

RADIO INDEX

"THE TUNING BOOK"



RADEX shows the wave length to which set is
tuned as dials are turned, gives exact location
of dials for any station in America and identi-
fies programs received without announcement
For any dial and any set



RADIO INDEX



FIRST 1927 EDITION

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VOLUME 3

NUMBER 3

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One Dollar the Year

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SENDING PICTURES By RADIO

Another Story in A B C

By E. WALTER THORNE

We have grown accustomed to the marvel of hearing over the radio music and voices from points thousands of miles away and take the magic of it for granted. When we read that photographs are being sent through the ether and received across a continent or sea within a few seconds after they are taken, we give it up as beyond our comprehension. As a matter of fact, however, the process is quite simple and easily understandable. The Government is now sending weather maps by radio so that the ship's captain far at sea is handed by radio a picture of currents and pressures that enables him to steer his course safely. Recently the picture of a bank check was sent through the air from England to the United States and it was so perfect a reproduction that it was cashed unquestioningly. Marvelous. How is it done?

From previous articles in RADEX you have learned that sound is not sent by radio but that the sound waves of voice or music vibrate the microphone and these vibrations actuate the diaphragm in your radio set in sympathy, setting up air waves exactly like the original so that you seem to hear the original speakers and artists. These waves can be made to do other things beside reproduce sound.

You are all familiar with the Edison Dictaphone which is used in offices to receive dictation and reproduce it for the typist. If you had

one of these Dictaphones in your home and were to put a record on your phonograph and direct the sound into the Dictaphone you would make a new record. That is, the sound would come from the phonograph and pass into the Dictaphone and there it would be impressed upon the blank record. The same thing would be true if the phonograph were set up in a broadcasting studio in New York and received in your home by radio. That much is clear, is it not?

Let us assume now that we have two phonographs—a sender in New York and a receiver in Chicago. Instead of a musical record we will put on the New York phonograph a record in which a picture has been engraved. On the Chicago phonograph we have merely a round piece of blank cardboard and instead of a needle we have a tiny fountain-pen or stylus. Both machines must now be synchronized. That is, they must be set to turn exactly the same number of revolutions per minute. This is absolutely necessary. At a given signal we lower the needle on the New York phonograph and the stylus on the Chicago receiver and start the machines simultaneously. As the needle in New York goes round and round over the record winding toward the center in a great spiral that touches every portion of the picture, the stylus in Chicago touches the paper in exactly the same way

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HOME MADE STATIC

Eliminating Unnecessary Noises

By THE EDITOR

A recent talk broadcast from station CKCL by the Editor of RADIO (Canada) not long ago gave such helpful hints regarding the elimination of man-made static that it is reproduced herewith.

"The problem of radio interference is undoubtedly the most important problem facing the radio engineer today.

"The excellent quality of music received, by modern radio apparatus is indeed surprising when we consider how many forms of radio interference are present, because if such a happy condition should arrive at some future date when many or all forms of interference will be eliminated, broadcast reception on the whole would be improved at least 100%; static and fading would then be the only two remaining problems but, unlike static and fading, nearly all radio interference is man-made and it therefore appears to me that with organized effort a very great percentage of it would be eliminated.

"Undoubtedly there are some forms which require energetic research work on the part of the radio technicians, but the great part of it depends more or less upon each one of you individually. Perhaps it has never occurred to you that if you commence to operate your vacuum cleaner or your violet ray machine, or even your washing machine motor, you are creating a considerable amount of radio interference which no doubt could be eliminated at

night time. While all vacuum cleaner or washing machine motors do not create interference I should remain quite true to fact in stating that they all do at some time or other.

"It is also a safe rule to state that any piece of electrical apparatus which has a moving mechanism of a spark of any kind is one of the many sources of radio interference which is man-made. No doubt the greatest form of interference is created by regenerative radio receivers and this form is most potent of all, and yet by careful manipulation of this type of receiver, nearly all of the trouble could be eliminated and it is certainly to be regretted that our Government has not passed legislation which would forbid the further manufacture of this type of nuisance.

"Another important contribution to radio interference is the oil-burning furnace of which there are two types—one as potent as the other. The first type of oil-burning furnace utilizes a motor pump which is controlled by an automatic gauge which enables it to interfere with radio reception at any moment when more oil pressure is required. The other form employs a small electric spark which operates more or less continuously for the purpose of igniting the oil gases. This particular form of interference is most troublesome and interferes over the entire dial range of receivers in its locality.

"If you are particularly desirous of assisting both yourself and your

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SPEAKING OF THE SPEAKER

A Set is no Better Than its Horn

By ELWOOD MANNING

(Concluded from previous number)

Whatever its type there are certain principles that must be embodied if true and sympathetic reproduction is to be possible. The non-resonant school maintains that there must be no vibration whatever from the speaker itself; that its function is to receive, amplify and produce the sounds transmitted to it from the broadcasting station. The other group believes that just as there would be no beauty to the vibration of a violin string which was merely amplified so there must be a resonance in the speaker itself. The great difficulty in designing a perfect speaker is in the overtones or harmonics. Middle C on the piano and middle C on the violin are the same key yet they are not the same sound. The reason is that the piano C is composed not only of the true tone of that key but also of overtones or what might be termed echoes. These overtones consist of vibrations higher than the fundamental or true tone and are exact multiples of the fundamental. Thus a certain note on the piano may have a vibration of 260 per second yet in the note given off when the key is struck are minor overtones of 520, 1040, 2080 and 4160. Another instrument on which the same note is struck may have only the fundamental and 520 and 1040. Unless the speaker is properly designed these overtones are lost and a piano may be made to sound over the radio like an old-fashioned music box.

In order to amplify the sound which enters the small end of the speaker through the reproducing unit there must be a column of air separated from the surrounding air. This column of air is first set into vibration and then expelled through the bell shaped opening in such a way as to set into vibration the outer air of the room in which the speaker is placed. Unless there is ample air within the horn a sufficient vibration is not set up inside the speaker to produce proper amplification. The result of too small a horn on the old phonograph was that everyone who heard it knew immediately that it *was* a phonograph whereas with the present type orthophonic Victrola, for instance, a sufficient column of air has been impounded by great length of horn to give realism to the amplification until the reproduction can readily be mistaken for the original. Thus it approaches true reproduction.

It may be said that the ideal loud speaker creates no tones of its own and must either be free from inherent resonance or equally resonant on all the notes or frequencies of the musical scale. If a certain frequency were to set up a vibration in the speaker itself it is obvious that the tones near that range of vibration would be untrue. The cone speaker is an attempt to eliminate inherent resonance while in the horn type attempt is made to make the

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INDEX BY WAVE LENGTHS AND DIAL NUMBERS

202.6 meters 1480 kilocycles

KFXB 500 Big Bear Lake, Cal.
KGBY 10 Shelby, Mont.
KGDJ 10 Cresco, Iowa
WEHS 10 Chicago, Ill.
WIBS 10 Elizabeth, N. J.

203.9 meters 1470 kilocycles

WABB 10 Harrisburg, Pa.

205.4 meters 1460 kilocycles

KFVD 50 Venice, Calif.
KFXD 50 Logan, Utah
KFXV 50 Flagstaff, Ariz.
WPDQ 50 Buffalo, N. Y.

206.8 meters 1450 kilocycles

KGTT 50 San Francisco, Cal.
WABW 50 Wooster, O.
WJBA 50 Joliet, Ill.

209.7 meters 1430 kilocycles

KFYO 10 Texarkana, Tex.
KGCN 50 Concordia, Kan.
WIBH 30 New Bedford, Mass.
WKBA 200 Chicago, Ill.

211.1 meters 1420 kilocycles

KFWO 500 Avalon, Calif.
WJBU 100 Lewisburg, Pa.
WLBF 25 Kansas City, Mo.

212.6 meters 1410 kilocycles

KFWV 50 Portland, Ore.

214.2 meters 1400 kilocycles

KFWF 250 St. Louis, Mo.
KFXR 15 Oklahoma City
KFYF 10 Oxnard, Cal.
WCLS 150 Joliet, Ill.

215.7 meters 1390 kilocycles

KFBC 50 San Diego, Cal.
KFQW 50 Seattle, Wash.
KFXJ 15 Denver, Colo.
KPJM* 15 Prescott, Ariz.
WBBZ 50 Chicago, Ill.
WHBL 50 Chicago, Ill.
WHBM 20 Chicago, Ill.
WHBW 100 Philadelphia, Pa.
WIBJ 50 Chicago, Ill.
WIBM 10 Chicago, Ill.
WKBG 100 Chicago, Ill.
WKBM 23 Newburgh, N. Y.
WPRC 100 Harrisburg, Pa.
WRST 250 Bay Shore, N. Y.

217.3 meters 1380 kilocycles

KFAF 50 San Jose, Cal.
KGDM 5 Stockton, Calif.

Bertram O. Heller
Albert C. Dunning
R. Rathert
Oliver G. Fordham
Lieut. Thos. F. Hunter

Harrisburg Radio Co.

W. J. & C. I. McWhinnie
Service Radio Co.
Mary M. Costigan
Hiram L. Turner

Glad Tidings Temple & Bible Inst.
College of Wooster
D. H. Lentz, Jr.

Buchanan-Vaughan Co.
Alva E. Smith
Elite Radio Stores
Arrow Battery Co.

Lawrence Mott
Bucknell University
Everett L. Dillard

KFWV Broadcast Studios

St. Louis Truth Center
Classen Film Finishing Co.
Carl's Radio Den
WCLS, Inc.

W. K. Azbill
Carl F. Knierim
R. G. Howell
Wilburn Radio Service
C. L. Carrell
James H. Slusser
C. L. Carrell
D. R. Kienzie
C. L. Carrell
Billy Maine
C. L. Carrell
John Wilbur Jones
Wilson Printing & Radio Co.
Radiotel Mfg. Co.

Alfred E. Fowler
Victor G. Koping

INDEX BY WAVE LENGTHS AND DIAL NUMBERS

WFKB 500 Chicago, Ill.
WOK 5000 Chicago, Ill.

218.8 meters 1370 kilocycles

KFRW 50 Olympia, Wash.
WHBU 10 Anderson, Ind.
WIBI 50 Flushing, N. Y.
WJBI 250 Red Bank, N. J.
WSVS 50 Buffalo, N. Y.

220.4 meters 1360 kilocycles

KFUU 50 Oakland, Cal.
KRAC* 50 Shreveport, La.
WIBW 100 Logansport, Ind.
WKBI 50 Chicago, Ill.
WKBY* 50 Danville, Pa.
WQAA 500 Parkesburg, Pa.

222.1 meters 1350 kilocycles

WBBW 50 Norfolk, Va.
WBES 100 Takoma Park, Md.
WCOA 500 Pensacola, Fla.
WHBD 20 Bellefontaine, O.
WHBF 100 Rock Island, Ill.
WIBG 50 Elkins Park, Pa.
WIBU 20 Poynette, Wis.

223.7 meters 1340 kilocycles

KFBL 100 Everett, Wash.
KFQP 10 Iowa City, Ia.
KFUR 100 Ogden, Utah
KFVS 50 Cape Girardeau, Mo.
WBMS 10 N. Bergen, N. J.
WKAV 50 Laconia, N. H.
WLBC 50 Muncie, Ind.
WNRC 10 Greensboro, N. C.
WRAF 100 La Porte, Ind.

225.4 meters 1330 kilocycles

KFGQ 10 Boone, Iowa
KFIU 10 Juneau, Alaska
KFKZ 10 Kirksville, Mo.
KFOB 50 Burlingame, Cal.
KFOR 100 David City, Neb.
KFQZ 50 Hollywood, Cal.
WAGM 50 Royal Oak, Mich.
WBBM 1500 Chicago, Ill.
WDAD 150 Nashville, Tenn.
WEBL 100 U. S. (Portable)
WEBQ 10 Harrisburg, Ill.
WIBO 1000 Chicago, Ill.
WKBC* 50 Birmingham, Ala.
WKBR* 100 Auburn, N. Y.
WLAC 150 Nashville, Tenn.

227.1 meters 1320 kilocycles

KFVN 50 Fairmont, Minn.
KGBS 10000 Seattle, Wash.
WDBK 100 Cleveland, O.
WJBR 50 Omro, Wis.
WMRJ 5 Jamaica, N. Y.
WOWO 500 Fort Wayne, Ind.

Francis K. Bridgman, Inc.
Neutrowound Radio Mfg. Co.

Western Broadcasting Co.
Riviera Theatre
Frederick B. Zittell, Jr.
Robert S. Johnson
Seneca Vocational School

Colburn & Mathewson
Caddo Radio Club
Dr. L. L. Dill
Fred L. Schoenwolf
Fernwood Quick
Horace A. Beale, Jr.

Ruffner Junior High School
Bliss Electrical School
City of Pensacola
Chamber of Commerce
Beardsley Specialty Co.
St. Paul's Prot. Epis. Church
The Electric Farm

Leese Bros.
George S. Carson, Jr.
Peery Building Co.
Hirsch Battery & Radio Co.
Geo. Julius Schowerer
Laconia Radio Club
D. A. Burton
Wayne M. Nelson
The Radio Club, Inc.

Boone Biblical College
Alaska Elec. Lt. & Pwr. Co.
Chamber of Commerce
KFOB, Inc.
David City Tire & Electric Co.
Taft Products Co.
Robert L. Miller
Atlas Investment Co.
Dad's Auto Accessories, Inc.
Radio Corporation of America
Tate Radio Co.
Nelson Brothers
H. L. Ansley
Charles J. Heiser
Life and Casualty Ins. Co.

Carl F. Bagley
A. C. Dailey
Stanley J. Broz
Gensch & Stearns
Peter J. Prinz
Main Auto Supply Co.

INDEX BY WAVE LENGTHS AND DIAL NUMBERS

228.9 meters 1310 kilocycles

KFLV	200	Rockford, Ill.
KGBU	500	Ketchikan, Alaska
KMMJ	1000	Clay Center, Neb.
KPPC	50	Pasadena, Cal.
WAIT	10	Taunton, Mass.
WBBL	100	Richmond, Va.
WCBM	50	Baltimore, Md.
WDBJ	50	Roanoke, Va.
WFCI*	100	Pawtucket, R. I.
WGBR	15	Marshfield, Wis.
WSAJ	250	Grove City, Pa.
WSAN	100	Allentown, Pa.
WSAU	10	Chesham, N. H.

Swedish Evang. Mission Church
Alaska Radio & Service Co.
M. M. Johnson Co.
Pasadena Presbyterian Church
A. H. Waite & Co.
Grace Covenant Presby. Church
Hotel Chateau
Richardson-Wayland Elecl. Corpn.
Frank Crook, Inc.
George S. Ives
Grove City College
Allentown Call
Camp Marienfeld

230.6 meters 1300 kilocycles

KDLR	5	Devils Lake, N. D.
KFDX	500	Shreveport, La.
KFDZ	10	Minneapolis, Minn.
KFOT	50	Wichita, Kan.
KFPR	500	Los Angeles, Cal.
KFQU	100	Holy City, Cal.
KGCL	10	Seattle, Wash.
KUT	500	Austin, Tex.
WBRE	100	Wilkes-Barre, Pa.
WCLO	50	Camp Lake, Wis.
WHBG	20	Harrisburg, Pa.
WIBZ	10	Montgomery, Ala.
WLBE	15	Brooklyn, N. Y.
WTAX	50	Streator, Ill.

Radio Electric Co.
First Baptist Church
Harry O. Iverson
College Hill Radio Club
Los Angeles County Forestry Dept.
W. E. Riker
Louis Wasmer
University of Texas
Baltimore Radio Exchange
C. E. Whitmore
John S. Skane
A. D. Trum
J. H. Fruitman
Williams Hardware Co.

232.4 meters 1290 kilocycles

KFEY	10	Kellogg, Ida.
KFON	500	Long Beach, Cal.
KGDE	50	Barrett, Minn.
WCWS	100	Bridgeport, Conn.
WDBZ	10	Kingston, N. Y.
WFBE	500	Cincinnati, O.
WHBQ	50	Memphis, Tenn.
WJBK	10	Ypsilanti, Mich.
WOKO	50	Peekskill, N. Y.

Bunker Hill & Sullivan Mining Co.
Nichols & Warriner, Inc.
Jaren Drug Co.
Chas. Wm. Selen
Kingston Radio Club
Garfield Place Hotel Co.
St. John's M. E. Church
Ernest F. Goodwin
Harold E. Smith

234.2 meters 1280 kilocycles

KFUP	50	Denver, Colo.
KGRS	100	Amarillo, Tex.
KJBS	5	San Francisco
KMJ	50	Fresno, Cal.
WAAT	10	Jersey City, N. J.
WCBR	100	Providence, R. I.
WCWK	250	Fort Wayne, Ind.
WFDF	100	Flint, Mich.
WGBX	500	Orono, Me.
WIBX	150	Utica, N. Y.
WJBC	100	La Salle, Ill.
WRAH*	150	Providence, R. I.
2LR*	50	Habana, Cuba

Fitzsimons General Hospital
Gish Radio Service
Julius Brunton & Sons Co.
Fresno Bee
Frank V. Bremer
Chas. H. Messter
Chester W. Keen
Frank D. Fallain
University of Maine
WIBX, Inc.
Hummer Furniture Co.
Stanley N. Read
Jose Lara

236.1 meters 1270 kilocycles

KFLU	10	San Benito, Tex.
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San Benito Radio Club

INDEX BY WAVE LENGTHS AND DIAL NUMBERS

KFOO	250	Salt Lake City, Utah
KFVG	15	Independence, Kan.
KWKC	100	Kansas City, Mo.
WBOQ	500	Richmond Hill, N. Y.
WFBJ	100	Collegeville, Minn.
WGBF	500	Evansville, Ind.
WGMU	100	Richmond Hill, N. Y.
WIBA	100	Madison, Wis.
WKBV	75	Brookville, Ind.
WRMU	100	Richmond Hill, N. Y.
WTAD	50	Carthage, Ill.

237.9 meters 1260 kilocycles

KFBS	15	Trinidad, Colo.
KFCB	125	Phoenix, Ariz.
KFWU	100	Pineville, La.
KFYJ	10	Houston, Tex.
KMTR	500	Hollywood, Cal.
KNRC	500	Santa Monica, Calif.
WBBP	200	Petoskey, Mich.
WHBN	10	St. Petersburg, Fla.
WHT	5000	Chicago, Ill.
WRAW	10	Reading, Pa.

239.9 meters 1250 kilocycles

KFHL	10	Oskaloosa, Iowa
KFLX	10	Galveston, Tex.
KFUM	100	Colorado Springs, Colo.
KFVE	5000	St. Louis, Mo.
KFVI	10	Houston, Tex.
KGCG	100	Newark, Ark.
KGCI	15	San Antonio, Tex.
KGCX*	7	Vida, Mont.
KXRO*	85	Seattle, Wash.
KZM	100	Oakland, Cal.
WABI	100	Bangor, Me.
WCAT	50	Rapid City, S. D.
WDBO	500	Winter Park, Fla.
WGBI	100	Scranton, Pa.
WOAX	500	Trenton, N. J.
WSMH	20	Owosso, Mich.
WTRC	50	New York City

241.8 meters 1240 kilocycles

KFFP	50	Moberly, Mo.
KFPM	10	Greenville, Tex.
KFXH	50	El Paso, Tex.
KVI*	15	Tacoma, Wash.
WABY	50	Philadelphia, Pa.
WBAW	100	Nashville, Tenn.
WCBH	50	Oxford, Miss.
WCBH*	250	Providence, R. I.
WEBC	100	Superior, Wis.
WHOG	15	Huntington, Ind.
WOOD	500	Grand Rapids, Mich.
WWAE	10000	Plainfield, Ill.

243.8 meters 1230 kilocycles

KFVR	50	Denver, Colo.
KGAR	100	Tucson, Ariz.

Latter Day Saints University
First M. E. Church
Wilson Duncan Studios
A. H. Grebe & Co.
St. John's University
Finke Furniture Co.
A. H. Grebe & Co.
Capital Times Studio
Knox Battery & Elec. Co.
A. H. Grebe & Co.
Robert E. Compton

School District No. 1
Nielsen Radio Supply Co.
Louisiana College
Houston Chronicle
Echophone Mfg. Co.
Clarence B. Juneau
Petoskey High School
First Avenue Methodist Church
Radiophone Broadcasting Corp.
Avenue Radio & Electric Shop

Penn College
George R. Clough
W. D. Corley
Benson Broadcasting Corp.
56th Cavalry, Hdqrs. Troop
Moore Motor Co.
International Radio Co.
First State Bank
Brott Laboratories
Western Radio Institute
First Methodist Church
State School of Mines
Rollins College
Scranton Broadcasters, Inc.
Franklyn J. Wolff
Shattuck Music House
20th Dist. Republican Club

First Baptist Church
New Furniture Co.
Bledsoe Radio Co.
Puget Sound Bdcstg. Co.
John Magaldi, Jr.
Braid Electric Co.
University of Mississippi
Dewing and Messter
Superior Telegram
Huntington Broadcasters Assn.
Grand Rapids Radio Co.
Electric Park.

Eugene Rossi
Tucson Citizen

INDEX BY WAVE LENGTHS AND DIAL NUMBERS

KUOM 500 Missoula, Mont.
WAMD 1000 Minneapolis, Minn.
WATT 100 Boston, Mass.
WEBR 100 Buffalo, N. Y.
WGBB 100 Freeport, N. Y.
WKBF* 100 Indianapolis, Ind.
WNAX 100 Yankton, S. D.
WRAM 100 Galesburg, Ill.
WSAZ 50 Pomeroy, O.

245.8 meters 1220 kilocycles

KDYL 50 Salt Lake City, Utah
KFJI 10 Astoria, Ore.
KFJY 50 Fort Dodge, Ia.
KFSD 1000 San Diego, Cal.
WABX 500 Mt. Clemens, Mich.
WBAL 5000 Baltimore, Md.
WCAZ 50 Carthage, Ill.
WIBR 50 Steubenville, O.
WQAE 50 Springfield, Vt.
WRR 500 Dallas, Tex.
WSOE 500 Milwaukee, Wis.

247.8 meters 1210 kilocycles

CHCO 5 Huntsville, Ont.
CJCF 25 Kitchener, Ont.
CKMC 5 Cobalt, Ont.
CKPC 7 Preston, Ont.
KFEC 50 Portland, Ore.
KFIF 100 Portland, Ore.
KFJB 10 Marshalltown, Ia.
KFOX 100 Omaha, Neb.
KFRB 250 Beeville, Tex.
KFYR 10 Bismarck, N. D.
KWG 50 Stockton, Cal.
WBRC 50 Birmingham, Ala.
WCSO 100 Springfield, O.
WGAL 10 Lancaster, Pa.
WIOD 1000 Miami Beach, Fla.
WMAY 100 St. Louis, Mo.
WNBH 100 New Bedford, Mass.

249.9 meters 1200 kilocycles

KFVY 10 Albuquerque, N. M.
KFWI 500 San Francisco
KLS 250 Oakland, Cal.
KMO 500 Tacoma, Wash.
WAGS* 5 Somerville, Mass.
WBBC 100 Brooklyn, N. Y.
WEDC 1000 Chicago, Ill.
WFBC 50 Knoxville, Tenn.
WHBA 10 Oil City, Pa.
WHBY 50 West De Pere, Wis.
WIAD 100 Philadelphia, Pa.
WKBH 500 La Crosse, Wis.
WLAL 100 Tulsa, Okla.
WMBB 500 Chicago, Ill.
WNAT 100 Philadelphia, Pa.
WQAN 100 Scranton, Pa.
8BY 100 Santiago, Cuba

University of Montana
Radisson Radio Corporation
Edison Electric Illuminating Co.
H. H. Howell
Harry H. Carman
Noble B. Watson
Dakota Radio Apparatus Co.
Lombard College
Chase Electrical Shop

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Intermountain Bdcstg. Corp.
E. E. Marsh
Tunwall Radio Co.
Airfan Radio Corporation
Henry B. Joy
Consolidated Gas, Light & Power Co.
Carthage College
Tri-State Radio Co.
Moore Radio News Station
City of Dallas
School of Engineering

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A. Staples
O. Rumpel
R. L. McAdam
Wallace Russ
Meier & Frank Co.
Benson Polytechnic Institute
Marshall Electric Co.
Technical High School
Hall Brothers
Hoskins-Meyer, Inc.
Portable Wireless Telephone Co.
Birmingham Broadcasting Corp.
Wittenberg College
Electric Supply & Construction Co.
Carl G. Fisher Co.
Kingshighway Presbyterian Church
New Bedford Hotel

17.7	20.9	21.13
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Radio Supply Co.
Radio Entertainments, Inc.
Warner Bros. Radio Supplies Co.
KMO, Inc.
Willow Garages, Inc.
Peter J. Testan
Emil Denmark Bdcstg. Station
First Baptist Church
Shaffer Music House
St. Norbert's College
Howard R. Miller
Callaway Music Co.
First Christian Church
American Bond & Mortgage Co.
Lenning Bros. Co.
Scranton Times
Alberto Ravelo

INDEX BY WAVE LENGTHS AND DIAL NUMBERS

251.9 meters 1190 kilocycles

KFEC	50	Portland, Ore.
KFHA	50	Gunnison, Colo.
KFOY	50	St. Paul, Minn.
KFPL	15	Dublin, Tex.
KFWB	500	Hollywood, Cal.
KGCR	50	Brookings, S. D.
KOCW	200	Chickasha, Okla.
KWUC	50	Le Mars, Iowa
WCAX	100	Burlington, Vt.
WFBL	100	Syracuse, N. Y.
WGCP	500	Newark, N. J.
WKBL	15	Monroe, Mich.
WKBT	50	New Orleans, La.
WRCO	100	Raleigh, N. C.
WRHM	50	Minneapolis, Minn.
WSRO	100	Hamilton, O.
WTAL	10	Toledo, O.

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Meier & Frank Co.		
Western State College of Colo.		
Beacon Radio Service		
C. C. Baxter		
Warner Bros. Pictures, Inc.		
Cutler's Radio Service		
Oklahoma College for Women		
Western Union College		
University of Vermont		
The Onondaga Co.		
May Radio Broadcast Corp.		
Monrona Mfg. Co.		
First Baptist Church		
Wynne Radio Co.		
Rosedale Hospital		
Radio Company		
Toledo Radio & Electric Co.		

254.1 meters 1180 kilocycles

KFEL	50	Denver, Colo.
KFJZ	50	Fort Worth, Tex.
KFLR	100	Albuquerque, N. M.
KFWH	100	Eureka, Cal.
KGDA	15	Dell Rapids, S. D.
WABC	20	Asheville, N. C.
WCAJ	500	University Place, Neb.
WCBA	15	Allentown, Pa.
WEAI	500	Ithaca, N. Y.
WFBR	100	Baltimore, Md.
WFBZ	20	Galesburg, Ill.
WHBC	10	Canton, O.
WIAS	100	Burlington, Ia.
WJAK	100	Kokomo, Ind.
WJBB	10	St. Petersburg, Fla.
WNAD	500	Norman, Okla.
WOMT	50	Manitowoc, Wis.
WREC	10	Coldwater, Miss.
WSAR	100	Fall River, Mass.
WTAQ	100	Eau Claire, Wis.

Eugene P. O'Fallon, Inc.		
W. E. Branch		
University of New Mexico		
F. Wellington Morse, Jr.		
Home Auto Co.		
Asheville Battery Co.		
Nebraska Wesleyan University		
Queen City Radio Station		
Cornell University		
5th Infantry, M. N. G.		
Knox College		
Rev. E. P. Graham		
Home Electric Co.		
Kokomo Tribune		
Financial Journal		
University of Oklahoma		
Mikado Theatre		
Wooten's Radio & Elec. Co.		
Doughty & Welch Electrical Co.		
C. S. Van Gorden		

256.3 meters 1170 kilocycles

KFIQ	100	Yakima, Wash.
KFUS	50	Oakland, Cal.
KRE	150	Berkeley, Cal.
WASH	500	Grand Rapids, Mich.
WBAX	100	Wilkes-Barre, Pa.
WDOD	500	Chattanooga, Tenn.
WHBP	100	Johnstown, Pa.
WKBZ	15	Ludington, Mich.
WMBC	100	Detroit, Mich.
WRAK	100	Escanaba, Mich.
WRHF	50	Washington, D. C.
WRVA	1000	Richmond, Va.

Dr. I. M. Miller		
The Gospel Radio		
Berkeley Daily Gazette		
Baxter Laundry Co.		
John H. Stenger, Jr.		
Chattanooga Radio Co.		
Johnstown Automobile Co.		
Karl L. Ashbacher		
Michigan Broadcasting Co., Inc.		
Economy Light Co.		
Washington Radio Hospital Fund		
Larus & Bro. Co.		

258.5 meters 1160 kilocycles

KFPW	20	Cartersville, Mo.
KFUL	50	Galveston, Tex.
KOCH	250	Omaha, Neb.

St. John's M. E. Church, South		
Thos. Goggan & Bros. Music Co.		
Omaha Central High School		

INDEX BY WAVE LENGTHS AND DIAL NUMBERS

WAAD	25	Cincinnati, O.
WADC	500	Akron, O.
WCMA	500	Culver, Ind.
WHEC	100	Rochester, N. Y.
WHFC	150	Chicago, Ill.
WIL	250	St. Louis, Mo.
WKJC	50	Lancaster, Pa.
WLTS	250	Chicago, Ill.
WNAL	50	Omaha, Neb.
WPCC	500	Chicago, Ill.
WWRL	100	Woodside, N. Y.

Ohio Mechanics Institute
 Allen Theatre
 Culver Military Academy
 Hickson Electric Co.
 Hotel Flanders
 St. Louis Star-Benson Radio Co.
 Kirk Johnson & Co.
 Lane Technical High School
 R. J. Rockwell
 North Shore Congregational Church
 Woodside Radio Laboratory

260.7 meters 1150 kilocycles

KFJF	500	Oklahoma City
KFMR	100	Sioux City, Ia.
KSEI	500	Pocatello, Ida.
KWTC	15	Santa Ana, Calif.
WABQ	100	Haverford, Pa.
WARC	100	Medford Hillside, Mass.
WDAY	50	Fargo, N. D.
WEAM	250	North Plainfield, N. J.
WJBY*	30	Gadsden, Ala.
WKAF	500	Milwaukee, Wis.
WMAZ	500	Macon, Ga.
WPSC	500	State College, Pa.
WSKC	100	Bay City, Mich.
WSSH	100	Boston, Mass.
WTAR	100	Norfolk, Va.
WTAZ	15	Lambertville, N. J.
6BY*	200	Cienfuegos, Cuba

4	10	11
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National Radio Mfg. Co.
 Morningside College
 KSEI Bdcstg. Assn.
 Dr. John Wesley Hancock
 Haverford College Radio Club
 The Amrad Corporation
 Radio Equipment Corporation
 Borough of North Plainfield
 Electric Construction Co.
 WKAF Broadcasting Corporation
 Mercer University
 Pennsylvania State College
 World's Star Knitting Co.
 Tremont Temple Baptist Church
 Reliance Electric Co.
 Thomas J. McGuire
 Jose Ganduxe

263 meters 1140 kilocycles

KFJR	50	Portland, Ore.
KFUT	100	Salt Lake City, U.
KGCM	10	San Antonio, Tex.
KTBR	50	Portland, Ore.
WAAM	500	Newark, N. J.
WABR	50	Toledo, O.
WCAD	250	Canton, N. Y.
WCAR	1000	San Antonio, Tex.
WCBE	5	New Orleans, La.
WDAG	100	Amarillo, Tex.
WDGY	500	Minneapolis, Minn.
WEBZ	50	Savannah, Ga.
WRAY	100	Yellow Springs, O.
WSDA	250	New York City

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Ashley C. Dixon & Son
 University of Utah
 Robt. B. Bridge
 M. E. Brown
 I. R. Nelson
 Scott High School
 St. Lawrence University
 Southern Radio Corp'n. of Texas
 Uhalt Bros. Radio Co.
 J. Laurence Martin
 Dr. George W. Young
 Savannah Radio Corporation
 Antioch College
 The City Temple

265.3 meters 1130 kilocycles

KLZ	500	Denver, Colo.
KTUE*	5	Houston, Tex.
WBCN	500	Chicago, Ill.
WCAH	50	Columbus, Ohio
WDEL	100	Wilmington, Del.
WENR	1000	Chicago, Ill.
WGHB	500	Clearwater, Fla.
WKBP*	50	Battle Creek, Mich.
WMAK	500	Lockport, N. Y.
WTAB	100	Fall River, Mass.

6	11	12
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Reynolds Radio Co.
 Uhalt Electric
 Southtown Economist
 Entreck Electric Co.
 Wilmington Electrical Specialty Co.
 All-American Radio Corporation
 Fort Harrison Hotel
 Enquirer & News
 Norton Laboratories
 Fall River Herald-News

INDEX BY WAVE LENGTHS AND DIAL NUMBERS

267.7 meters 1120 kilocycles

CFJC	15	Kamloops, B. C.
CFMC	20	Kingston, Ont.
CFRC	500	Kingston, Ont.
CHLC	25	Summerside, P. E. I.
CJOC	50	Lethbridge, Alta.
KFEQ	500	Oak, Neb.
KFH	500	Wichita, Kan.
KFRC	50	San Francisco, Cal.
WBBY	10	Charleston, S. C.
WCFT	10	Tullahoma, Tenn.
WDAH	50	El Paso, Tex.
WDRC	500	New Haven, Conn.
WEBW	500	Beloit, Wis.
WFBM	250	Indianapolis, Ind.
WJAM	100	Cedar Rapids, Ia.
WJBO	100	New Orleans, La.
WNOX	500	Knoxville, Tenn.
WRAX	500	Philadelphia, Pa.
WSAX	100	Chicago, Ill.

6	12	15
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N. S. Dalgleish & Sons
 Monarch Battery Co.
 Queen's University
 R. T. Holman, Ltd.
 J. E. Palmer
 Scroggin & Co. Bank
 Hotel Lassen
 Don Lee, Inc.
 Washington Light Infantry
 Knights of Pythias Home
 Trinity Methodist Church
 Doolittle Radio Corporation
 Beloit College
 Merchants Heat & Light Co.
 D. M. Perham
 Valdemar Jensen
 Peoples Telephone & Telegraph Co.
 Berachah Church
 Zenith Radio Corporation

270.1 meters 1110 kilocycles

KGU	500	Honolulu, Hawaii
WBAO	100	Decatur, Ill.
WDBE	100	Atlanta, Ga.
WGHP	1500	Detroit, Mich.
WGM*	10	Jeanette, Pa.
WGST	500	Atlanta, Ga.
WJBL	500	Decatur, Ill.
WJBW	30	New Orleans, La.
WKBE	100	Webster, Mass.
WOI	750	Ames, Iowa
WRK	100	Hamilton, O.
WTAW	500	College Station, Tex.

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Marion A. Mulrony
 James Millikin University
 Gilham Electric Co.
 George H. Phelps, Inc.
 Verne & Elton Spencer
 Georgia School of Technology
 William Gushard Dry Goods Co.
 C. Carlson, Jr.
 K. & B. Electric Co.
 Iowa State College
 Doron Bros. Electrical Co.
 Agricultural & Mechanical College

272.6 meters 1100 kilocycles

KFAD	100	Phoenix, Ariz.
KFIO	100	Spokane, Wash.
KFIZ	100	Fond du Lac, Wis.
KFKA	50	Greeley, Colo.
KFPY	100	Spokane, Wash.
KICK	100	Anita, Iowa
WBAA	250	West Lafayette, Ind.
WDAE	250	Tampa, Fla.
WEBJ	500	New York City
WFAM	10	St. Cloud, Minn.
WHK	1000	Cleveland, O.
WPCH	500	New York City
WRM	500	Urbana, Ill.
WSBF	250	St. Louis, Mo.

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Electrical Equipment Co.
 North Central High School
 Daily Commonwealth
 State Teachers College
 Symons Investment Co.
 Atlantic Automobile Co.
 Purdue University
 Tampa Daily Times
 Third Avenue Railway Co.
 Times Publishing Co.
 Radio Air Service Corporation
 Concourse Radio Corporation
 University of Illinois
 Stix, Baer & Fuller

275.1 meters 1090 kilocycles

CYB	500	Mexico City
KFBB	50	Havre, Mont.
KFDD	50	Boise, Ida.
KFKU	500	Lawrence, Kan.
KFSG	500	Los Angeles, Cal.
KQV	500	Pittsburgh, Pa.
WABZ	50	New Orleans, La.
WAFD	500	Port Huron, Mich.

13	15	19
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El Buen Tono
 F. A. Buttrey Co.
 St. Michaels Cathedral
 University of Kansas
 Angeles Temple
 Doubleday-Hill Electric Co.
 Coliseum Place Baptist Church
 Albert B. Parfet Co.

INDEX BY WAVE LENGTHS AND DIAL NUMBERS

WBAK 500 Harrisburg, Pa.
WBT 250 Charlotte, N. C.
WCAC 500 Mansfield, Conn.
WCAO 100 Baltimore, Md.
WEAU 100 Sioux City, Ia.
WFAV 500 Lincoln, Neb.
WHAD 500 Milwaukee, Wis.
WHAR 500 Atlantic City, N. J.
WJAS 500 Pittsburgh, Pa.
WKY 100 Oklahoma City
WLAP 20 Louisville, Ky.
WMAC 100 Cazenovia, N. Y.
WOCL 15 Jamestown, N. Y.
WORD 5000 Batavia, Ill.
WPAK 50 Fargo, N. D.
WSBT 250 South Bend, Ind.
WSMK 500 Dayton, Ohio
WSWS 1000 Batavia, Ill.
WWL 100 New Orleans, La.
6JK 100 Santa Clara, Cuba

Pennsylvania State Police
Chamber of Commerce
State Agricultural College
Monumental Radio, Inc.
Davidson Bros. Co.
University of Nebraska
Marquette University
Seaside Hotel
Pittsburgh Radio Supply House
E. C. Hull & H. S. Richards
Virginia Avenue Baptist Church
Clive B. Meredith
A. E. Newton
Peoples Pulpit Association
State Agricultural College
South Bend Tribune
S. M. K. Radio Corporation
Richmond Harris & Co.
Loyola University
Frank H. Jones

277.6 meters 1080 kilocycles

KFJM 100 Grand Forks, N. D.
KGY 50 Lacey, Wash.
KUSD 100 Vermillion, S. D.
KWCR 500 Cedar Rapids, Iowa
KWWG 500 Brownsville, Tex.
WAAF 200 Chicago, Ill.
WABO 100 Rochester, N. Y.
WCAU 500 Philadelphia, Pa.
WDZ 100 Tuscola, Ill.
WFBG 100 Altoona, Pa.
WGBC 10 Memphis, Tenn.
WGBU 500 Fulford-by-Sea, Fla.
WHAM 100 Rochester, N. Y.
WHDI 500 Minneapolis, Minn.
WLB 500 Minneapolis, Minn.
WLBL 500 Stevens Point, Wis.
WMAN 50 Columbus, O.
WOQ 1000 Kansas City, Mo.
WRBC 500 Valparaiso, Ind.

University of North Dakota
St. Martins College
University of South Dakota
Harry F. Paar
Chamber of Commerce
Daily Drivers Journal
Lake Avenue Baptist Church
Universal Broadcasting Co.
James L. Bush
William F. Gable Co.
First Baptist Church
Chamber of Commerce
University of Rochester
William Hood Dunwoody Indust'l Inst.
University of Minnesota
State Department of Markets
First Baptist Church
Unity School of Christianity
Immanuel Lutheran Church

280.2 meters 1070 kilocycles

KFAU 750 Boise, Idaho
KFQA 1500 St. Louis, Mo.
KGCA 15 Decorah, Ia.
KMOX 5000 St. Louis, Mo.
KOAC 500 Corvallis, Ore.
WDWM 500 Newark, N. J.
WKBj* 250 St. Petersburg, Fla.
WNAB 100 Boston, Mass.

Independent School District
The Principia
Charles Walter Greenley
Voice of St. Louis, Inc.
Oregon Agricultural College
Radio Industries Broadcast Co.
Gospel Tabernacle, Inc.
Shepard Stores

282.8 meters 1060 kilocycles

KGBW 250 Joplin, Mo.
KSMR 100 Santa Maria, Calif.
WKBB 100 Joliet, Ill.
WOAN 500 Lawrenceburg, Tenn.
WSM 1000 Nashville, Tenn.

Martin Brotherson
Santa Maria Valley R. R. Co.
Sanders Bros.
James D. Vaughn
National Life & Accident Ins. Co.

285.5 meters 1050 kilocycles

KOWW* 500 Walla Walla, Wash.

Frank A. Moore

INDEX BY WAVE LENGTHS AND DIAL NUMBERS

WICC* 500 Bridgeport, Conn.
WKAR 1000 East Lansing, Mich.
WKBQ* 8 New York City
WQAM 750 Miami, Fla.
WREO 500 Lansing, Mich.

Bridgeport Bdcstg. Station
State Agricultural College
Starlight Amusement Park
Electrical Equipment Co.
Reo Motor Car Co.

288.3 meters 1040 kilocycles

KFKX 5000 Hastings, Neb.
WJBV 100 Woodhaven, N. Y.
WMBI 500 Chicago, Ill.
WSBC 1000 Chicago, Ill.

13	15	18
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Westinghouse Elec. & Mfg. Co.
Union Course Laboratories
Moody Bible Institute
World Battery Co.

291.1 meters 1030 kilocycles

CJBC 500 Toronto, Ont.
CJCI 50 Toronto, Ont.
CJCQ 1000 Town of King, Ont.
CJOR 50 Sea Island, B. C.
CJYC 500 Scarboro Station, Ont.
CKCX 500 Toronto, Ont.
CNRV 500 Vancouver, B. C.
KFWC 5 San Bernardino, Cal.
WBKN 100 Brooklyn, N. Y.

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Jarvis St. Baptist Church
Loyal Order of Moose
Standard Radio Mfg. Corp., Ltd.
G. C. Chandler
Universal Radio of Canada, Ltd.
Internatl. Bible Students Assn.
Canadian National Railways
L. E. Wall
Arthur Faske

293.9 meters 1020 kilocycles

KTBI 750 Los Angeles, Cal.
WAIU 500 Columbus, O.
WARS* 500 Brooklyn, N. Y.
WEAO 750 Columbus, O.
WEPS* 100 Gloucester, Mass.
WMAL 100 Washington, D. C.
WOCB* 50 Orlando, Fla.

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Bible Institute of L. A.
American Insurance Union
Amateur Radio Specialty Co.
Ohio State University
Ralph G. Matheson
M. A. Leese Co.
Orlando Broadcasting Co.

296.9 meters 1010 kilocycles

CFGC 50 Brantford, Ont.
CFLC 50 Prescott, Ont.
CJRM 50 Moose Jaw, Sask.
KPRC 500 Houston, Tex.
KWCR* 500 Cedar Rapids, Iowa
WDXL 250 Detroit, Mich.

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Brant Radio Supply Co., Ltd.
Radio Association of Prescott
James Richardson & Sons, Ltd.
Post-Dispatch
Harry F. Paar
DXL Radio Corp.

299.8 meters 1000 kilocycles

CYA 500 Mexico City
KFDY 500 Brookings, S. D.
KFQD* 100 Anchorage, Alaska
KSL 1000 Salt Lake City, Utah
KUOA 750 Fayetteville, Ark.
WPG 5000 Atlantic City, N. J.
WRES* 100 Wollaston, Mass.
2OL 100 Habana, Cuba

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Elfiran R. Gomez
State College Agri. & Mech. Arts
Anchorage Radio Club
Radio Service Corp. of Utah
University of Arkansas
Municipality of Atlantic City
Harry Leonard Sawyer
Columbia Radio & Cycle Co.

302.8 meters 990 kilocycles

KTAB 1000 Oakland, Cal.
WGN 1000 Chicago, Ill.
WLIB 10000 Chicago, Ill.
WMSG 500 New York City

14	15	16
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Associated Broadcasters
The Chicago Tribune
Liberty Magazine
Madison Square Garden

305.9 meters 980 kilocycles

KOIL 500 Council Bluffs, Ia.
KOMO 1000 Seattle, Wash.

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Mona Motor Oil Co.
American Radio Telephone Co.

INDEX BY WAVE LENGTHS AND DIAL NUMBERS

309.1 meters 970 kilocycles

KDKA 1000 E. Pittsburgh, Pa.
WKBO 200 Jersey City, N. J.

16	19	19
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Westinghouse Elec. & Mfg. Co.
Camith Corporation

312.3 meters 960 kilocycles

CFCY 50 Charlottetown, P. E. I.
CHWC 15 Regina, Sask.
CKCK 500 Regina, Sask.
CKSH 50 St. Hyacinthe, Que.
CNRR 500 Regina, Sask.
CYU 100 Puebla, Mex.
KSBA* 50 Kennonwood, La.
KWKH 1000 Shreveport, La.

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The Island Radio Co.
R. H. Williams & Sons, Ltd.
Leader Publishing Co., Ltd.
City of St. Hyacinthe
Canadian National Railways
Augustin del P. Zaenz
W. G. Patterson
W. K. Henderson Supply Co.

315.6 meters 950 kilocycles

KFDM 500 Beaumont, Tex.
KPSN 1000 Pasadena, Cal.
WAHG 5000 Richmond Hill, N. Y.
WEMC 5000 Berrien Sprgs., Mich.
WGBS 500 New York City
WGES 500 Chicago, Ill.
WSBT 250 South Bend, Ind.

17	21	22
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Magnolia Petroleum Co.
Pasadena Star-News
A. H. Grebe & Co.
Emmanuel Missionary College
Gimbel Brothers
Oak Leaves Bdstg. Corp.
South Bend Tribune

319 meters 940 kilocycles

KOIN 1000 Portland, Ore.
WGR 750 Buffalo, N. Y.
WSMB 500 New Orleans, La.

18	21	21
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KOIN, Inc.
Federal Radio Corporation
Saenger Amusement Co.

322.4 meters 930 kilocycles

CHNS 100 Halifax, N. S.
CNRA 500 Moncton, N. B.
CYQ 100 Tampico, Mex.
KOA 5000 Denver, Colo.
WBNY 500 New York City

17	22	22 1/2
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Northern Electric Co., Ltd.
Canadian National Railways
Cipriano Sagaon S. on C.
General Electric Co.
B. A. Ruchome Corpn.

325.9 meters 920 kilocycles

CYX 500 Mexico City
CZF 250 Chihuahua, Mex.
KFWM 250 Oakland, Cal.
WKRC 1000 Cincinnati, O.
WSAI 5000 Cincinnati, O.

21	23	24
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El Excelsior-Parker
Telephone Company
Oakland Education Society
Kodel Radio Corporation
U. S. Playing Card Co.

329.5 meters 910 kilocycles

CFCT 500 Victoria, B. C.
CFQC 500 Saskatoon, Sask.
CHUC 500 Saskatoon, Sask.
CJGC 500 London, Ont.
CJWC 250 Saskatoon, Sask.
CKCW 5000 Burketon Jct., Ont.
CNRS 500 Saskatoon, Sask.
KGCB* 50 Oklahoma City
WFRL 100 Brooklyn, N. Y.
WJAZ 5000 Chicago, Ill.

19	23	24
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G. W. Deaville
The Electric Shop, Ltd.
International Bible Students Assn.
Free Press Printing Co., Ltd.
Wheaton Electric Co., Ltd.
Canadian Broadcasting Corpn.
Canadian National Railways
Wallace Radio Institute
Flatbush Radio Laboratories
Zenith Radio Corpn.

333.1 meters 900 kilocycles

KGBZ 100 York, Neb.
KQW 500 San Jose, Cal.
KTNT 1000 Muscatine, Ia.
WBZ 5000 Springfield, Mass.
WBZA 250 Boston, Mass.

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Federal Live Stock Remedy Co.
First Baptist Church
Tangley Calliaphone Co.
Westinghouse Elec. & Mfg. Co.
Westinghouse Elec. & Mfg. Co.

INDEX BY WAVE LENGTHS AND DIAL NUMBERS

336.9 meters 890 kilocycles

KFMX 500 Northfield, Minn.
KNX 1000 Los Angeles, Cal.
WCAL 500 Northfield, Minn.
WCAM 250 Camden, N. J.
WJAX 1000 Jacksonville, Fla.

232	234	276
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Carleton College
Evening Express
St. Olaf College
City of Camden
City of Jacksonville

340.7 meters 880 kilocycles

CHCS 10 Hamilton, Ont.
CHRC 5 Quebec, Que.
CKCV 50 Quebec, Que.
CKOC 50 Hamilton, Ont.
KFAB 5000 Lincoln, Neb.
KSAC 500 Manhattan, Kan.
WKAQ 500 San Juan, P. R.
WMCA 500 New York City
6KW 100 Santa Clara, Cuba

21	26	26
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Hamilton Spectator
E. Fontaine
G. A. Vandry
Wentworth Radio Supply Co., Ltd.
Nebraska Buick Auto Co.
State Agricultural College
Radio Corporation of P. R.
Hotel McAlpin
Frank H. Jones

344.6 meters 870 kilocycles

WCBD 5000 Zion, Ill.
WLS 5000 Chicago, Ill.

24	26	28
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Wilbur Glenn Voliva
Sears, Roebuck & Co.

348.6 meters 860 kilocycles

CZE* 500 Mexico City
KGBX* 30 St. Joseph, Mo.
KOB 1000 State College, N. M.
KWSC 500 Pullman, Wash.
WFFI 500 Boston, Mass.
WNJ* 500 Newark, N. J.

42	45	46
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Departamento de Educacion
Foster-Hall Tire Co., Inc.
College of Agri. & Mech. Arts
State College of Washington
Edison Electric Illuminating Co.
Herman Lubinsky

352.7 meters 850 kilocycles

WCGU* 500 Lakewood, N. J.
WIAD 500 Waco, Tex.
WSYR 500 Syracuse, N. Y.
WWJ 1000 Detroit, Mich.
2EP* 400 Habana, Cuba

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Chas. G. Unger
Frank P. Jackson
Clive B. Meredith
Detroit News
El Pais

356.9 meters 840 kilocycles

CFCA 500 Toronto, Ont.
CHIC 500 Toronto, Ont.
CHNC 500 Toronto, Ont.
CIBC 500 Toronto, Ont.
CISC 500 Toronto, Ont.
CKCL 500 Toronto, Ont.
CKNC 500 Toronto, Ont.
CNRT 500 Toronto, Ont.
KRLD* 500 Dallas, Texas

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Star Publishing Co.
Northern Electric Co., Ltd.
Toronto Radio Research Society
Jarvis St. Baptist Church
Evening Telegram
Dominion Battery Co., Ltd.
Canadian National Carbon Co., Ltd.
Canadian National Railways
Dallas Radio Labs., Inc.

363 meters 833 kilocycles

KSOO 100 Sioux Falls, S. D.
WEW 1000 St. Louis, Mo.
WKBN 50 Youngstown, Ohio
WPAP 100 New York City
WQAO 500 New York City

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Sioux Falls Broadcast Assn.
St. Louis University
Radio Electric Service Co.
Palisades Amusement Park
Calvary Baptist Church

361.2 meters 830 kilocycles

HHK 1080 Port au Prince, Haiti
KGO 5000 Oakland, Calif.
WHN 500 New York City
WKBS 200 Galesburg, Ill.
WKBW* 1000 Buffalo, N. Y.

36	40	44
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Republic of Haiti
General Electric Co.
Loew's State Broadcasting Station
Permil N. Nelson
Churchill Evangelistic Assn.

INDEX BY WAVE LENGTHS AND DIAL NUMBERS

365.6 meters 820 kilocycles

WBRL* 500 Tilton, N. H.
WDAF 1000 Kansas City, Mo.
WEAN* 500 Providence, R. I.
WHB 500 Kansas City, Mo.

370.2 meters 810 kilocycles

WEBH 2000 Chicago, Ill.
WJJD 1000 Mooseheart, Ill.

374.8 meters 800 kilocycles

KFBU 1000 Laramie, Wyo.
KTHS 1000 Hot Springs, Ark.
KVOO 1000 Bristow, Okla.
WRNY* 500 New York City

379.5 meters 790 kilocycles

KFBC* 50 San Diego, Calif.
WGY 20000 Schenectady, N. Y.
WHAZ 1000 Troy, N. Y.
WJAG 200 Norfolk, Neb.

384.4 meters 780 kilocycles

CKY 500 Winnipeg, Man.
CNRW 500 Winnipeg, Man.
KJR 1000 Seattle, Wash.
WAAW 500 Omaha, Neb.
WGW 1000 Milwaukee, Wis.
WLWL 5000 New York City
WMBF 500 Miami Beach, Fla.

389.4 meters 770 kilocycles

WEAR 750 Cleveland, O.
WODA* 250 Paterson, N. J.
WTAM 3500 Cleveland, O.

394.5 meters 760 kilocycles

KHQ 1000 Spokane, Wash.
WBR* 100 Brooklyn, N. Y.
WFI 500 Philadelphia, Pa.
WLIT 500 Philadelphia, Pa.
WOAI 2000 San Antonio, Tex.

399.8 meters 750 kilocycles

CYL 500 Mexico City
PWX 500 Habana, Cuba
WHAS 500 Louisville, Ky.
WHT 5000 Chicago, Ill.

405.2 meters 740 kilocycles

KHJ 500 Los Angeles, Cal.
KSO 500 Clarinda, Iowa
WJAF* 50 Ferndale, Mich.
WJY 5000 New York City
WOR 500 Newark, N. J.

410.7 meters 730 kilocycles

CFCF 1650 Montreal, Que.
CFCF 10 Vancouver, B. C.

28	31	35
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Booth Radio Laboratories
Kansas City Star
Shepard Company
Sweeney School

3 028	3 324	3 533
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Edgewater Beach Hotel Co.
Loyal Order of Moose

29	34	34
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St. Matthews Cathedral
New Arlington Hotel Co.
Southwestern Sales Corp.
Experimenter Publishing Co.

32	34	31
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W. K. Azbill
General Electric Co.
Rensselaer Polytechnic Institute
Norfolk Daily News

33	37-35	37-38
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Manitoba Telephone System
Canadian National Railways
Northwest Radio Service Co.
Omaha Grain Exchange
Radiocast Corp. of Wis.
Missionary Society of St. Paul
Fleetwood Hotel

33/4	37	40 1/2
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Willard Storage Battery Co.
O'Dea Temple of Music
Willard Storage Battery Co.

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Louis Wasmer
Universal Radio Mfg. Co.
Strawbridge & Clothier
Lit Brothers
Southern Equipment Co.

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Universal Casa del Radio
Cuban Telephone Co.
Courier-Journal & Louisville Times
Radiophone Broadcasting Corp.

37	41	47
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Times-Mirror Co.
Berry Seed Co.
J. A. Fenburg Radio Co.
Radio Corporation of America
L. Bamberger & Co.

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Canadian Marconi Co.
Sprott-Shaw Radio Co.

INDEX BY WAVE LENGTHS AND DIAL NUMBERS

CFDC 10 Vancouver, B. C.
CFYC 500 Burnaby, B. C.
CHYC 750 Montreal, Que.
CKAC 1200 Montreal, Que.
CKCD 1000 Vancouver, B. C.
CKFC 50 Vancouver, B. C.
CNRM 1000 Montreal, Que.

416.4 meters 720 kilocycles

KGDI 50 Seattle, Wash.
WBBR 500 Rossville, N. Y.
WCCO 5000 Minneapolis-St. Paul
WCRW 50 Chicago, Ill.
WJBZ* 100 Chicago Heights

422.3 meters 710 kilocycles

WKRC 1000 Cincinnati, O.
WLW 5000 Cincinnati, O.

428.3 meters 700 kilocycles

CYO* 100 Mexico City
KFXF* 500 Denver, Colo.
KPO 1000 San Francisco, Cal.
WHAP* 1000 New York City
WKDR 10 Kenosha, Wis.
WNAC* 500 Boston, Mass.
WSB 1000 Atlanta, Ga.

434.5 meters 690 kilocycles

CFAC 500 Calgary, Alta.
CFCN 1800 Calgary, Alta.
CHXC 250 Ottawa, Ont.
CKCO 100 Ottawa, Ont.
CNRC 500 Calgary, Alta.
CNRO 500 Ottawa, Ont.
KFKB* 1000 Milford, Kans.
KGCH 500 Wayne, Neb.
NAA 1000 Arlington, Va.

440.9 meters 680 kilocycles

KLDS 1000 Independence, Mo.
KMJP 1000 Kansas City, Mo.
WDWF 500 Cranston, R. I.
WLSI 500 Providence, R. I.
WMAF 1000 Dartmouth, Mass.
WOS 500 Jefferson City, Mo.

447.5 meters 670 kilocycles

WMAQ 1000 Chicago, Ill.
WQJ 500 Chicago, Ill.

454.3 meters 660 kilocycles

KFOA 1000 Seattle, Wash.
KTW 1500 Seattle, Wash.
WJZ Var. New York City

461.3 meters 650 kilocycles

KFNF 1000 Shenandoah, Ia.
KMA 500 Shenandoah, Ia.
WAPI 1000 Auburn, Ala.
WCAE 500 Pittsburgh, Pa.

A. Holsted & Wm. Hanlon
International Bible Students Assn.
Northern Electric Co., Ltd.
La Presse Publishing Co., Ltd.
Vancouver Daily Province
United Churches of Canada
Canadian National Railways

Northwest Radio Service Co.
Peoples Pulpit Association
Washburn-Crosby Co.
Clinton R. White
Roland G. Palmer

Kodel Radio Corporation
Crosley Radio Corporation

Martinez y Zetina
Pikes Peak Bdstg. Co.
Hale Bros. & The Chronicle
Wm. H. Taylor Finance Corp.
Edward A. Dato
Shepard Stores
Atlanta Journal

Calgary Herald
W. W. Grant, Ltd.
J. R. Booth
Dr. G. M. Geldert
Canadian National Railways
Canadian National Railways
J. R. Brinkley, M. D.
Wayne Hospital
United States Navy Dept.

Church of Latter Day Saints
Kansas City Journal-Post
Dutee W. Flint
Lincoln Studios
Round Hills Radio Corpn.
State Marketing Bureau

Chicago Daily News
Calumet Rainbo Broadcasting Co.

Rhodes Department Store
First Presbyterian Church
Radio Corporation of America

Henry Field Seed Co.
May Seed & Nursery Co.
Alabama Polytechnic Institute
Kaufmann & Baer Co.

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468.5 meters 640 kilocycles

KFI* 5000 Los Angeles, Calif.
WJBT 500 Chicago, Ill.
WRC 1000 Washington, D. C.

475.9 meters 630 kilocycles

WBAP 10000 Fort Worth, Tex.
WFAA 500 Dallas, Tex.
WTIC 500 Hartford, Conn.

483.6 meters 620 kilocycles

WJAR* 500 Providence, R. I.
WOC 5000 Davenport, Ia.
WSUI 500 Iowa City, Ia.

491.5 meters 610 kilocycles

FAM 1000 Guadalajara, Mex.
KGW 1000 Portland, Ore.
WCFL 100 Chicago, Ill.
WEAF 5000 New York City

499.7 meters 600 kilocycles

CFCH 250 Iroquois Falls, Ont.
KFRU 500 Columbia, Mo.
KRSC 50 Seattle, Wash.
WCSH 500 Portland, Me.
WMC 500 Memphis, Tenn.

508.2 meters 590 kilocycles

KFQB 1000 Fort Worth, Tex.
KLX 500 Oakland, Cal.
WIP 500 Philadelphia, Pa.
WOO 500 Philadelphia, Pa.

516.9 meters 580 kilocycles

CFCK 50 Edmonton, Alta.
CHCY 250 Edmonton, Alta.
CJCA 500 Edmonton, Alta.
CNRE 500 Edmonton, Alta.
WCX 5000 Detroit, Mich.
WJR 5000 Pontiac, Mich.
WJUG 250 New York City

526 meters 570 kilocycles

WHO 5000 Des Moines, Ia.
WNYC 1000 New York City
WOAW 1000 Omaha, Neb.

535.4 meters 560 kilocycles

KFBK 100 Sacramento, Calif.
KYW 3500 Chicago, Ill.
WHA 750 Madison, Wis.

545.1 meters 550 kilocycles

KFUO 500 St. Louis, Mo.
KSD 500 St. Louis, Mo.
WTAG 500 Worcester, Mass.

555.2 meters 540 kilocycles

WOBB 5 Chicago, Ill.

Earl C. Anthony, Inc.
John S. Boyd
Radio Corporation of America

Carter Publications, Inc.
Dallas News & Dallas Journal
Travelers Insurance Co.

The Outlet Co.
Palmer School of Chiropractic
State University of Iowa

Federal Military Command
Oregonian Publishing Co.
Chicago Federation of Labor
National Broadcasting Co., Inc.

Abitibi Power & Paper Co., Ltd.
Stephens College
Radio Sales Corp.
Henry P. Rines
Commercial-Appeal

Lone Star Broadcast Co.
Oakland Tribune
Gimbel Bros.
John Wanamaker

Radio Supply Co.
International Bible Students Assn.
Edmonton Journal, Ltd.
Canadian National Railways
Detroit Free Press
Jewett Radio & Phonograph Co.
Uda Benjamin Ross

Bankers Life Co.
City of New York
Woodmen of the World

Sacramento Bee
Westinghouse Elec. & Mfg. Co.
University of Wisconsin

Concordia Seminary
St. Louis Post-Dispatch
Worcester Telegram

Longacre Eng'g Constn. Co.

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	WDAG	263		KGBS	227.1
Austin L-14-b	KUT	230.6		KGDI	416.4
Beaumont M-16	KFDM	315.6		KJR	384.4
Beeville M-14-b	KFRB	247.8		KOMO	305.9
Brownsville O-14-b	KWVG	277.6		KRSC	499.7
College Station M-13	WTAW	270.1		KTW	454.3
Dallas L-15-a	KRLD	357.1		KXRO	240.0
	WFAA	475.9	Spokane A-4	KFIO	272.6
	WRR	245.8		KFPY	272.6
Dublin K-14	KFPL	251.9		KHQ	394.5
El Paso L-10	KFXH	241.8	Tacoma B-1-a	KMO	249.9
	WDAH	267.7		KVI	242.5
Fort Worth L-14-a	KFJZ	254.1	Walla Walla C-4	KOWW	285
	KFOB	508.2	Yakima B-3	KFIQ	256.3
	WBAP	475.9	WISCONSIN		
Galveston M-15-b	KFLX	239.9	Beloit E-18-b	WEBW	267.7
	KFUL	258.5	Camp Lake E-19-b	WCLO	230.6
Greenville K-15	KFPM	241.8	Eau Claire D-17	WTAQ	254.1
Houston M-15-a	KFVI	239.9	Fond du Lac D-18-d	KFIZ	272.6
	KFYJ	237.9	Kenosha E-19	WKDR	428.3
	KPRC	296.9	La Crosse E-17	WKBH	249.9
	KTUE	265	Madison E-18-a	WHA	535.4
				WIBA	236.1

INDEX BY LOCATIONS WITH MAP KEY

Manitowoc D-19	WOMT	254.1	Saskatoon, Sask.	CFQC	329.5
Marshfield D-18-a	WGBR	228.9		CHUC	329.5
Milwaukee E-19-a	WGW B	384.4		CJWC	329.5
	WHAD	275.1		CNRS	329.5
	WKAF	260.7	Scarboro, Ont.	CJYC	291.1
	WSOE	245.8	Sea Island, B. C.	CJOR	291.1
Omro D-18-c	WJBR	227.1	St. Hyacinthe, Que.	CKSH	312.3
Poynette D-18-e	WIBU	222.1	Summerside, P. E. I.	CHLC	267.7
Stevens Point D-18-b	WLBL	277.6	Toronto, Ont.	CFCA	356.9
Superior B-17	WEBC	241.8		CHIC	356.9
West De Pere D-19	WHBY	249.9		CHNC	356.9
				CJBC	291.1
WYOMING				CJBC	356.9
Laramie F-10	KFB U	374.8		CJCI	291.1
UNITED STATES				CJSC	356.9
Portable	WEBL	225.4		CKCL	356.9
CANADA				CKCX	291.1
Brantford, Ont.	CFGC	296.9		CKNC	356.9
Burketon Jct., Ont.	CKCW	329.5	Vancouver, B. C.	CNRT	356.9
Burnaby, B. C.	CFYC	410.7		CFCQ	410.7
Calgary, Alta.	CFAC	434.5		CFDC	410.7
	CFCN	434.5		CKCD	410.7
	CNRC	434.5		CKFC	410.7
Charlottetown, P. E. I.	CFCY	312.3	Victoria, B. C.	CNRV	291.1
Cobalt, Ont.	CKMC	247.8	Winnipeg, Man.	CFCT	329.5
Edmonton, Alta.	CFCK	516.9		CKY	384.4
	CHCY	516.9		CNRW	384.4
	CJCA	516.9	CUBA		
	CNRE	516.9	Cienfuegos	6BY	260
Halifax, N. S.	CHNS	322.4	Habana	PWX	399.8
Hamilton, Ont.	CHCS	340.7		2BB	255
	CKOC	340.7		2CX	319
Huntsville, Ont.	CHCO	247.8		2EP	355
Iroquois Falls, Ont.	CFCH	499.7		2LR	235
Kamloops, B. C.	CFJC	267.7		2MG	280.2
King, Ont.	CJCQ	291.1		2OL	299.8
Kingston, Ont.	CFMC	267.7		2RK	310
	CFRC	267.7		2TW	230.6
Kitchener, Ont.	CJCF	247.8		2UF	265
Lethbridge, Alta.	CJOC	267.7	Santa Clara	6JK	275.1
London, Ont.	CJGC	329.5		6KW	340.7
Moncton, N. B.	CNRA	322.4	Santiago	8BY	249.9
Montreal, Que.	CFCF	410.7	MEXICO		
	CHYC	410.7	Chihuahua	CZF	325.9
	CKAC	410.7	Guadalajara	FAM.	491.5
	CNRM	410.7	Mazatlan	CYR	475.9
	CJRM	296.9	Mexico City	CYA	299.8
Moose Jaw, Sask.	CHXC	434.5		CYB	275.1
Ottawa, Ont.	CKCO	434.5		CYH	374.8
	CNRO	434.5		CYL	399.8
	CFLC	296.9		CYO	425
Prescott, Ont.	CKPC	247.8		CYX	325.9
Preston, Ont.	CHRC	340.7		CZE	350
Quebec, Que.	CKCV	340.7	Monterey	CYM	275.1
	CHWC	312.3	Oaxaca	CYF	265
Regina, Sask.	CKCK	312.3	Puebla	CYU	312.3
	CNRR	312.3	Tampico	CYQ	322.4
			Yucatan	CYY	548

Sending Pictures By Radio

(Continued from page 3)

and when we stop the machine at the end we have a perfect reproduction of the picture on the disc in New York. Simple, isn't it?

The method described above might be called the mechanical method of transmission. It is never used because there are two better ways which have been devised. In one of these, instead of a record, we use a drawing which has been made with a special graphite ink and a current of electricity is passed through the tracing needle. When the needle touches blank paper no electricity passes but when it touches one of the graphite lines a contact is made and the microphone is vibrated. The Chicago receiver clicks and the pen touches the paper. As a result, when we stop the machine there is the reproduction of the picture so nearly perfect that it can scarcely be told from the original.

Another and still better method is the following: Instead of the disc type of sending apparatus the cylinder type, as in the old Edison phonograph, is used. The photograph is made into tube form and placed on the machine. A powerful light is focused to a pin-point upon the photograph as children do with a burning glass. Inside the tube is placed an extremely sensitive device which is actuated by this tiny beam of light. Now we start the two machines and as the pin-point of light passes over the photograph the amount of light that passes through it sets up vibrations in the transmitter and the stylus in Chicago is vibrated in sympathy. As this light passes

over the darker parts of the picture less light passes through and as it passes over the lighter parts more light gets to the sensitive receiver. When the picture in Chicago is finished, the tube of paper is slipped off and cut at the proper point and there is the reproduction. By this method not only the blacks and whites are reproduced but the half-tones as well. By the two methods first described it is not possible to send photographs but only line pictures but by the latter method it is possible to send photographs of infinite detail such as the leaves in a tree, for instance.

The next step is to send motion pictures. Needless to say this will be a very much more complicated undertaking but already a company has been granted a license in England to do this very thing. It will probably be but a very few years when each radio set will be equipped with a small screen and we will sit at our firesides and watch the speaker and singer as well as listen to the reproduction of the speech and song. The imagination balks in trying to sift the possible from the improbable but great times are in store for the radio fan. He will sit in at the opening of Congress; he will "attend" the world series a thousand miles away; he will witness in his own home the great events of the day as he now views them in the news reels at the movies except that he will see them as they actually take place instead of several days later. A wild dream? So is Radio.

Your friends will appreciate it if you bring RADEX to their attention. So will we.

SPEAKING OF THE SPEAKER

(Continued from page 5)

instrument equally resonant on all tones. There are two general types of cone speakers, the vibrating type and the plunger type. Most of the cone speakers are of the former type, producing sound from vibrations or "ripples" in the surface. The "plunger" type is best exemplified by the Radiola 104 speaker, and in this an entirely different principle is utilized. The cone is made of a stiffer material, is smaller in size, and every effort is made to prevent the surface from vibrating. The cone is made to act as a plunger, the whole surface moving at once on all frequencies. In order to overcome the weight or inertia of the cone itself, a very powerful driving unit is required and in the Radiola 104 speaker, a large power amplifier is built in the cabinet with the cone.

By far the commonest kind of loud speaker is the horn type which consists of a receiver with a steel diaphragm and a conically-shaped horn. Too often such speakers have poor sound characteristics. Frequently they will produce no tones below 300 vibrations and none above 1,500 with the result that the sound is thin, and unreal. Through such a speaker a piano has a tinny sound indicating that the low frequencies are not being reproduced. Or it may sound like a banjo due to the fact that the high frequencies are lost. Then the horn may be constructed of a material which has a vibrating rate within the range of audio frequencies and certain notes will cause the horn to vibrate sympathetically and the result is distortion.

There is still another type of speaker of which there is at least

two on the market. Their manufacturers have acted upon the assumption that the phonograph horn represents the fruit of years of experiment on the part of the makers and that as the average home possesses one of these instruments, a second horn is a useless expenditure. They have therefore devised a small instrument which has no diaphragm as have so many of the horns. Instead it has a small center post with a concave top which vibrates and on which the needle of the phonograph reproducer may be placed. The result is to set up vibrations in the phonograph reproducer exactly the same as with a record. This device has the advantage over most phonograph attachments in that it is unnecessary to remove the reproducer or disturb the phonograph in any way. The arm is simply swung over to one side and the needle rested upon the center pin thus using the phonograph at will with record or radio.

The writer happens to have a phonograph with an unusually beautiful tone so he uses one of these devices in addition to his loud speaker. The jack into which the latter is plugged is the two-way type; the center circuit goes into wires which pass under the floor and up again into the phonograph so that merely pulling out the plug automatically throws the music from loud speaker to phonograph, a very satisfactory arrangement.

In choosing a loud speaker one cannot be guided by price alone for it is an odd fact that sometimes the best speaker gives the poorest results on a certain set. If you are unfortunate enough to possess a set with cheap transformers, a first class speaker by giving perfect reproduc-

tion of what it receives will give you tinny and unpleasant music. On the other hand a cheap speaker may cover up some of these imperfections in the transformer and by reason of its very defects render less pronounced the faults within the set.

The second best way to choose a loud speaker is to have your dealer demonstrate several makes for you, throwing the music from one to the other and back again. The first best way is to try several types in your own home and on your own set.

HOME MADE STATIC

(Continued from page 4)

neighbor the following electrical accessories should not be operated during the evening unless entirely necessary: Battery chargers (of the vibrating type), commutator motors, electrical ozonators, violet ray machines, X-ray machines, vacuum cleaners, floor polishers or electric washing machines.

"If you are operating a regenerative receiver which your neighbor can hear, it is strongly recommended that you have constructed a radio frequency amplifier which will greatly assist the distance getting properties of your set, with the consequent entire elimination of radio interference. If you do not feel so inclined, you certainly should at all times take great precaution to prevent your receiver from howling by employing less regeneration or reducing the filament rheostats. If each one of you will consider these few remarks quite seriously and operate accordingly I am quite sure that you will notice a very marked improvement in the clearness of your received programs."

International Week

One of the ideas that has developed in Radio which in our opinion may very well be dispensed with is International Week. In the first place it is next to impossible to get all stations to agree to be silent during that week and then it is entirely impossible to get them to abide by their promise. The result is that a few stations take advantage of the decency of others and wade into the unoccupied ether.

In the second place, listeners-in are encouraged to expect altogether too much from their sets for not one in a hundred will be able to tune in a European station with any degree of satisfaction.

Third in the indictment, it gives the operator of "squealers" full play for their devilish cunning and fills the air with a bedlam that takes all the joy out of radio.

A much better plan would be to have the stations west of the Mississippi silent one evening or one hour of each evening in a certain week, and the stations east of the river silent at similar periods. Then the fiend for distance would have an opportunity for some real prospecting. All of which is respectfully referred to the Association of Broadcasters.

THE RIGHT WAY TO TUNE

(Continued from page 2)

42. You can easily see therefore that 46-45 would be 940 kilocycles and you are receiving either KOIN, WGR or WSMB. The power of these stations, respectively 1000, 750 and 500, and the distance from your home will indicate the station you are receiving.

A COMPLETE INDEX BY CALL LETTERS

CFAC 434.5					CJCA 516.9				
Calgary, Alta.					Edmonton, Alta.				
CFCA 356.9					CJCF 247.8				
Toronto, Ont.					Kitchener, Ont.				
CFCF 410.7					CJCI 291.1				
Montreal, Que.					Toronto, Ont.				
CFCH 499.7					CJCQ 291.1				
Iroquois Falls, Ont.					Town of King, Ont.				
CFCK 516.9					CJGC 329.5				
Edmonton, Alta.					London, Ont.				
CFCN 434.5					CJOC 267.7				
Calgary, Alta.					Lethbridge, Alta.				
CFCQ 410.7					CJOR 291.1				
Vancouver, B. C.					Sea Island, B. C.				
CFCT 329.5					CJRM 296.9				
Victoria, B. C.					Moose Jaw, Sask.				
CFCY 312.3					CJSC 356.9				
Charlottetown, P.E.I.					Toronto, Ont.				
CFDC 410.7					CJWC 329.5				
Vancouver, B. C.					Saskatoon, Sask.				
CFGC 296.9					CJYC 291.1				
Brantford, Ont.					Scarboro, Ont.				
CFJC 267.7					CKAC 410.7				
Kamloops, B. C.					Montreal, Que.				
CFLC 296.9					CKCD 410.7				
Prescott, Ont.					Vancouver, B. C.				
CFMC 267.7					CKCK 312.3				
Kingston, Ont.					Regina, Sask.				
CFQC 329.5					CKCL 356.9				
Saskatoon, Sask.					Toronto, Ont.				
CFRC 267.7					CKCO 434.5				
Kingston, Ont.					Ottawa, Ont.				
CFYC 410.7					CKCV 340.7				
Burnaby, B. C.					Quebec, Que.				
CHCO 247.8					CKCW 329.5				
Huntsville, Ont.					Burketon Jct., Ont.				
CHCS 340.7					CKCX 291.1				
Hamilton, Ont.					Toronto, Ont.				
CHCY 516.9					CKFC 410.7				
Edmonton, Alta.					Vancouver, B. C.				
CHIC 356.9					CKMC 247.8				
Toronto, Ont.					Cobalt, Ont.				
CHLC 267.7					CKNC 356.9				
Summerside, P.E.I.					Toronto, Ont.				
CHNC 356.9					CKOC 340.7				
Toronto, Ont.					Hamilton, Ont.				
CHNS 322.4					CKPC 247.8				
Halifax, N. S.					Preston, Ont.				
CHRC 340.7					CKSH 312.3				
Quebec, Que.					St. Hyacinthe, Que.				
CHUC 329.5					CKY 384.4				
Saskatoon, Sask.					Winnipeg, Man.				
CHWC 312.3					CNRA 322.4				
Regina, Sask.					Moncton, N. B.				
CHXC 434.5					CNRC 434.5				
Ottawa, Ont.					Calgary, Alta.				
CHYC 410.7					CNRE 516.9				
Montreal, Que.					Edmonton, Alta.				
CJBC 291.1-356.9					CNRM 410.7				
Toronto, Ont.					Montreal, Que.				

A COMPLETE INDEX BY CALL LETTERS

CNRO	434.5	45	49	33	KFBU	374.8			
Ottawa, Ont.					Laramie, Wyo.				
CNRR	312.3				KFCB	237.9			
Regina, Sask.					Phoenix, Ariz.				
CNRS	329.5				KFDD	275.1			
Saskatoon, Sask.					Boise, Idaho				
CNRT	356.9				KFDM	315.6			
Toronto, Ont.					Beaumont, Tex.				
CNRV	291.1				KFDX	230.6			
Vancouver, B. C.					Shreveport, La.				
CNRW	384.4				KFDY	299.8			
Winnipeg, Man.					Brookings, S. D.				
CYA	299.8				KFDZ	230.6			
Mexico City					Minneapolis				
CYB	275.1				KFEC	252.0			
Mexico City					Portland, Ore.				
CYL	399.8				KFEL	254.1			
Mexico City					Denver, Colo.				
CYO	425				KFEQ	267.7			
Mexico City					Oak, Neb.				
CYQ	322.4				KFEY	232.4			
Tampico, Mex.					Kellogg, Idaho				
CYR	475.9				KFFP	241.8			
Mazatlan, Mex.					Moberly, Mo.				
CYU	312.3				KFGQ	225.4			
Puebla, Mex.					Boone, Iowa				
CYX	325.9				KFH	267.7			
Mexico City					Wichita, Kan.				
CZE	350				KFHA	251.9			
Mexico City					Gunnison, Colo.				
CZF	325.9				KFHL	239.9			
Chihuahua, Mex.					Oskaloosa, Ia.				
FAM	491.5				KFI	467			
Guadalajara, Mex.					Los Angeles				
HHK	361.2				KFIF	247.8			
Port au Prince					Portland, Ore.				
KDKA	309.1	16	19	19	KFIO	272.6			
E. Pittsburgh, Pa.					Spokane, Wash.				
KDLR	230.6				KFIQ	256.3			
Devils Lake, N. D.					Yakima, Wash.				
KDYL	245.8				KFIU	225.4			
Salt Lake City					Juneau, Alaska				
KFAB	340.7	22	26	26	KFIZ	272.6			
Lincoln, Neb.					Fond du Lac, Wis.				
KFAD	272.6				KFJB	247.8			
Phoenix, Ariz.					Marshalltown, Ia.				
KFAF	217.3				KFJF	260.7			
San Jose, Cal.					Oklahoma City				
KFAU	280.2				KFJI	245.8			
Boise, Idaho					Astoria, Ore.				
KFBB	275.1				KFJM	277.6			
Havre, Mont.					Grand Forks, N. D.				
KFBC	380				KFJR	263			
San Diego, Cal.					Portland, Ore.				
KFBK	535				KFJY	245.8			
Sacramento, Cal.					Ft. Dodge, Ia.				
KFBL	223.7				KFJZ	254.1			
Everett, Wash.					Ft. Worth, Tex.				
KFBS	237.9				KFKA	272.6			
Trinidad, Colo.					Greeley, Colo.				

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KFKB	431.4				KFQZ	225.4			
Milford, Kan.					Hollywood, Cal.				
KFKU	275.1				KFRB	247.8			
Lawrence, Kan.					Beeville, Tex.				
KFKX	288.3	13	15	18 1/2	KFRC	267.7			
Hastings, Neb.					San Francisco				
KFKZ	225.4				KFRU	499.7			
Kirksville, Mo.					Columbia, Mo.				
KFLR	254.1				KFRW	218.8			
Albuquerque, N. M.					Olympia, Wash.				
KFLU	236.1				KFSD	245.8			
San Benito, Tex.					San Diego, Cal.				
KFLV	228.9				KFSG	275.1			
Rockford, Ill.					Los Angeles				
KFLX	239.9				KFUL	258.5			
Galveston, Tex.					Galveston, Tex.				
KFMR	260.7				KFUM	239.9			
Sioux City, Ia.					Colo. Springs, Colo.				
KFMX	336.9				KFUO	545.1			
Northfield, Minn.					St. Louis, Mo.				
KFNF	461.3				KFUP	234.2			
Shenandoah, Ia.					Denver, Colo.				
KFOA	454.3				KFUR	223.7			
Seattle, Wash.					Ogden, Utah				
KFOB	225.4				KFUS	256.3			
Burlingame, Cal.					Oakland, Cal.				
KFON	232.4				KFUT	263.0			
Long Beach, Cal.					Salt Lake City				
KFOO	236.1				KFUU	220.4			
Salt Lake City					Oakland, Cal.				
KFOR	225.4				KFVD	205.4			
David City, Neb.					Venice, Calif.				
KFOT	230.6				KFVE	239.9			
Wichita, Kan.					St. Louis, Mo.				
KFOX	247.8				KFVG	236.1			
Omaha, Neb.					Independence, Kan.				
KFOY	251.9	5	9	11	KFVI	239.9			
St. Paul, Minn.					Houston, Tex.				
KFPL	251.9				KFVN	227.1			
Dublin, Tex.					Fairmont, Minn.				
KFPM	241.8				KFVR	243.8			
Greenville, Tex.					Denver, Colo.				
KFPR	230.6				KFVS	223.7			
Los Angeles					Cape Girardeau, Mo.				
KFPW	258.5				KFVY	249.9			
Cartersville, Mo.					Albuquerque, N. M.				
KFPY	272.6				KFWB	251.9			
Spokane, Wash.					Hollywood, Cal.				
KFOA	280.2				KFWC	291.1			
St. Louis, Mo.					San Bernardino, Cal.				
KFOB	508.2	40	42	46	KFWF	214.2			
Ft. Worth, Tex.					St. Louis, Mo.				
KFQD	300.0				KFWH	254.1			
Anchorage, Alaska					Eureka, Calif.				
KFQP	223.7				KFWI	249.9			
Iowa City, Ia.					S. San Francisco				
KFQU	230.6				KFWM	325.9			
Holy City, Cal.					Oakland, Cal.				
KQOW	215.7				KFWO	211.1			
Seattle, Wash.					Avalon, Cal.				

A COMPLETE INDEX BY CALL LETTERS

KFWU	237.9				KGDA	254.1			
Pineville, La.					Dell Rapids, S. D.				
KFWV	212.6				KGDE	232.4			
Portland, Ore.					Barrett, Minn.				
KFXB	202.6				KGDI	416.4			
Big Bear Lake, Cal.					Seattle, Wash.				
KFXD	205.4				KGDJ	202.6			
Logan, Utah					Cresco, Iowa				
KFXF	430.1				KGDM	217.3			
Colo. Springs, Colo.					Stockton, Calif.				
KFXH	241.8				KGRS	234.2			
El Paso, Tex.					Amarillo, Tex.				
KFXJ	215.7				KGO	361.2	36	40	44
Denver, Colo.					Oakland, Cal.				
KFXR	214.2				KGTT	206.8			
Oklahoma City					San Francisco				
KFXV	205.4				KGU	270.1			
Flagstaff, Ariz.					Honolulu				
KFYF	214.2				KGW	491.5			
Oxnard, Cal.					Portland, Ore.				
KFYJ	237.9				KGY	277.6			
Houston, Tex.					Lacey, Wash.				
KFYO	209.7				KHJ	405.2			
Texarkana, Tex.					Los Angeles				
KFYR	247.8				KHQ	394.5			
Bismarck, N. D.					Spokane, Wash.				
KGAR	243.8				KICK	272.6			
Tucson, Ariz.					Anita, Iowa				
KGBS	227.1				KJBS	234.2			
Seattle, Wash.					San Francisco				
KGBU	228.9				KJR	384.4			
Ketchikan, Alaska					Seattle, Wash.				
KGBW	282.8				KLDS	440.9			
Joplin, Mo.					Independence, Mo.				
KGBX	347.8				KLS	249.9			
St. Joseph, Mo.					Oakland, Cal.				
KGBY	202.6				KLX	508.2			
Shelby, Mont.					Oakland, Cal.				
KGBZ	333.1				KLZ	265.3			
York, Neb.					Denver, Colo.				
KGCA	280.2				KMA	461.3	7-10	15-	
Decorah, Iowa					Shenandoah, Ia.				
KGCB	331				KMJ	234.2			
Oklahoma City					Fresno, Cal.				
KGCG	239.9				KMJP	440.9			
Newark, Ark.					Kansas City, Mo.				
KGCH	434.5				KMMJ	228.9	19	6	7
Wayne, Neb.					Clay Center, Neb.				
KGCI	239.9				KMO	249.9			
San Antonio, Tex.					Tacoma, Wash.				
KGCL	230.6				KMOX	280.2			
Seattle, Wash.					St. Louis, Mo.				
KGCM	263				KMTR	237.9			
San Antonio, Tex.					Hollywood, Cal.				
KGCN	209.7				KNRC	238.0			
Concordia, Kan.					Santa Monica, Cal.				
KGCR	252				KNX	336.9			
Brookings, S. D.					Los Angeles				
KGCX	240.0				KOA	322.4	17	22	22½
Vida, Mont.					Denver, Colo.				

AIR-LINE DISTANCES IN STATUTE MILES

FROM/TO	Albuquerque, N. Mex.	Atlanta, Ga.	Baltimore, Md.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Buffalo, N. Y.	Chicago, Ill.	Cincinnati, Ohio	Cleveland, Ohio	Denver, Colo.	Des Moines, Iowa	Detroit, Mich.	El Paso, Tex.	Fargo, N. Dak.	Fort Worth, Tex.	Galveston, Tex.	Hastings, Nebr.	Hot Springs, Ark.	Houghton, Mich.	Jacksonville, Fla.	Kansas City, Mo.	Los Angeles, Calif.	Louisville, Ky.	Memphis, Tenn.	Miami, Fla.	Minneapolis, Minn.	Missoula, Mont.	Nashville, Tenn.	New Orleans, La.	New York, N. Y.	Norfolk, Va.	Oklahoma, Okla.	Omaha, Nebr.	Philadelphia, Pa.	Phoenix, Ariz.	Pittsburgh, Pa.	Portland, Me.	Portland, Oreg.	Richmond, Va.	St. Louis, Mo.	Salt Lake City, Utah	San Francisco, Calif.	Schenectady, N. Y.	Seattle, Wash.	Shreveport, La.	Spokane, Wash.	Springfield, Mass.	Vermillion, S. Dak.	Washington, D. C.
Albuquerque, N. Mex.	----	1273	1670	774	1967	838	1577	1126	1248	1417	332	833	1360	228	968	561	803	588	773	1252	1492	717	663	1174	938	1710	980	895	1117	1030	1810	1694	518	718	1748	330	1498	2015	1107	1628	938	483	893	1823	1178	764	1028	1889	742	1648
Atlanta, Ga.	1273	----	575	1830	933	960	695	583	368	550	1208	738	595	1293	1112	750	688	901	498	947	286	675	1935	317	335	610	905	1790	218	427	747	507	753	815	663	1592	520	1022	2172	470	467	1580	2133	840	2180	548	1960	863	917	542
Baltimore, Md.	1670	575	----	2055	358	1525	273	603	423	305	1505	913	398	1750	1143	1239	1245	1154	964	808	682	962	2131	498	792	958	948	1947	597	1001	170	167	1173	1026	90	2002	194	446	2367	128	731	1858	2451	278	2341	1064	2110	282	1083	33
Boise, Idaho	774	1830	2055	----	2266	1610	1872	1453	1663	1754	637	1155	1671	969	975	1263	1538	934	1384	1367	2098	1158	663	1623	1506	2368	1140	252	1631	1713	2153	2137	1138	1044	2113	733	1863	2282	349	2060	1389	292	516	2120	405	1433	290	2196	973	2045
Boston, Mass.	1967	933	358	2266	----	1881	398	849	737	550	1766	1159	613	2067	1304	1574	1598	1415	1302	922	1015	1250	2590	823	1133	1258	1122	2124	941	1359	188	467	1490	1280	268	2295	478	100	2553	471	1036	2099	2696	150	2508	1410	2279	79	1314	392
Brownsville, Tex.	838	960	1525	1610	1881	----	1575	1234	1184	1402	1047	1102	1398	698	1445	471	287	1013	650	1543	1025	923	1370	1093	777	1100	1335	1706	952	536	1695	1465	659	1061	1614	1023	1424	1961	1944	1428	975	1317	1675	1770	2015	510	1852	1805	1161	1493
Buffalo, N. Y.	1577	695	273	1872	398	1575	----	454	392	175	1368	762	218	1690	923	1221	1289	1019	956	560	880	862	2195	483	802	1184	733	1740	626	1087	291	435	1117	883	278	1904	178	438	2167	375	662	1701	2298	249	2130	1080	1900	325	916	290
Chicago, Ill.	1126	583	603	1453	849	1234	454	----	249	307	918	310	236	1249	571	820	954	566	585	367	621	413	1741	268	481	1190	356	1348	394	831	711	696	689	432	664	1451	411	892	1765	618	259	1260	1855	702	1743	725	1514	774	479	594
Cincinnati, Ohio	1248	368	423	1663	737	1184	392	249	----	218	1090	509	234	1333	818	839	897	742	569	589	668	411	1892	92	410	1957	603	1578	239	708	568	474	755	620	501	1578	258	802	1987	399	308	1450	2037	605	1974	688	1746	659	694	403
Cleveland, Ohio	1417	550	305	1754	550	1402	175	307	218	----	1223	617	94	1521	838	1046	1116	871	787	518	768	700	2044	309	627	1088	632	1640	456	922	404	429	946	738	343	1745	115	603	2063	353	490	1567	2163	408	2035	904	1804	478	785	303
Denver, Colo.	332	1208	1505	637	1766	1047	1368	918	1090	1223	----	607	1153	554	642	643	925	353	749	970	1468	555	828	1035	878	1732	699	670	1018	1079	1628	1562	503	485	1575	585	1320	1803	985	1488	793	372	946	1618	1020	799	827	1692	468	1490
Des Moines, Iowa	833	738	913	1135	1159	1102	762	310	509	617	607	----	545	980	397	640	851	256	488	458	1024	180	1433	477	485	1338	235	1074	523	825	1023	983	469	122	972	1154	718	1197	1479	905	270	952	1547	1012	1470	624	1243	1085	187	895
Detroit, Mich.	1360	595	398	1671	613	1398	218	236	234	94	1144	545	----	1475	745	1018	1111	800	761	427	832	643	1976	315	621	1156	542	1552	468	938	483	522	905	666	444	1685	208	657	1975	445	452	1490	2087	467	1945	891	1715	540	705	397
El Paso, Tex.	228	1293	1750	969	2067	682	1690	1249	1333	1521	554	980	1475	----	1161	543	723	757	802	1422	1481	836	702	1253	978	1662	1156	1115	1169	986	1902	1755	578	875	1834	347	1592	2126	1286	1695	1033	689	993	1930	1373	752	1238	1990	920	1726
Fargo, N. Dak.	968	1112	1143	975	1304	1445	923	571	818	838	642	397	745	1161	----	973	1218	440	875	393	1400	548	1426	818	882	1721	219	819	900	1221	1213	1258	786	990	1186	1225	952	1313	1248	1180	658	865	1447	1157	1206	1002	976	1260	284	1141
Fort Worth, Tex.	561	750	1239	1263	1574	471	1221	820	839	1046	643	640	1018	543	973	----	283	544	275	1093	943	460	1212	751	448	1150	870	1312	643	470	1398	1226	188	590	1382	858	1097	1642	1612	1170	568	977	1454	1445	1658	209	1470	1495	689	1210
Galveston, Tex.	803	688	1245	1538	1598	287	1289	954	897	1116	925	851	1111	723	1218	283	----	808	375	1277	799	877	1423	807	492	941	1087	1595	666	288	1415	1195	456	828	1335	1065	1140	1678	1885	1154	697	1249	1693	1487	1938	233	1753	1524	938	1214
Hastings, Nebr.	588	901	1154	934	1415	1013	1019	566	742	871	353	256	800	757	440	544	808	----	513	666	1178	226	1177	693	591	1468	399	891	697	870	1275	1216	357	135	1222	901	967	1454	1271	1142	455	708	1297	1267	1288	615	1061	1340	167	1139
Hot Springs, Ark.	773	498	964	1384	1302	650	958	585	569	787	749	488	761	802	875	273	375	513	----	901	728	326	1437	480	176	943	722	1385	370	358	1125	955	260	490	1051	1094	825	1371	1733	897	325	1116	1648	1175	1758	142	1552	1224	605	936
Houghton, Mich.	1252	947	808	1367	922	1543	560	367	589	518	970	458	427	1422	393	1093	1277	666	901	----	1216	633	1787	636	830	1545	272	1208	760	1187	849	946	926	547	827	1550	630	924	1638	870	591	1242	1833	776	1588	1043	1360	860	510	813
Jacksonville, Fla.	1492	286	682	2098	1015	1025	880	861	628	768	1468	1024	832	1481	1400	943	799	1178	728	1216	----	952	2153	595	591	328	1192	2070	502	511	838	548	988	1098	758	1800	703	1113	2442	953	755	1840	2375	960	2450	733	2239	957	1203	647
Kansas City, Mo.	717	675	962	1158	1250	923	862	413	541	700	555	180	643	836	548	460	677	226	326	633	952	----	1352	480	370	1247	413	1117	472	678	1097	1009	293	165	1037	1045	784	1300	1397	937	238	922	1500	1107	1505	326	1286	1173	280	943
Los Angeles, Calif.	663	1935	2315	663	2590	1370	2195	1741	1892	2044	828	1433	1976	702	1426	1212	1423	1177	1437	1787	2153	1352	----	1825	1602	2355	1522	910	1777	1675	2446	2352	1182	1312	2388	557	2135	2631	825	2283	1585	577	345	2445	956	1420	939	2515	1291	2295
Louisville, Ky.	1174	317	498	1623	823	1093	483	268	92	309	1035	477	315	1253	818	751	807	693	480	636	595	480	1825	----	319	923	605	1550	153	623	650	1528	675	579	580	1512	345	892	1953	457	242	1400	1983	695	1945	598	1720	745	663	473
Memphis, Tenn.	938	335	792	1306	1133	777	802	481	410	627	878	485	621	178	882	448	492	591	176	830	591	370	1602	319	----	878	700	1483	195	358	955	778	422	529	878	1264	660	1205	1852	722	242	1250	1000	1010	1867	279	1652	1055	642	763
Miami, Fla.	1710	610	958	2368	1258	1100	1184	1190	957	1088	1732	1338	1156	1682	1721	1150	941	1468	983	1545	328	1247	2355	923	878	----	1516	2359	821	681	1095	802	1233	1402	1023	1998	1014	1357	2716	831	1067	2098	2603	1229	2740	950	2528	1210	1510	927
Minneapolis, Minn.	980	905	948	1140	1125	1335	733	356	603	632	699	235	542	1156	219	870	1087	399	722	272	1192	413	1522	605	700	1516	----	1010	495	1050	1019	1047	692	291	985	1279	745	1145	1435	968	464	988	1585	975	1403	858	1713	1056	238	936
Missoula, Mont.	895	1790	1947	252	2124	1706	1740</																																											

2011

2011

63-63-62 1/2 R71
Los Angeles

1st last night

2nd

3rd

4th

5th

6th

7th

8th

9th

10th

11th

12th

13th

14th

15th

16th