundry	Aberdeen	1100	495	607				
6BM	British Broadcasting Co.	Bournemouth	1100	385	780				
5IT	British Broadcasting Co.	Birmingham	1000	475	632				
2LO	British Broadcasting Co.	London	1500	395	761				

BROADCASTING STATIONS

ENGLAND—Continued

CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
5NO	British Broadcasting Co.	Newcastle	1100	400	750				
5WA	British Broadcasting Co.	Cardiff	1100	351	854				
2ZY	British Broadcasting Co.	Manchester	1000	375	800				
2LS	British Broadcasting Co.	Leeds	.....	346	869				
2LS	British Broadcasting Co.	Bradford	.....	310	967				
6LV	British Broadcasting Co.	Liverpool	.....	315	955				
6FL	British Broadcasting Co.	Sheffield	.....	301	1000				
5PY	British Broadcasting Co.	Plymouth	200	335	897				

IRELAND

2BE	Belfast University	Belfast	435	690				
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SCOTLAND

5SC	British Broadcasting Co.	Glasgow	1100	420	714				
2EH	British Broadcasting Co.	Edinburgh	328	915				

CONTINENTAL EUROPE

AUSTRIA

OHW	Radio-Hekaphon	Vienna	1500	600	500				
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BELGIUM

SRB	Radio Belgique	Brussels	2000	410	731.3				
	Radio Electrique	Brussels	265	1131				

FRANCE

YN	French Government	Lyons	.....	480	625				
	Societe Lyonnaise de Rad	Lyons	2000	470	637.9				
	Government	Nice	651	.....	460				
	La Petit Parisienne	Paris	500	340	882				
	Superior School	Paris	480	450	666				

CONTINENTAL EUROPE—Continued

GERMANY

CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
	Telefunken	Berlin	1032	.....	290				
	Vox Haus	Berlin	1500	415	723				
	S.W. Deutsche Rundfunk	Frankfort	.....	460	651				
	Nordischer Rundfunk AG	Hamburg	.....	392	765				
	Östmarken Rundfunk	Konigsburg	.....	460	651				
	Mitteldeutsche Rundfunk	Leipsig	.....	436	687				
		Munster	.....	470	732				
	Suddeutsche Rundfunk	Stuttgart	437	684				

ITALY

HYN	Ing. Ranier	Rome	450	666				
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PORTUGAL

	Aero Lisboa	Lisbon	370	810 to 400 to				
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SPAIN

PTT		Madrid	400	750				
	Radio Iberica	Madrid	392	765				

SWEDEN

	Nya Varvet	Gothenburg	700	428				
	Royal Tele Radio Off	Stockholm	.....	440	661				
	Svenska Radioactiebolaget	Stockholm	470	638				

SWITZERLAND

	Zurich University	Zurich	500	600				
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CUBA

PWX	Cuban Telephone Co.	Havana	750	500	400				
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HAWAII

KGU	Marion K. A. Mulrony	Honolulu	833	250	360				
KYQ	Electric Shop	Honolulu	1110	100	270				

MEXICO

CALL	STATION OWNER	LOCATION	P'wr W'ts	Wave L'ngth	Freq. Kilo.	Dis- tance	Dial 1	Dial 2	Dial 3
CYB	El Buen Tono	Mexico City	789	500	380				
CYL	La Casca del Radio	Mexico City	625	500	480				
CYZ	Excelsior & Cia	Mexico City	902	500	333				

PORTO RICO

WKAQ	Radio Corp. of Porto Rico	San Juan	833	500	360				
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SOUTH AMERICA

ARGENTINA

LOR	Radio Argentina	Buenos Aires	500	410	731.3				
LOW	Grand Splendid Theatre	Buenos Aires	1500	300	1000				
LOY	Radio Nacional	Buenos Aires	931	1000	300				
LOV	F. Brusa	Buenos Aires	1000	350	854				
LOX	Radio Cultura	Buenos Aires	860	375	800				
TCR	Francisco Brusa	Buenos Aires	100	300	1000				
B-1	Francisco Brusa	Buenos Aires							

BRAZIL

SPE	Dept. National Telegraph	Rio de Janeiro	500	250	1200				
	Radio Sociedade	Rio de Janeiro	6000						

CLASS "B" BROADCASTING STATIONS BY WAVE LENGTHS

Wave Length	Power Watts	Call Letters	Location	Wave Length	Power Watts	Call Letters	Location
206.8	500	KFWM	Oakland, Calif.	270	500	KFGH	Stanford Univ., Cal.
209.7	500	WKBK	New York, N. Y.	270	500	KGU	Honolulu, Hawaii
209.7	500	WBNY	New York, N. Y.	270	500	WBBF	Atlanta, Ga.
212.6	500	WWGL	Richmond Hill, N. Y.	270	500	WEAN	Providence, R. I.
212.6	500	KQP	Portland, Ore.	272	500	WNJ	Newark, N. J.
217.3	1000	WOK	Homewood, Ill.	272.6	500	WEBJ	New York, N. Y.
217.3	500	WFKB	Chicago, Ill.	272	500	KZKZ	Manila, P. I.
220	500	WQAA	Parkersburg, Pa.	273	500	WRW	Tarrytown, N. Y.
225	500	KFWI	San Francisco, Calif.	273	500	WRM	Urbana, Ill.
226	1000	WIBO	Chicago, Ill.	273	500	WFBH	New York, N. Y.
226	1500	WBBM	Chicago, Ill.	273	500	WBBR	Rossville, N. Y.
227	5000	WOWO	Fort Wayne, Ind.	275	500	WSMK	Dayton, Ohio
227	500	KQW	San Jose, Calif.	275	5000	WORD	Batavia, Ill.
229	500	KMMJ	Clay Center, Neb.	275	500	WJAS	Pittsburg, Pa.
231	500	KFPR	Los Angeles, Calif.	275	500	WHAR	Atlantic City, N. J.
231	500	KUT	Austin, Tex.	275	500	WHAD	Milwaukee, Wis.
236	500	WFBI	Camden, N. J.	275	500	WFAV	Lincoln, Nebr.
240	500	KFVE	St. Louis, Mo.	275	500	KFKU	Lawrence, Kans.
240	500	KTAB	Oakland, Calif.	275	500	KFSQ	Los Angeles, Calif.
240	500	WOAX	Trenton, N. J.	275	500	KQV	Pittsburg, Pa.
242	5000	WWAE	Plainfield, Ill.	275	500	WAFD	Pt. Huron, Mich.
242	500	KSO	Clarinda, Ia.	275	500	WBAK	Harrisburg, Pa.
244	1000	WAMD	Minneapolis, Minn.	275	500	WCAC	Mansfield, Conn.
246	500	WSOE	Milwaukee, Wis.	275.1	1000	WCEE	Elgin, Ill.
246	500	KFVW	San Diego, Calif.	278	1000	WOQ	Kansas City, Mo.
250	500	WMBB	Chicago, Ill.	278	500	WRBC	Valparaiso, Ind.
250	500	WGES	Oak Park, Ill.	278	500	WLBL	Stevens Point, Wis.
250	750	KDPM	Cleveland, Ohio	278	500	WLB	Minneapolis, Minn.
250	500	KFXF	Colorado Spgs. Colo.	278	500	KWCR	Cedar Rapids, Ia.
252	500	WGCP	Newark, N. J.	278	500	WHDI	Minneapolis, Minn.
252	500	KFWB	Hollywood, Calif.	278	500	WGBU	Fulford-By-The-Sea, Florida
252	500	KMA	Shenandoah, Iowa				
254	500	KFDJ	Corvallis, Oregon	278	750	KFAU	Boise, Idaho
254	500	WNAD	Norman, Okla.	278	500	KOIL	Council Bluffs, Ia.
256	500	KTNT	Muscataine, Ia.	278	500	KWWG	Brownsville, Texas
256	500	WCHS	Portland, Maine	278	500	WCAU	Philadelphia, Pa.
256	1000	WRVA	Richmond, Va.	280.2	500	WNAC	Boston, Mass.
258	500	WDBY	Chicago, Ill.	282.8	1000	WSM	Nashville, Tenn.
258	500	WRNY	New York, N. Y.	282.8	500	WOAN	Lawrenceburg, Tenn.
258	500	WADC	Akron, Ohio	285.5	500	WREO	Lansing, Mich.
261	500	WPSC	State College, Pa.	285.5	1000	WKAR	E. Lansing, Mich.
261	500	WMAZ	Macon, Ga.	285.5	500	WEMC	Berrien Spgs., Mich.
261	500	KFJF	Okla. City, Okla.	286	500	WEAI	Ithaca, N. Y.
261	500	KWKH	Kennonwood, La.	288.3	1000	WLWL	New York, N. Y.
263	500	WHAT	Minneapolis, Minn.	288.3	2000	KFKX	Hastings, Nebr.
263	500	WAAM	Newark, N. J.	293.9	500	WEAO	Columbus, Ohio
266	500	WWI	Dearborn, Mich.	293.9	750	KTBI	Los Angeles, Calif.
266	500	WMAK	Lockport, N. Y.	293.9	500	WAIU	Columbus, Ohio
266	1000	WENR	Chicago, Ill.	299.8	1000	KSL	Salt Lake City, Utah
266	500	KFNF	Shenandoah, Iowa	299.8	750	KFMQ	Fayetteville, Ark.
266	500	KFWD	Arkadelphia, Ark.	299.8	500	WPG	Atlantic City, N. J.
266	500	WGHB	Clearwater, Fla.	302.8	1000	WJJD	Mooseheart, Ill.
266	500	WBCN	Chicago, Ill.	305.9	1000	KTCL	Seattle, Wash.
266	500	WCAH	Columbus, Ohio	309.9	500	WJAR	Providence, R. I.
268	500	WTAG	Worcester, Mass.	309.1	1000	KDKA	E. Pittsburgh, Pa.
268	500	WEBW	Beloit, Wis.	315.6	500	WAHG	Richmond Hill, N. Y.
268	500	KFEQ	Oak, Nebraska	315.6	1000	KPSN	Pasadena, Calif.
268	500	WRAX	Gloucester City, N. J.	315.6	500	KFDM	Beaumont, Texas
269.9	500	KPRC	Houston, Texas	319	500	WSMB	New Orleans, La.
269.9	500	WNOX	Knoxville, Tenn.	319	750	WGR	Buffalo, N. Y.
269.9	500	KPRC	Houston, Texas	322.4	1500	WJAZ	Mt. Prospect, Ill.
270	500	KFBU	Laramie, Wyo.	322.4	5000	KOA	Denver, Colo.
270	500	WEAY	Houston, Texas	325.9	5000	WSAI	Mason, Ohio
270	500	WJBL	Decatur, Ill.	331.1	2000	WBZ	Springfield, Mass.
270	1500	WGHP	Detroit, Mich.	336.9	500	KFMX	Northfield, Minn.
270	500	WGST	Atlanta, Ga.	336.9	500	KNX	Los Angeles, Calif.
270	750	WOI	Ames, Iowa	336.9	500	WCAL	Northfield, Minn.
270	500	WTAW	College Station, Tex.	336.9	1000	WJAX	Jacksonville, Fla.

CLASS "B" BROADCASTING STATIONS BY WAVE LENGTHS (Continued)

Wave Length	Power Watts	Call Letters	Location	Wave Length	Power Watts	Call Letters	Location
340.7	500	WMCA	Hoboken, N. J.	421	500	KIAF	Sihtipoc, Minn.
340.7	500	WKAQ	San Juan, P. R.	422.3	1000	WKRC	Cincinnati, Ohio
340.7	500	KSAC	Manhattan, Kans.	422.3	5000	WLW	Cincinnati, Ohio
340.7	1000	KFAB	Lincoln, Nebr.	428.3	1000	WSB	Atlanta, Ga.
344.6	500	WLS	Chicago, Ill.	428.3	1000	KPO	San Francisco, Calif.
344.6	5000	WCBD	Zion, Ill.	434.5	1000	NAA	Washington, D. C.
348.4	500	WMBF	Miami Beach, Fla.	435	750	AT9	Ft. Bragg, N. C.
348.6	500	WEEI	Boston, Mass.	440.9	1000	KLDS	Independence, Mo.
348.6	500	KWSC	Pullman, Wash.	440.9	500	WDWF	Cranston, R. I.
348.6	1000	KOB	State College, N. M.	440.9	1000	WMAF	Dartmouth, Mass.
352.7	500	WJAD	Waco, Texas	440.9	500	WOS	Jefferson City, Mo.
352.7	1500	WVJ	Detroit, Mich.	447.5	500	WQJ	Chicago, Ill.
360	500	KZUY	Bagio, P. I.	447.5	500	WMAQ	Chicago, Ill.
361.2	3000	KGO	Oakland, Calif.	454.3	1000	WJZ	New York City
361.2	500	WHN	New York, N. Y.	454.3	1000	KTW	Seattle, Wash.
365.6	500	WHB	Kansas City, Mo.	454.3	1000	KFOA	Seattle, Wash.
365.6	500	WDAF	Kansas City, Mo.	461.3	500	WCAE	Pittsburg, Pa.
370.2	1000	WGN	Chicago, Ill.	467	3000	KFI	Los Angeles, Calif.
370.2	1000	WEBH	Chicago, Ill.	468.5	500	WCAP	Washington, D. C.
374.8	750	KTHS	Hot Springs, Ark.	468.5	1000	WRC	Washington, D. C.
374.8	500	KVOO	Bristow, Okla.	475.9	500	WTC	Hartford, Conn.
374.8	1000	WBAL	Baltimore, Md.	475.9	1500	WBAP	Ft. Worth, Texas
375	500	KZRQ	Manila, P. I.	483.6	5000	WOC	Davenport, Iowa
379.5	600	WHAZ	Troy, N. Y.	483.6	500	WSUI	Iowa City, Iowa
379.5	4000	WGY	Schenectady, N. Y.	491.5	500	KGW	Portland, Oregon
384.4	500	WAAW	Omaha, Nebr.	491.5	5000	WEAF	New York, N. Y.
384.4	1000	KJR	Seattle, Wash.	492	500	WBAY	New York, N. Y.
389.4	750	WEAR	Cleveland, Ohio	499.7	500	WMC	Memphis, Tenn.
389	3500	WTAM	Cleveland, Ohio	499.7	500	KFRU	Columbia, Mo.
394.5	1500	WOAI	San Antonio, Tex.	508.2	500	WIP	Philadelphia, Pa.
394.5	500	WLIT	Philadelphia, Pa.	508.2	500	WOO	Philadelphia, Pa.
394.5	500	WFI	Philadelphia, Pa.	516.9	2500	WJR	Pontiac & Detroit
399.8	500	WHAS	Louisville, Ky.	516.5	2500	WCX	Pontiac, Mich.
400	1500	WHT	Deerfield, Ill.	526	1000	WOAW	Omaha, Nebr.
400	500	PWX	Havana, Cuba	526	1000	WNYC	New York City
405.2	500	WOR	Newark, N. J.	526	5000	WHO	Des Moines, Iowa
405.2	500	KHJ	Los Angeles, Calif.	535.4	2000	KYW	Chicago, Ill.
405.2	1000	WJY	New York City	535.4	750	WHA	Madison, Wis.
406	500	WBAR	Sisilt, Wis.	545.1	750	KSD	St. Louis, Mo.
416.4	5000	WCCO	St. Paul-Minneapolis	545.1	500	KFUO	St. Louis, Mo.

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HELPFUL SUGGESTIONS

ON

CONSTRUCTION AND OPERATION

of RADIO RECEIVERS

Testing and Care of "A" Battery:

"A" Chargeable Storage Batteries—If a new storage battery has been purchased, and is given proper care, it should give many years of successful radio service. Many times radio fans have used an old car battery for their radio set.

If the battery was in poor condition before starting its radio service, reception will not be as satisfactory as it should be. This does not mean that a car battery cannot be used for radio work. A second hand car battery in good condition will sometimes give months of good radio service.

Some Things To do and Not to Do to Your Radio Battery.

1. **Keep the battery charged.** Test with a hydrometer and have it recharged when the reading is under 1150. Never leave battery standing in an uncharged condition for a long period of time. If battery is not going to be used for some time, give a good over-charge and disconnect all wires. Or take battery to a service station and have them take care of it until you again wish to use it. The liquid in a discharged battery will freeze in extremely cold weather.
2. **Keep the plates covered with liquid.** Add distilled water only, unless some of the acid has become spilled or the battery has been leaking. Then electrolyte, as originally used, should be added.
3. **Keep battery clean and terminals free from corrosion.** All battery terminals should be scraped clean and the wires securely fastened to the battery by means of a battery clip or terminal posts. If the terminal post or clips are then covered with vaseline, corrosion will not occur.
4. **Connect the battery to set and to the battery charger in the right manner.** Always be sure that the positive terminal of the battery is connected to the binding post marked positive or (+) on the set and the negative(—) of the "A" Battery to the (—) terminal on the set. On some battery chargers, either wire can be connected to the positive terminal but if they are marked, they

should be connected to the right post. The red wire of the battery charger is always the positive side. If the terminal on the battery is not marked in any way, you can find the polarity in the following manner: Fill a water glass two-thirds full of strong solution of salt water and hold the two wires connected to the "A" battery about one half inch apart in this solution. The wire around which bubbles rise freely will be a negative lead.

5. **Don't lay tools or any other metal parts across terminals of the battery.** If metal is placed across the terminals of the battery, a heavy load is thrown on the plates and they will become buckled or warped.
6. **Keep all lighted matches or flames away from the vent holes of the storage battery.** Hydrogen gas is present around the top of the battery when it is being charged or discharged, and the battery is apt to explode if coming in contact with a flame.
7. Don't try to use one and a half volt tube, such as W. D. No. 11 and W. D. No. 12 with a six volt storage battery, unless you use only one cell of the battery and keep rheostat turned down low.
8. **Don't charge battery at too high a rate.** Generally ten amperes is the highest that a radio battery will stand, but ordinarily only a five to six ampere rate is used.
9. **Don't overcharge battery too often.** Sometimes a battery will need a good overcharge especially if the plates have become sulphated and the battery will not hold a charge. When you are giving the battery this overcharge, leave it connected to the battery charger from ten to twelve hours after the hydrometer shows the battery to be full.
10. **Don't get battery solution on drapes or rugs.** The acid in a battery will burn holes in any cloth with which it comes in contact. Many male radio fans have come near losing their "happy home" because the radio battery ruined a rug for the "Missus."

DRY "A" BATTERIES

Some radio tubes draw such a small amount of current that they can be run economically when using dry cells as an "A" battery. Tubes in the class with the W. D. 11 or 12 and the U. V. 199 and C. 299 are known as dry cell tubes.

Sometimes dry cell batteries are used to light the filament of tubes drawing one quarter of ampere at five volts such as the U. V. 201 "A"

type bulb. This is an expensive and unsatisfactory practice and should not be done except on rare occasions when the set owner wishes to use a set for a short period of time and a storage battery is not available.

Positions of the dry cells make very little difference, so that in portable sets they may be placed either in a horizontal or vertical position. Use an ammeter to test dry cells. When they are new and fully charged, most dry cells test thirty-five amperes and they should be discarded when testing under ten amperes.

TESTING AND CARE OF "B" BATTERIES.

Dry "B" Batteries—Are generally sold in blocks of $22\frac{1}{2}$ or 45 volts.

In all well made batteries, the large size will last longer than the smaller ones when a heavy load is used. The shelf life of a battery is not very long, however, and so if only one or two tubes are used, and these infrequently, it is just as well to use a smaller size "B" battery. Small size batteries are also best when the radio fan wishes to build a portable radio set. When all of the batteries are placed inside of the cabinet, they should be both small and light.

Never test a "B" battery by placing a screw-driver or other piece of metal across the terminals to see if you get a spark. This will discharge the battery much more than many hours of service. When you wish to test the "B" battery, provide yourself with a good battery volt meter made for this purpose, and then be sure not to leave it connected across the battery for any length of time; just touch it on the terminals long enough to get a good reading.

CHARGEABLE "B" BATTERIES.

Most chargeable "B" batteries are similar in construction to the chargeable "A" batteries, except the cells are smaller and many more cells are necessary. All chargeable "B" batteries, except the Edison type, use the same kind of liquid and the same care must be given to them as is given the "A" battery. The battery must be kept charged, plates covered with liquid, and pure distilled water added to take care of evaporation.

Most battery chargers on the market will charge both "A" and "B" batteries. If you do not have a battery charger of this kind and wish to charge your "B" battery from an alternating current line, a very cheap electrolytic battery charger may be purchased which will take care of "B" batteries only. These chargers will not charge an "A" battery due to the fact that the charging rate is only one-quarter to one-half of an ampere, and it would take several days and sometimes weeks to properly charge a large battery.

When 110 volt direct current is available, the battery charger is unnecessary, and the "B" battery can be charged by connecting direct to the line, using a 25 watt lamp in series with the positive lead. The negative side of the 110 volt line must be connected to the negative side of the battery. If unable to tell the polarity of the electric line, use the test such as described under "A" batteries.

"C" BATTERIES.

When using very high plate voltage on the amplifier bulbs, it is sometimes best to use a "C" battery in the grid return. A "C" battery is not generally added, unless 90 volts or over of "B" battery is used. When a high voltage is used on the plates, the "C" battery will oftentimes cut down the amount of "B" battery current being consumed without in any way decreasing the amplification. "C" battery will many times clean up a noisy signal. The table shown under "Tubes" gives the proper "C" battery voltage for the various bulbs.

CARE AND OPERATION OF RADIO TUBES

The tube is the heart of the radio set, so care must be taken to keep them working at their highest efficiency as well as to keep them from burning out.

All tubes should be burned as dimly as is possible and still receive the desired results.

When they are turned down low, the life of the tube will be prolonged and reception will generally be better. Tubes of the U. V. No. 199 type and 201-A type use a new type of filament having a thorium oxide coating and the electron omission will stop if the filament is heated too hot or too high a plate voltage is applied.

Sometimes the tube can be brought back to normal by lighting up the filament with the plate battery disconnected. Plate voltage on the detector should always be figured from the negative end of the "B" battery. In either the detector or amplifier the plate voltage is too high when a blue glow is present in the tube. The proper rheostat for the different tubes are as follows:

For 1—W. D. No. 11 or W. D. 12¹, use 6 ohm rheostat

For 1—U. V. 200 or C-200, use 6 ohm rheostat

For 2—or more of either of the above tubes, a 4 to 6 ohm rheostat should be used.

For 1—U. V. 201-A $\frac{1}{4}$ amp tube, use 20 ohm rheostat, and when two of these tubes are used, on the same rheostat, a 10 ohm rheostat unit will be about right. If using more than two bulbs on one rheostat, use either a 10 or 6 ohm.

For U. V. No. 199 and C-199, use 30 ohm rheostat for a 4½ volt dry cell "A" battery. If a 6 volt storage battery is used to light No. 199 bulbs, care must be taken not to burn these too bright.

Keep prongs on the bottom of the tube clean. Always see that these prongs make good contact with the spring of the socket. If good contact is not had, many times the radio set will be noisy.

Try switching tubes around to increase efficiency of the set. Radio tubes are not all uniform, and many times certain tubes will work well as radio frequency amplifiers, but not so well as a detector or audio frequency amplifier. A soft amplifier tube also makes a wonderful detector. Always try changing or varying the voltage of the "B" battery connected to the detector tube. On the regular 200 detector bulb, this varies from 18 to 22½ volts, and when a 201-A type tube is used for detector, plate voltage as high as 45 volts can sometimes be used.

Plate "B" Battery consumption of various tubes when used for audio amplification and using 90 volts of "B" Battery.

TYPE OF TUBE	PLATE CURRENT
W. D. No. 11 or W. D. No. 12	4.5 Miliamperes
(When used with 4½ volt "C" Battery,)	2.5 Miliamperes
U V No. 199 Type Bulb	4.0 Miliamperes
(When used with 4½ volt "C" Battery,	2.2 Miliamperes
U V No. 201-A Type Bulb	6.0 Miliamperes
(When used with 4½ volt "C" Battery,	2.0 Miliamperes

These are only approximate figures, as different tubes will vary to some extent, but the above can be used as an average for the ordinary tube.

FILAMENT VOLTAGE AND OTHER DATA ON VACUUM TUBES

In most cases, the information given below will apply to tubes made by independent manufacturers as well as to those distributed by the R. C. A. and Cunningham Company.

No. 201-A TYPE TUBE

Filament voltage	5 volts
Filament battery	6 volt storage or 4 dry cells
Plate voltage	
Detector	16½ to 45 volts
Amplifier	45 to 135 volts
Filament current consumption	.25 amperes

"C" Battery needed

When using 45 to 67.5 volts
plate battery, "C" battery
should be 1.5 to 3 volts

When using 67.5 to 112½ volts,
"C" Battery should be 3.0 to 4.5 volts

When used as detector, it will require a .00025 Grid condenser and a grid leak or from ½ to 5 megohms. Several different sizes of grid leaks should be tried to find which will give best results. After the right value is found, it can remain permanent until detector tube is changed.

No. 199 TYPE TUBES

Filament voltage	3 volts
Filament battery	3 dry cells or two cells storage battery
Plate voltage	
Detector	22½ to 45 volts
Amplifier	45 to 112½ volts
Filament current consumption	.06 amperes
"C" Battery needed for 45 to 67.5 volts plate battery, "C" Battery should be	1.5 to 3 volts

W D No. 11 or W D No. 12 TYPE TUBE

Filament voltage	1.5 volts
Filament battery	1 dry cell or 2 volt cell from storage battery.
	Note: If two volt cell from storage battery is used, care must be taken to keep the rheostat turned down low.
Plate voltage	
For Detector	22½ to 45 volts
For Amplifier	45 to 100 volts
Filament current consumption	.20 amperes at 1½ volts
"C" Battery needed	These will be same as for No. 199 Type tubes.

CONSTRUCTION AND INSTALLATION OF AERIALS AND GROUND

The construction of an efficient aerial seems to be an unknown art. Much space has been devoted in magazines and newspapers to articles telling how to construct efficient radio sets, and millions of words have been written regarding various types of so-called low loss coils and condensers which it was claimed would increase the efficiency of radio receivers. Then after the radio constructor built one of these efficient receiving sets, in nine cases out of ten, it was connected to an aerial, the efficiency of which was only about one-tenth of what it should be.

Aerials are not only put up so that they give inefficient results, but are generally unsightly as well. The author finds it his duty to visit Chicago and New York occasionally. When entering these cities on the elevated roads, one of the first things which is forcibly brought to his attention is the thousands upon thousands of awkward, unsightly, misplaced aerials, which can be seen by anyone riding on an elevated railway. Every time he visits one of these cities, he vows a vow that sometime he will write a series of newspaper articles showing how to properly construct an efficient and neat looking aerial, and will then hound some hard-working metropolitan newspaper editor until he consents to publish these articles. He either feels like doing this or trying to form a society for the prevention of cruelty to radio sets or to try to persuade the Common Council of these cities to pass an ordinance against putting up unsightly aerials especially in congested apartment house districts. You hear a lot of talk about a radio set squealing and howling. Any self-respecting radio set which is connected to some of the aerials we have seen should squeal and howl. If you have one of these "sins against the spirit of radio" on your roof, try following some of the suggestions given below and see if your radio set does not greet you with a smile and clear reception instead of weak signals and disagreeable noises.

Space in this book does not allow us to give a number of diagrams and pictures to illustrate these suggestions, but some time soon we expect to publish a series of articles which will show how to construct an efficient aerial under all conditions.

A FEW DON'TS IN ERECTING AERIALS

Never install over or under an electric light wire. Your aerial may come down and touch these wires, or the light wires might fall on your

aerial, causing serious damage or bodily harm. This not only applies to electric wires, but to trolley cables and, in fact, all wires carrying high or low tension electric current.

Do not construct the aerial too long. Ordinarily, the right length is from 75 to 125 feet. An aerial longer than this will have too much of natural wave length and will not allow the primary to be the proper type of inductive field. Another thing, too long an aerial will make the set non-selective and will be a great collector of static.

Don't try to use more than one radio set from one aerial. Also, don't install two aerials too close together, especially if they are running parallel with each other. If more than one aerial is installed on one roof, keep them at right angles to each other, as much as possible.

Don't ground the radio set to a gas pipe unless a gas pipe is the only available ground, and then be sure to put a wire jumper around the gas meter.

If using a loop aerial, be sure to keep it away from all metal fixtures. If a loop is placed close to metal fixtures, it will lose its directional properties. Also, a loop does not generally work well inside of a steel framework building.

Don't attach aerial to a tree unless the insulator is placed outside the foliage of a tree, and also be sure it is not fastened to a branch of the tree which will sway and thus cause set to fade.

SOME HELPFUL HINTS ON ERECTION OF AN EFFICIENT AERIAL

Run the lead-in as directly from the aerial to the set as is possible. Do not have any more turns and bends in the wire than is necessary, and avoid, if possible, going down into the basement of a house and then coming up thru the floor to the receiver.

One wire will be enough for receiving aerial. A number of wires in the aerial has the same effect as a long aerial—makes the set broad and also collects static without giving louder signals.

Insulate the aerials and lead-ins the same as electric companies insulate their high tension lines. The insulator at the end should be at least three inches long and it does not hurt to use two of these at each end. The best insulator for the lead-in wire is a composition stand-off bracket that will keep the wire at least six inches from the building. The best way to bring a lead-in into the building is to use a composition

rod with a brass rod in the center and two flanges on each end which will fit close to both sides of the wall. Window lead-ins are all right, but do not make as permanent a job as the type of lead-in spoken of above. If using a window lead-in, it is best to put this over the top of the sash rather than at the bottom. It will not then become wet when it rains.

Iron or galvanized pipe makes a good, neat looking mask, but when they are used, the insulators on the end of the aerials should be four feet from the mask. Also, keep guy wires away from lead-in and aerial.

The best wire for an aerial is an Enamel No. 14 Solid or Enamel No. 14 Stranded. We have found that in service the Standard Enamel Wire sometimes becomes noisy due to the fact that the enamel has been worn off some of the strands by the swaying of the aerial. When bare copper wire is used for aerial, it soon becomes corroded and then has a skin resistance which makes for inefficiency.

Always keep the aerial wire stretched as tightly as possible, as a swaying aerial will have a tendency to make a radio set fade.

A good ground connection always helps the set. The best ground is a water pipe, but other grounds which can be used are steam or hot water radiators, fire escapes, or a pipe driven into the ground, or a wire soldered to a copper or lead plate which is buried in the ground. In the event a pipe driven in the ground or a copper or lead plate is used, be sure they are deep enough to be down in moist soil. How deep this will have to be will depend upon the condition of the ground.

Always be sure that the ground wire makes a good connection to your water pipe, radiator, etc. Use some type of good ground clamps, and be sure it is permanently fastened. We have found many radio users who have connected the ground wire by merely wrapping a few turns around a pipe or radiator. This type of connection often causes trouble in reception.

Electric light socket aerials are all right in some locations and for local reception, but in very few cases do they give as good results on distant stations as a good wire aerial.

Well constructed inside aerials sometimes give good results. If enough room can be had to construct a long aerial in the attic or other suitable place, it is much easier to put up and will not show from the outside of the building.

Always solder the lead-in to the aerial wire. If this is not done, the set will soon become noisy, due to having a poor joint between lead-in and aerial.

It is always best to use some type of approved lightning arrestor. The National Board of Fire Underwriters allow these to be installed either inside or outside of the building, and the same ground wire as is used for the set can be used for the lightning arrestor. The ground wire, however, wants to be as of large size wire as that used in the aerial and lead-in.

In installing a radio set, be sure and not have the "A" and "B" Battery leads too long. If long leads are used for "A" and "B" batteries, these will act as an additional aerial over which you would have no control. This would tend to make the set non-selective as well as make it oscillate freely. The "A" battery leads should not be more than six to eight feet long and the "B" battery lead-in four to five feet long.

LOCATING TROUBLE IN A RADIO SET

Note: The following is taken from our book of Radio Theory Simplified, but due to the fact that the Log and Call Book is always handy when trouble is experienced in the receiver, we believe it a good thing to reprint here.

IF THE SET FAILS TO OPERATE AT ALL

See if the aerial and ground are connectel to their proper places.

Phone or loud speaker may be disconnected.

"A" and "B" batteries may be disconnected.

Leads from "B" battery may be reversed. Trace out and see that the positive side of the "B" battery is connected to the plate terminal of the audion bulb.

One of the tubes in the set may be burned out or the elements of the tube may be touching each other.

Check the set over and see if there are any loose connections.

A phone condenser may be shorted.

A transformer may be shorted or burned out.

One of the jacks in the set may be open. This oftentimes happens. To find out if it is causing the trouble press down on the leaves of the different jacks and see if a signal can be received.

Tubes may not be making contact in their sockets. Try pressing down on different tubes to see if this brings in signals.

Phone plug may not be making proper contact in jack due to its not being pushed in far enough.

Dead "B" batteries. These should be tested with a volt meter.

Variable condenser or secondary coils may be shorted.

IF NOISES ARE HEARD IN THE SET BUT NO SIGNALS CAN BE RECEIVED

Look for poor connection to aerial and ground.

Look for poor connection to "A" battery making filament current unsteady.

Set may be in an oscillating condition due to the tickler coil being too closely coupled.

Grid wire or return lead from grid to "A" battery may be open. This generally causes a very pronounced A-C hum or whistle.

Variable condenser may be shorted. (Keep variable condensers free from dust between plates.)

"B" battery voltage on the detector may be too high. Try changing Detector "B" battery voltage.

Jacks may be open.

Noises may be due to power leaks, x-ray machines, motors, arc lights, flickering, etc. To see if this is causing trouble, disconnect aerial and ground to see if noises disappear.

Lightning Arrestor may be shorted.

WEAK SIGNALS

Exhausted "A" or "B" battery.

"A" battery terminals may be reversed.

Poor bulbs.

Poor socket contacts.

Inefficient transformers.

Amplifier "B" battery voltage too low.

Detector "B" battery voltage too high or too low.

Poor phones or loud talker.

Poor grid condensed.

Grid leak not of proper value. Try changing to different sizes.

Phones or loud speaker leads may be reversed. Try changing around and see which gives best signals.

Set may not tune to wave length which it is desired to hear. Try

may be reversed.

Use high dielectric varnish only.

noticed especially in the summer time and

on distant stations. Nothing can be done to rectify this trouble except that sometimes where the fading comes at long intervals variations may be followed by changing the tuning.

Poor aerial or ground. Fastened ground to water pipe or to pipe driven into moist earth.

Inefficient parts used in set.

Leads to primary of audio frequency transformer may be reversed.

Set untuned. Some radio frequency sets are very hard to tune, so do not become discouraged until sure you know how to operate.

NOISES PRESENT WITH SIGNALS

Static, especially in summer. Not much can be done to overcome static, except that shorter aerials or a loop may be used. Sets using radio frequency amplification do not amplify static to any great extent.

Power leak caused by defective transformer or poor insulator of high tension line. If sure this is causing trouble, notify local power company.

Battery charger operating close by.

Arc light flickering.

Passing street cars.

Noises caused by improperly operated nearby regenerative sets.

One broadcasting station heterodyning another.

If noises are caused by any of the reasons above, they should practically disappear when antenna and ground are disconnected.

Noisy or nearly exhausted "B" battery.

Excessive regeneration.

Amplifier tubes turned up too high.

Corroded connections caused by using acid flux in soldered joints.

If using reflex set crystal may not be making contact.

Radio or audio frequency transformers too close together. Spread apart and place at right angles to each other.

Noises are caused by vibration of UV 199 type Bulb. Use sponge rubber cushioned socket.

Leaking or broken down condensers.

Noise can be heard if set has a loose connection, especially when set into vibration.

Pencil marks or acid making low resistance path between terminals.

CAUSES OF DISTORTED SIGNALS

Defective bulbs.

Defective transformers.

Excessive regeneration. Loosened coupling of
down detector bulb.

Excessive "B" battery voltage.

Overloading phones or loud speaker.

Loud speaker terminals reversed.

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