RADIO STATION DIRECTORY AND SERVICE MANUAL

Written in Plain English

Log and Station Finder

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RADIO

BROADCASTING STATION

DIRECTORY

—and—

SERVICE MANUAL

by

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A complete list of Broadcasting Stations in North America and a Guide for the location and elimination of trouble in Radio Receiving Sets.

BERTRAM W. DOWNS CO.

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INTRODUCTORY NOTE

RADIO, as a means for entertainment, education and the dissemination of general information, has reached a high degree of development.

Standard radio instruments themselves have reached a degree of excellence comparable to the precision work in fine motor cars.

However, like any other mechanism, a reasonable amount of attention is necessary if a radio set is to be kept in the best of condition. Sometimes a set will fail to function at all, and it is seldom indeed that such failure is due to any fault of the set itself.

It is hoped that this booklet will be of value to the set user in getting more pleasure from his set and in keeping it at fullest efficiency under all conditions.

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INTRODUCTION

What to Expect From a Modern Radio Set.

WITH the transition of radio from the position of a novelty to that of a home utility, and with the steady development of the art, it has become realized that certain standards of reception must be met if the home radio set is to fulfill its purpose as it should.

The ideal radio set would probably be the one which would bring in any desired station, at any time of day or season, exclude all others, and reproduce the broadcast program with complete tonal fidelity, and, if desired, full volume or intensity. In other words, the ideal radio set would have almost infinite sensitivity and selectivity, perfect tone, and volume without limit.

Certain causes, largely natural, have prevented the complete attainment of this ideal, but, nevertheless, development in the radio art has progressed to a point where good modern instruments serve their purpose of entertainment and education fully as satisfactorily as a good motor car performs its function of transportation. Perfection has not been, and probably never will be attained in either automobiles or radios, yet both have unquestioned utility which has earned them secure places in our every-day life.

Practical perfection can be attained in most of the desirable characteristics of a radio set, but there is one factor which has in the past, as it probably will in the future, limited the development of radio. This factor is atmospherics or static. The term static has come to mean both natural and man-made interference, and which of the two is of the greater importance depends on the location of the individual receiving set. In outlying districts true atmospherics represent the main form of interference, but in cities where there are street car lines, battery charging stations, power lines, telephone exchanges, etc., these causes of man-made interference often make natural static unimportant by comparison.

SENSITIVITY

By **sensitivity** we mean the ability of a set to bring in weak or distant signals. Strangely enough, the present day receiving sets have little more sensitivity than the first radio sets. They have, however, other characteristics the achievement of which has made sensitivity difficult to retain, so that a modern set with sensitivity equal to that of the old "three-tuber" is really an advanced engineering model.

Between **good** three, five, and even ten tube sets there is ordinarily little or nothing to choose in the way of sensitivity or distance-getting ability. This probably would not be the case were it not for static and atmospheric interference of similar character. Any good three tube set will bring in signals so weak that they are no stronger than the ever-present "static level," and greater sensitivity than this is **not desirable**, nor will it be until some method of eliminating static is discovered. Such a method has been sought for a quarter century, and appears as far from solution as ever today.

Therefore **sensitivity** as such is not a matter of such importance as is often thought. A set possessed of the sensitivity of a three-tuber of 1922 will give a high degree of satisfaction. But such a set is, strangely enough, not so easy to find as might be supposed. The difficulty is to find a set which has a high degree of sensitivity thruout the wave-length band used for broadcast transmission. The weakness of many five, six and seven tube sets is that they will have fair sensitivity from two hundred to three hundred meters, good sensitivity from three hundred to four hundred, and have a decided falling-off in efficiency as the higher waves are reached. The better sets of 1927-28 have not this undesirable weakness, and this is the type the wise buyer will select, if he is interested in distance and reliability.

SELECTIVITY

The **selectivity** of modern radio sets leaves little to be desired. This term refers to the ability of a radio set, under normal conditions, to reject the signals from undesired local stations and bring in signals from any one station which the operator wishes to hear. In this characteristic the modern set is incomparably superior to the earlier instruments. The attainment of selectivity, however, often has disastrous effects on the sensitivity of the radio set, and it is only recently that designing engineers have known how to combine both of these desirable features in one set. The prospective purchaser should

check the ability of his intended purchase to eliminate or "tune out" the locals.

TONE

The **tone** of a radio set depends on a number of factors of type, design, and accessories, and also largely on the reproducer or loud speaker. The modern radio, being an outgrowth of the radio telegraph or "wireless," inherited the amplifying equipment ordinarily used in such telegraphy, where **amplification only** was sought, and retention of natural **tone** was of no importance. The amplifying transformers used as late as 1925 had the ability to amplify the middle tones well, but bass notes and high notes were often lost completely. The demand for natural tones brought out resistance-coupled and impedence-coupled amplifiers, which provided practically uniform amplification of high and low notes, but these types of amplifiers failed to completely displace the transformer because radio engineers have been able to produce transformers which duplicate the results of other types.

Therefore, in choosing a radio set the quality of the amplifier is of more importance than its status as resistance-coupled, transformer-coupled, or impedence-coupled.

The tone of the best set can be disguised by poor loud speakers or poor batteries or tubes. Make sure that your loud speaker is worthy of the set or it will be a waste of money to buy a good set.

VOLUME

The **volume** of practically all good radio sets is highly satisfactory but few people realize the intimate relationship between volume and sensitivity. The cheapest set on the market will ordinarily give ample volume on local signals, but it falls down when called upon to bring in weak signals with satisfactory intensity. If a set is truly sensitive, so that weak impulses make a reasonably strong detector action, the volume of the set will take care of itself. Don't judge the volume a set will give by its performance on local signals. Test its sensitivity on distance signals, or on locals with an arerial only four or five feet long.

"GETTING DISTANCE"

No radio set will bring in any desired station at any time, merely at the will of the operator. Even tho the receiving instrument may be of the best type, the broadcasting station

may not be using enough power to bridge the distance, or the static may be so strong that it drowns out the signals, or it may be one of the days when the atmosphere appears "dead," and although static is light, no signals seem to "get through." Broadcasting stations that are entirely out of range in the daytime may come in loud and clear at night. The night range is approximately ten times that of the daylight range. In winter, when trees have lost their conductive sap, when the air is dry, and atmospheric electricity (static) is at a minimum, greater distances can be covered, and more freedom from static interference is enjoyed.

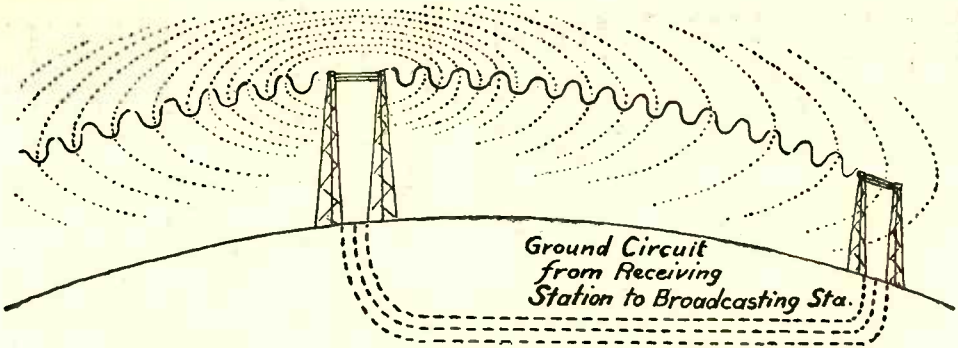
If the above is new to you, don't let it discourage your interest in radio, for it is this very uncertainty that makes radio attractive. How many fishermen would there be if it were only necessary to drop in the hook in order to pull out a five pound bass? One of the most fascinating features about radio is the fact that you can sit down at your set and listen to nearly any form of entertainment that you please, from coast to coast; and the next night you may hear an entirely different set of stations. Of course the powerful stations that are near, will be readily tuned in night after night, at will, but for real distant stations this is not the case. Some radio enthusiasts find their pleasure in listening an hour at a time to the excellent programs; most of them would rather listen to one number, just long enough to find out the location of the station, and then they are ready to turn to another, content with tuning in as many stations as possible.

Aerials, Loops and Counterpoises

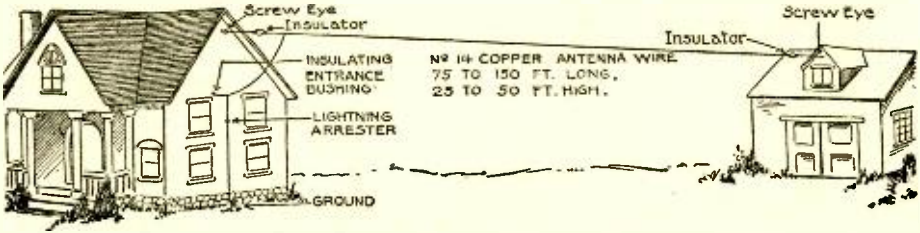
IN THE past all radio sets depended on an aerial, or elevated wire or wires to "catch" the radio impulses and bring them to the set.

With the widespread popularity of the home radio, the erection of an aerial has been something of a problem, particularly in districts where there were many apartment buildings. This condition has led to the adoption of "trick" aerials of many kinds, and also to the popularity of many-tube sets, which will operate over long distances without the use of an outdoor aerial.

Substitute aerials include bedsprings, fire escapes, indoor clothes lines (metal), wires concealed behind picture mouldings, and the like. All of these fulfill their purpose in some degree. Still more effective substitutes are small aerials built in the top story of the buildings, and patterned after the outdoor aerial. These work, in many cases, nearly as well as the outdoor installation. "Aerial Plugs," to be connected to the lamp socket, are often as satisfactory as aerials; although they sometimes fail completely, the results being dependent mainly on the conditions in the wiring of the



Radio waves traveling out in all directions from transmitting to receiving stations.



A typical antenna system for a radio receiving station.

house. For this reason, most dealers will sell these plugs on a trial basis. Whenever practical, however, it is urged that a standard installation be used.

In order to make up for the inefficiency of the above make-shifts, it was found desirable to increase the sensitivity of the radio set itself, to overcome the losses introduced at the start. This has been accomplished mainly by the use of more and more vacuum tubes as amplifiers. Three years ago a five tube set was a curiosity; today eight and ten tube sets are common. It was found that by increasing the sensitivity of the set, the same results could be obtained with smaller and smaller aerials, until finally it was found that a simple coil of wire about eighteen inches in diameter, and with about ten to twenty turns of wire, would serve as a collector, without the use of a ground connection or aerial of any other kind. This "loop" aerial is all that is needed with many sets of three to twelve tubes, for receiving from distances up to several thousand miles. The loop also possesses the property of receiving best from the direction in which it is pointed, which is an aid in eliminating unwanted signals. To operate a loop it is necessary to use several stages of radio frequency amplification. The most popular loop sets are those with plain radio-frequency amplification or those with the super-heterodyne feature. By using the reflex principle. the same tubes can be made to serve as radio frequency and audio frequency amplifiers, and satisfactory loop sets may be made with as few as three tubes.

The natural thing might seem to be the combination of these ultra-sensitive sets with an outdoor aerial; but the advantage of both can be secured only to a limited degree for this reason. There seems to be a certain distance, beyond which no set can receive. Of course the actual distance will be governed on any particular date, by atmospheric conditions. But, although the super-sensitive sets may bring in signals that are inaudible to the ordinary good sets, the static and other interferences will also be amplified by the super set, so that the very distant signals are unintelligible, though audible. There is always some static in the atmosphere; although you may not hear it. Connect up a more sensitive set than the one you have been using, and, while you may bring in more distant stations, you will usually also bring in static enough to blanket them.

But there is this much to be said for the use of an aerial with a loop set: If the set does not bring in distant stations as well as others which use an aerial, a small aerial can be erected, and merely passed through the room in which the set is located. the lead-in being one or two feet from the loop. This will usually increase the range of the set. Or instead of leading directly to the

ground the lead-in may pass through a small tuning coil, or fixed coil and condenser. Your dealer can give you data on the size of coil that will be best for your set. As a rule, a tapped coil, with fifty turns and about ten taps, will be right for all purposes. The loop will pick up energy from the lead-in without any physical connection. Of course this will remove the directive property of the loop to some degree.

In the case of sets using an outdoor aerial, it has been found that under some conditions better results could be obtained by using a "counterpoise" in place of a connection to the ground. The customary means to a "ground" is by connection to water pipes, radiators, or rods driven into moist ground. The counterpoise is really little more than a second aerial, ordinarily nearer the earth than the aerial, but not necessarily so. The counterpoise is insulated from other objects in the same way as the aerial itself. It may be twenty to fifty feet or more from the aerial, or it may be a fraction of an inch from it. Some manufacturers are now making "counterpoise aerial wire," which has a core of copper wire, which is the aerial, a composition insulating jacket, and a braided wire covering over that, the latter being the counterpoise. The unit is erected just as an aerial, with two lead-ins, one from the inner wire, which attaches to the "aerial" post on the set, and the other from the outer braided covering, which goes to the "ground" terminal. In dry climates a counterpoise is usually preferable to a ground, and the same is often true in other places where the ground connection is not perfect.

As to the aerial itself, the best length for broadcasting purposes is about 50 to 110 feet. The day of the long aerial is past. The lead-in should be as direct as possible, and should touch as few insulators (and nothing else) as possible. There is a theoretical advantage in using stranded wire, which advantage is seldom evident in a practical sense. Theoretically the best aerial wire is that which is made up of a number of strands of enameled wire braided together. There is absolutely no advantage in using more than one wire in the aerial, although some people persist in erecting three and four wire aerials. A four wire aerial is only of advantage when a transmitting outfit is used.

Lightning Protection. With a loop or an indoor aerial there is of course no need for lightning protectors. In the case of the outdoor aerial, the condition is somewhat different. During a lightning storm the aerial picks up a considerable amount of static electricity, which should have a fairly easy path to the ground, in order to protect the receiving instruments. The danger is not that the lightning will strike the aerial and then set fire to the house; if lightning strikes an aerial it burns up the wire before it gets to

the ground—but the static charges coming from flashes of lightning some distance away are liable to do some harm if not provided for by a grounding switch or protector of some kind.

Any good lightning protector, approved by the Underwriters will serve, and an aerial so protected actually makes the house more safe than when there is no aerial. If a counterpoise is used, it should be protected in the same way as the aerial.

Radio Batteries

BATTERIES are used in radio to operate the vacuum tubes. These batteries serve three different purposes, and are named, for convenience, "A", "B", and "C" batteries.

The "A" Battery is used to heat the filaments of the tubes. The exact type of battery needed depends on the tubes used.

Most tubes take storage batteries, while a smaller proportion require dry cells. When dry cells are worn out, they must be discarded and replaced by new batteries. Time for replacement can easily be told by testing the cells with a volt meter, or by seeing that the tubes do not glow as brightly as they did when the cells were new. Storage batteries with proper care will last for years. They should always be kept filled with distilled or "soft" water so that liquid is well over the plates. Hydrometers are used to test storage batteries. When the reading is less than 1150 the battery is dead, and should be put on charge and kept there until the reading has increased to 1280.

A "trickle charger" may be left attached to the storage battery all of the time, charging at a very low rate, so that the drain on the battery while the set is in operation is equalized by the slow charging during the rest of the day. By using a trickle charger, the storage battery may be kept at maximum efficiency all of the time. Care should be used, however, in following instructions which come with the trickle charger, for it is a piece of electrical apparatus and requires attention the same as any other apparatus of this sort.

The "B" Battery has no connection with the lighting of the filament. It serves only as a local battery, to add strength to the incoming currents. The incoming wave, by acting on the grid of the tube, serves as a "trigger," to release some of the energy in the B battery, resulting in a magnified current in the output circuit. The detector requires one block of B battery, or 22½ volts, approximately, while the amplifier tubes take anything from 45 volts to 110 or more, depending on conditions. It is frequently advisable to test the B battery with a voltmeter (never with an

ammeter). Each 22½ volt block should test 17 volts or more. A new "22½ volt" battery should test 21½ or more, and when the voltage is down to 17, the battery is about ready for discard.

The "C" Battery is found only in sets having amplifier tubes. Its purpose is to give clearer reception and to reduce the drain on the "B" Batteries. At the same time it adds to the life of the tubes. The "C" battery is usually about 1½ volts when 67½ volts B is used, and from 3 to 6 volts when 90 to 110 volts B is used. The "C" battery can be tested by a voltmeter, and should be discarded when its voltage has dropped about 20% or 25%.

Battery Eliminators

DURING the past year, a number of devices have been developed which transform house current into current which may be used in the radio set. In the main, these devices consist of (1) transformers which change the 110 volt house current into the proper voltage for "A," "B," and "C" use, (2) rectifying units for changing alternating current to direct current, and (3) condensers and coils to further smooth out the pulsations in the flow of current so that a pure direct current is produced.

The rectifying unit is generally an electrolytic cell, or a specially constructed vacuum tube. Battery eliminators if properly designed and constructed give complete satisfaction.

Vacuum Tubes

THE vacuum tube is the very heart of a modern radio set. It is used in transmitting stations as well as in receiving sets. In the home radio set vacuum tubes are used for two purposes; as detectors, and as amplifiers. The detector serves to change the character of the waves into electrical impulses which will operate the "phones." When used as an amplifier, the vacuum tube either strengthens this phone current so that it will operate a loud speaker. (audio frequency amplifier) or it builds up weak incoming waves to a point where they will operate the detector (radio frequency amplifier). As mentioned before, all sets use a detector, many use both detector and audio frequency amplifiers, and some use radio frequency amplifiers as well.

The vacuum tube consists of three essential parts, enclosed in a glass envelope, from which the air has been exhausted. In the center is the filament, which is heated to a point near incandescence by the "A" battery. Next to the filament is the grid, a metal ladder or screen, and on the other side of the grid is the plate, a square or tubular piece of metal.

The heated filament gives off electrically charged particles of matter, which fly past the grid, to the plate. The incoming current, which is impressed on the grid, causes that element to regulate the flow of current from the filament to the plate, so that the tube may serve as a relay or amplifier. A weak current entering at the grid, is increased by the local current emanating from the hot filament, so that the current leaving the plate is a magnified duplicate of the current that entered by way of the grid. This is the function of amplification. The detecting of the wave, or making it change to such a form as will operate the phones, is also done by means of the grid electrode, which modifies the current passing through the tube. The four prongs at the base of the tube are the terminals of the enclosed elements; two for the filament, and one each for grid and plate. The prongs should be kept clean, to assure good contact with the socket.

Tuning Units

THE radio set is adjusted or "tuned" to any particular station by means of condensers and coils (of insulated wire). In order to make the range of tuning continuously variable, so as to include the greatest number of stations, either or both the coils and condensers are variable in capacity. That is, the tuning unit may be made up of fixed coils and variable condensers, or fixed condensers and variable coils, or variable condensers and variable coils. Any or all of these combinations may be found in a set.

Variability in a tuning coil is commonly secured in one of two ways; taps are taken off from the coil at regular intervals, and so connected that by means of a switch any desired number of turns can be secured. Or the tuning coil may consist of two identical coils, one of which rotates within, or in close proximity to the other. This combination is called a variometer. When the movable coil is parallel to the other, in one position the tuning value is maximum, while a half turn reduces the tuning value to approximately zero.

A condenser is made up of sheets of conducting material, separated from each other by some insulator. In the case of fixed condensers, it is common to have copper foil conductors, and sheet mica insulators. A variable condenser, due to mechanical requirements, is somewhat different. The plates are semicircular in shape, and are made of aluminum or brass. The insulator is air, and the movable plates are so mounted as to permit them to "sandwich" between the stationary plates without touching. One connection is made to each set of plates. A tuning coil should show a continuous electrical circuit from one terminal to the other; a condenser should

show no circuit, or "open circuit." To preserve the good operation of a variable condenser, frequently remove the dust from the plates, so that there will be no danger of the metal particles or moisture in the dust accidentally making a conductive path between the rotating and stationary plates. A pipe cleaner can be used advantageously in cleaning.

Common Questions and Answers

Q. If a three-tube set will receive 1,500 miles, why won't a six or eight-tube set receive 3,000 or 4,000 miles?

A. Because the sensitivity of a receiving set is not the only factor that determines receiving range. If a broadcasting station can only send radio impulses to a distance of 1,000 miles, under normal conditions, it stands to reason that no receiving set will pick up the messages from that station at a distance of 1,500 miles, because (in a practical sense) the signals will not be there to pick up at that distance. By increasing the sensitivity of a set to weak signals, you are at the same time increasing its sensitivity to static impulses. There is a certain "threshold point" where static will drown signals completely, and any signals which are weaker than those which can barely be heard, will be lost in the static noise. Conceive of a gasoline tractor which would climb a 50% grade. Could you, by increasing the power of the machine, induce it to climb a vertical surface? The answer is obvious; on such a grade there would be no traction, nothing for the wheels to grip, and the increase in power would count for nothing. Too many persons look upon receiving range as merely a matter of getting an infinitely sensitive set, without considering that to get unlimited range they must first develop a transmitter with unlimited range, and reduce static and interference to zero; an impossibility.

Q. If I get good results with a 60 foot aerial, why won't I get better results by adding more wires, and making them longer?

A. Because there is a certain aerial that is best for your set. A shorter or a longer aerial will result in diminished sensitivity. Too long an aerial will absolutely prevent your receiving radio signals at all. Remember the story of the lady who had a mania for patent medicines? She acted on the supposition that "if a little's good, more's better," and took four times the prescribed dose. The analogy is evident.

Q. If my set works well with 22½ volts "B" battery on the detector, as the instructions said, why not use a stronger battery, and get better results?

A. See answer above. The same reasoning applies to batteries.

Q. If I buy a set today, isn't it liable to be obsolete within a year?

A. Although refinements in radio are constantly being made, no set built in the past ten years has become really obsolete. The underlying principles of radio do not change, and a set that does satisfactory service today, will perfom just as well a year from today. Changes that are being made from day to day are concerned more with the cabinet work, and attractive workmanship of a set rather than with radical developments in design and principle. Take, for instance, the Superhetrodyne, which is frequently referred to as the latest development. This set has been in use by advanced amateurs for six or seven years. It has only sprung into popularity recently because people have become convinced of the permanency of radio, and are willing to pay for higher priced sets. When radio was considered as a fad, buyers hesitated to spend as much money on a radio set as they would on a phonograph. Now that radio is established as an institution, and there is a market for high priced sets, the principles which have been known for years are finding expression in the production for the market.

Q. My set has a range of 200 to 600 meters wave length. How far does that mean it will receive?

A. The term "wave-length" or "wave-frequency" has no direct relation to the sending power or range of a sending set, nor does it refer to the distance from which you can receive with a given receiving set. To say that a station is sending at 417 meters wave length is comparable to the statement that a violin string is tuned to "G" of the pianoforte. A low power radio transmitter with a maximum range of ten miles might be tuned to 417 meters, while another transmitter with a range of 1,000 miles could use the same wave length. Likewise, the violin string at "G" might be heard from a distance of 200 feet; a steam whistle also pitched at "G" might be audible from two miles away. The question "How far will that set receive?" is seldom answered in an intelligent manner. Probably this is because the question itself is somewhat ambiguous. It amounts to saying: "How far can you hear the tone of middle C?" The answer to the latter is, of course, that it depends on the volume of that tone at its source; whether the tone is emitted by a steam whistle or a child's mouth organ; whether the sound originated in a valley or from a hill top; whether the listener was on a country prairie or in the midst of city traffic noises; whether the air was rare or dense, humid or dry. A rather mediocre receiving set may bring in

signals from a 1,000 watt broadcasting station 800 miles away; but a receiving set that will record the signals from a "10 watter" 100 miles away will have accomplished a much greater feat.

HOW TO LOCATE TROUBLE

WHEN a factory-built radio set "goes dead" or obviously fails to perform as it should, about 99 chances in 100 point to some fault in the accessories (tubes, batteries, connections loud speaker, aerial and ground), rather than actual trouble in the set itself.

It is not a difficult task to locate such troubles, even for the novice, and if the following instructions are followed carefully. almost any case of trouble can be traced down to its source, at which point the remedy will usually suggest itself.

WHEN THE SET "GOES DEAD"

1. Check over all battery connections. With the wiring chart in your hand, make sure that every connecting wire is attached to the correct battery terminal, and that connections between batteries are also right. Then sandpaper each wire terminal and fasten it down tight, so as to assure good contact.
2. Trace the aerial circuit from the lead-in to the end of the flat-top portion. Make sure that there are no breaks in the circuit, and no insulation leaks.
3. Trace the ground wire the same way. Make sure that the ultimate connection actually is an electrical ground, remembering that to be a true ground this wire must make **electrical contact** with mass of **metal** having an **appreciable area** in **intimate contact with permanently moist earth.** A copper or galvanized plate three or four feet square, buried deep in moist earth makes such a ground. A city waterworks pipe or the casing (not the pump rod) of a deep well also fulfill these conditions. A half-inch pipe driven three feet in the earth ordinarily does not make a ground at all, because the exposed area is insufficient, and it does not reach moist earth at all.

   Between these extremes of good and bad grounds there are numerous semi-grounds which will never permit a set to work at full efficiency.

4. Turn on the current to the set, and note if the tubes appear to light up. Due to the silvery coating it is hard to tell how bright they burn, but if, after a period of rest, the tubes light up and visibly weaken, it is a sign that the storage battery is discharged. If the tubes do not light at all this either means that the battery is completely discharged, that the tubes are burned out, or that there is an open circuit or poor connection in the filament wiring or filament switch within the set. If all tubes light up but one, it usually means a burnt out tube or bad socket contact. The surest way to check the condition of the storage battery is, of course, to test it with a battery tester or hydrometer.

5. With the current still turned on, test the voltage of each B battery with a voltmeter. The voltage of each 45-volt battery should be above 37 or the battery may be considered worn out. One live battery and one dead one is just as bad as two dead ones.

6. With current turned on, disconnect one of the loud speaker terminals and then re-connect it. A very noticeable crackling noise should be heard when the contact is made and broken. If no sound is heard it may mean that the last tube is defective, but it is more likely to mean that the loud speaker cable is broken or the loud speaker burned out. Borrow another loud speaker or pair of head phones and connect in place of the regular speaker.

7. Test the tubes. The only visual test, of course, is to see that they light. But even tubes which light are not necessarily O. K., and they should be taken to a radio dealer and tested with the proper instruments, which most dealers will do without charge. A test which is often productive, and which may be made in the home, is to borrow a spare tube of proper type, one which is known to function, and try it first in one socket and then in the next, and noting if any change results. This test will show up one bad tube, but is of no avail if two or more of them are blocked, since one blocked tube will paralyze the set.

8. If all of the above tests have been made and still nothing appears to be wrong, turn on the set and grasp the first tube and gently move it about in the socket. If the set "comes to life" for an instant it usually means a bent socket prong is not making good contact with the tube. Try this with all tubes. If the trouble is found in a socket, the remedy is obvious.

9. If the set has a grid leak or resistance coupled amplifier, these high resistances can be tested by moistening the thumb and forefinger slightly and grasping the resistors, one at a time, between thumb and forefinger, without removing the resistor from the mounting clips. If a marked improvement in reception is made when the resistor is so held, the resistor itself is probably burned out and should be replaced by one of the correct value.
10. The above series of tests will in practically all cases locate the cause of trouble. To the experienced radio man the above offers nothing new; to the novice it gives about all the simple tests which may be made in case of trouble. If no satisfactory result is derived from these tests the novice will do well to call in the dealer from whom he purchased the set or some competent professional trouble man.

NOISY OPERATOR

1. Noisy operation is usually, though not always, more difficult to overcome than complete failure to operate. Obviously the thing to do in case of objectionable noise is first to determine whether the origin is in the set and installation or some distance away, and then to seek the remedy. It is more difficult to determine if the noise is in the set than might be imagined. If the noise continues undiminished when the aerial is disconnected, this is evidence that the trouble is in the installation. The surest test is to bring a portable set to the same location and note if the same noise is heard. To be of value the test set should use entirely different tubes, speaker, batteries, and even aerial. Since interference noises affect all sets, and ordinarily to the same degree, a test of this sort is conclusive.
2. Another way to estimate the probable cause of noise is to judge it by its sound. Periodic noises occurring at regular intervals are usually external. Noises in the installation are of three kinds; those which go on steadily when the dials are not moved, those which are heard only when the dials are turned, and those which occur either when the dials are turned or when the set is jarred.
3. Noises which are heard when the set is not touched are usually caused by run down B batteries or A batteries, sometimes a defective grid leak will cause such a noise. Remove the grid leak from its mounting and note if the noise disappears. If the cause is the grid leak the noise will disappear completely, and not merely weaken.

4. Noises which occur only with motion of the dials are practically always due to dirty or worn contacts between the moving plates of the condensers and the coils, or to moving plates which scrape against the stationary plates.

5. The cause of noises which occur either when the dials are moved or when the set is jarred may be the same as that just described, or it may be that most difficult of all trouble causes; the poor contact. This may be found anywhere, and can only be located by trying all tubes in their sockets for poor socket contact, tapping each tube separately for poor contact within the tube itself, or taking the chassis out of the cabinet entirely, and plucking at each connecting wire while the set is in operation, seeking a poorly soldered joint or weak riveted connection.

6. The microphonic hum which is more often noticed in sets with built-in speakers is due to mechanical vibration of the tubes. The detector is far more sensitive to vibration than any other tube, and for this reason is usually in a cushion socket. If the detector produces a steady hum which gradually builds up in volume until it drowns out the signals, another tube should be put in its place, and the noisy tube used in an amplifier socket. Cutting down the detector voltage will usually help in eliminating bad cases of microphonic effect.

The Station Finder

A GOOD many set operators would enjoy their receivers more if they were able to find a dial setting to get long distance stations and stations which they had previously been unable to "find."

The chart given on the next page enables one to find the correct dial setting very easily.

Follow these directions carefully and you will add one hundred per cent to your set enjoyment.

1. Tune in one, five or six stations. Keep note of the call of the station and the dial setting.

2. Using the list given in the directory, find the correct wave lengths for the stations you have heard.

3. With each of the stations you have heard, take the following steps:

   (a) Find the vertical line representing the wave length of the stations and the horizontal line representing the dial setting.

   (b) At the intersection of these lines make a dot and place next to the dot the call of the station.

   (c) With a heavy line connect all of the points established in (b). This line should be straight or an even curve.

After you have found this line you will be able to set your dials to receive any stations whose wave lengths you know.

For instance—if you want to listen to Station KMOX wave length 300, you should proceed in this way: Find 300 in the list of figures at the bottom of the chart and follow this vertical line upward until it intersects the line established in 3 (c). Then follow the horizontal line at this intersection to the left of the chart. The figure here indicated is the correct dial setting to receive Station KMOX.

Best results can be obtained by enlarging the chart given to approximately fifteen inches long by twelve inches wide.

If your set has dials reading from zero to two hundred or zero to ninety, change the horizontal ruling to correspond to the number of divisions on your dials.

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
KDKA	E. Pittsburgh, Pa.	315.6	950	30000	Westinghouse Elec. & Mfg. Co.	
KDLR	Devils Lake, N. D.	230.6	1300	15	Radio Electric Co.	
KDYL	Salt Lake City, Utah	258.5	1160	100	Inter-Mountain Broadcasting Corp.	
KELW	Burbank, Calif.	228.9	1310	250	Earl L. White	
KEX	Portland, Ore.	239.9	1250	2500	Western Broadcasting Company	
KFAB	Lincoln, Nebr.	309.1	970	2000	Nebraska Buick Auto Co.	
KFAD	Pheonix, Ariz.	272.6	1100	500	Electrical Equipment Company	
KFAU	Boise, Idaho	285.5	1050	2000	Independent School District of Boise	
KFBB	Havre, Mont.	275.1	1090	50	F. A. Buttrey Company	
KFBC	San Diego, Calif.	247.8	1210	100	Howard Shores	
KFBK	Sacramento, Calif.	535.4	560	100	Sacramento Bee	
KFBL	Everett, Wash.	223.7	1340	50	Lesse Brothers	
KFBS	Trinidad, Colo.	238	1260	15	School District No. 1	
KFBU	Laramie, Wyo.	428.3	700	500	Bishop N. S. Thomas	
KFCB	Pheonix, Ariz.	243.8	1230	125	Nielsen Radio Supply Co.	
KFCR	Santa Barbara, Calif.	211.1	1420	50	Santa Barbara Broadcasting Co.	
KFDM	Beaumont, Texas	374.8	800	500	Magnolia Petroleum Co.	
KFDX	Shreveport, La.	236.1	1270	250	First Baptist Church	
KFDY	Brookings, So. Dak.	394.5	760	500	State College of Agric. & Mech. Arts	
KFDZ	Minneapolis, Minn.	215.7	1390	10	Harry O. Iverson	
KFEC	Portland, Ore.	214.2	1400	50	Meier & Frank Company, Inc.	
KFEL	Denver, Colo.	247.8	1210	250	Eugene P. O'Fallon, Inc.	
KFEQ	St. Joseph, Mo.	230.6	1300	1000	J. L. Scroggin	
KFEY	Kellogg, Idaho	232.4	1290	10	Bunker Hill & Sullivan Min. & Con. Co.	
KFGQ	Boone, Iowa	209.7	1430	10	Boone Biblical School	
KFH	Wichita, Kans.	245.8	1220	500	Hotel Lassen	
KFHA	Gunnison, Colo.	254.1	1180	50	Western State College of Colorado	

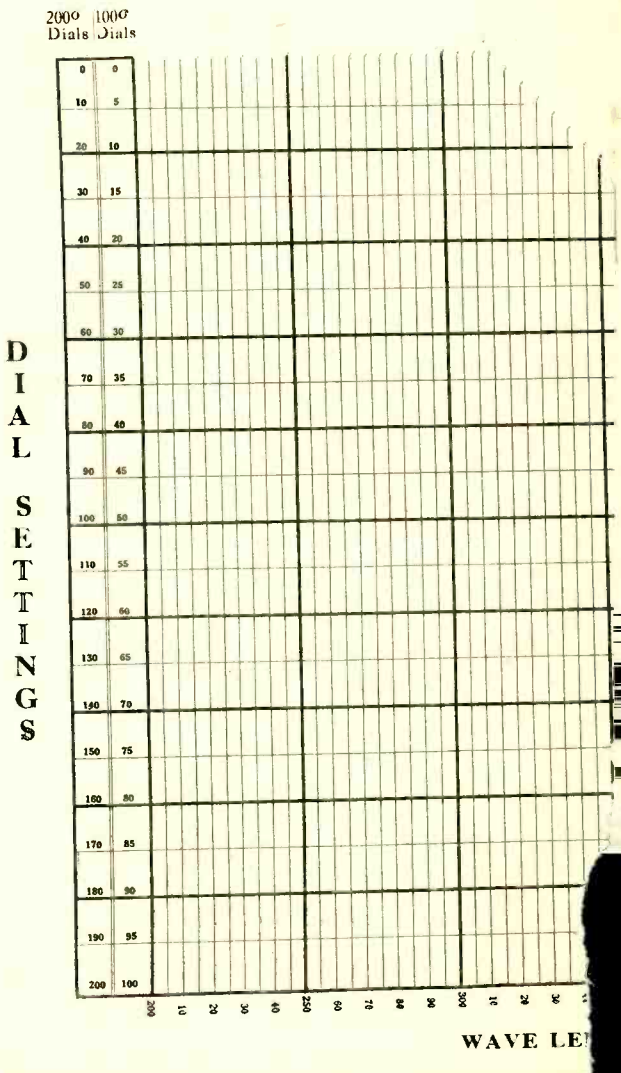
Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
KFHL	Oskaloosa, Iowa	212.6	1410	10	Penn College	
KFI	Los Angeles, Calif.	468.5	640	5000	Earle C. Anthony, Inc.	
KFIF	Portland, Ore.	214.2	1400	50	Benson Polytechnic School	
KFIO	Spokane, Wash.	245.8	1220	100	North Central High School	
KFIQ	Yakima, Wash.	208.2	1440	100	First Methodist Church	
KFIU	Juneau, Alaska	225.4	1330	10	Alaska Elec. Light & Power Co.	
KFIZ	Fond du Lac, Wis.	267.7	1120	100	Fond du Lac Commonwealth Reporter	
KFJB	Marshalltown, Iowa	247.8	1210	100	Marshall Electric Co.	
KFJF	Oklahoma City, Okla.	272.6	1100	750-1000	National Radio Mfg. Co.	
KFJI	Astoria, Ore.	249.9	1200	15	E. E. Marsh and Liberty Theater	
KFJM	Grand Forks, N. D.	333.1	900	100	University of North Dakota	
KFJR	Portland, Ore.	282.8	1060	100	Ashley C. Dixon & Son	
KFJY	For Dodge, Iowa	440.9	680	100	Tunwall Radio Co.	
KFJZ	Fort Worth, Texas	249.9	1200	50	W. E. Branch	
KFKA	Greeley, Colo.	399.8	750	200	Colorado State Teachers' College	
KFKB	Milford, Kans.	241.8	1240	1500	J. R. Brinkley, M. D.	
KFKU	Lawrence, Kans.	254.1	1180	500	University of Kansas	
KFKZ	Kirksville, Mo.	225.4	1330	15	State Teachers' College	
KFLV	Rockford, Ill.	267.7	1120	100	Swedish Evangelical Mission Church	
KFLX	Galveston, Texas	270.1	1110	100	George R. Clough	
KFMR	Sioux City, Iowa	440.9	680	100	Morningside College	
KFMX	Northeld, Minn.	236.1	1270	500	Carleton College	
KFNF	Shenandoah, Iowa	461.3	650	1000	Henry Field Seed Co.	
KFOA	Seattle, Wash.	447.5	670	1000	Rhodes Dept. Store	
KFON	Long Beach, Calif.	241.8	1240	500	Nichols & Warriner, Inc.	
KFOR	Lincoln, Nebr.	217.3	1380	100	David City Tire & Electric Co.	
KFOX	Omaha, Nebr.	258.5	1160	100	Board of Education Technical High	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
KFOY	St. Paul, Minn.	285.5	1050	250	Beacon Radio Service	
KFPL	Dublin, Texas	275.1	1090	15	C. C. Baxter	
KFPM	Greenville, Texas	230.6	1300	15	The New Furniture Co.	
KFPR	Los Angeles, Calif.	232.4	1290	250	Los Angeles Co. Forestry Dept.	
KFPW	Carterville, Mo.	253	1140	50	St. John M. E. Church	
KFPY	Spokane, Wash.	245.8	1220	250	Symons Investment Co.	
KFQA	St. Louis, Mo.	322.4	930	50	The Principia	
KFQB	Fort Worth, Texas	222	1350	2000	Lone Star Broadcast Co.	
KFQD	Anchorage, Alaska	344.6	870	100	Anchorage Radio Club	
KFQU	Alma, Calif.	249.9	1200	100	W. E. Riker	
KFQW	Seattle, Wash.	217.3	1380	100	KFQW, Inc., Pacific	
KFQZ	Hollywood, Calif.	232.4	1290	100	Taft Radio Company	
KFRC	San Francisco, Calif.	454.3	600	500	Don Lee, Inc.	
KFRU	Columbia, Mo.	249.9	1200	500	Stephens College	
KFSD	San Diego, Calif.	440.9	680	500	Airfan Radio Corp.	
KFSG	Los Angeles, Calif.	275.1	1090	500	Angeles Temple	
KFUL	Galveston, Texas	258.5	1160	500	Thomas Groggan & Bros.	
KFUM	Colorado Springs, Colo.	236.1	1270	100	Corley Mountain Highway	
KFUO	St. Louis, Mo.	545.1	550	500	Concordia Theological Seminary	
KFUP	Denver, Colo.	227.1	1320	100	Fitzsimmons General Hospital	
KFUR	Ogden, Utah	225.4	1330	50	Peery Building Co.	
KFUS	Oakland, Calif.	256.3	1170	50	The Gospel Radio	
KFUT	Salt Lake City, Utah	449.7	600	50	University of Utah	
KFVD	Venice, Calif.	208.2	1440	250	W. J. & C. I. McWhinnie	
KFVE	St. Louis, Mo.	234.2	1280	1000	Greater St. Louis Broadcasting Corp.	
KFVG	Independence, Kans.	225.4	1330	50	First Methodist Episcopal Church	
KFVI	Houston, Texas	238	1260	50	KFVI Broadcasting Co.	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
KFVN	Fairmont, Minn.	228.9	1310	100	KFVN Broadcasters	
KFVS	Cape Girardeau, Mo.	223.7	1340	50	Hirsch Battery & Radio Co.	
KFWB	Hollywood, Calif.	361.2	830	500	Warner Brothers	
KFWC	San Bernardino, Calif.	222.1	1350	100	L. E. Wall	
KFWF	St. Louis, Mo.	214.2	1400	250	St. Louis Truth Center	
KFWH	Eureka, Calif.	254.1	1180.	100	The Humboldt Times	
KFWI	San Francisco, Calif.	267.7	1120	500	Radio Entertainments, Inc.	
KFWM	Oakland, Calif.	236.1	1270	500	Oakland Educational Society	
KFWO	Avalon, Calif.	299.8	1000	250	Major Lawrence Mott—Signal Corp.	
KFWV	Portland, Ore.	228.9	1310	50	KFWV Broadcasting Studio	
KFXD	Jerome, Idaho	204	1470	15	KFXD, Inc.	
KFXF	Denver, Colo.	282.8	1060	500	Colorado Radio Corp.	
KFXH	El Paso, Texas	241.8	1240	100	Bledsoe Radio Co.	
KFXJ	Colorado	215.7	1390	15	R. G. Howell	
KFXR	Oklahoma City, Okla.	223.7	1340	50	Exchange Ave. Baptist Church	
KFXY	Flagstaff, Ariz.	205.4	1460	25	Mary M. Costigan	
KFYF	Oxnard, Calif.	238	1260	25	Carl's Radio Den	
KFYO	Breckenridge, Texas	211.1	1420	15	Kirksey Bros. Battery & Electric Co.	
KFYR	Bismarck, N. D.	239.9	1250	250	Hoskins-Meyer, Inc.	
KGA	Spokane, Wash.	260.7	1150	2000	Northwest Radio Service Co.	
KGAR	Tucson, Ariz.	234.2	1280	100	Tucson Citizen	
KGBS	Seattle, Wash.	202.6	1480	100	Arthur C. Daily, Moore Hotel	
KGBU	Ketchikan, Alaska	228.9	1310	500	Alaska Radio & Service Co.	
KGBX	St. Joseph, Mo.	288.3	1040	100	Foster-Hall, Inc.	
KGBY	Columbus, Nebr.	202.6	1480	50	Thelen and Laddiken	
KGBZ	York, Nebr.	212.6	1410	100	Dr. George R. Miller	
KGCA	Decorah, Iowa	247.8	1210	10	Ben Bear Clothing Co.	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
KGCB	Oklahoma City, Okla.	215.7	1390	50	Wallace Radio Institute	
KGCG	Newark, Ark.	223.7	1340	100	Moore Motor Co.	
KGCH	Wayne, Nebr.	293.9	1020	250	Wayne Hospital	
KGCI	San Antonio, Texas	220.4	1360	15	Liberty Radio Sales	
KGCL	Seattle, Wash.	230.6	1300	50	Louis Wasmer, Archie Taft	
KGCN	Concordia, Kans.	208.2	1440	50	Concordia Broadcasting Co.	
KGCR	Brookings, S. D.	208.2	1440	15	Cutler's Radio Broadcasting Serv., Inc.	
KGCU	Mandan, N. D.	208.2	1440	100	Mandan Radio Assn.	
KGCX	Vida, Mont.	243.8	1230	10	First State Bank of Vida	
KGDA	Dell Rapids, S. D.	254.1	1180	50	Home Auto Company	
KGDE	Barrett, Minn.	205.4	1460	50	Jaren Drug Company	
KGDJ	Cresco, Iowa	202.6	1480	10	R. Rathert	
KGDM	Stockton, Calif.	217.3	1380	10	Victor G. Koping and E. E. Peffer	
KGDP	Pueblo, Colo.	223.7	1340	10	Boy Scouts of America	
KGDR	San Antonio, Texas	202.6	1480	15	Radio Engineers	
KGDW	Humboldt, Nebr.	206.8	1450	100	Frank J. Rist	
KGDX	Shreveport, La.	212.6	1410	250	William Erwin Antony	
KGDY	Oldham, S. D.	206.8	1450	15	J. Albert Loesch	
KGEF	Los Angeles, Calif.	263	1140	500	Trinity Methodist Church	
KGEH	Eugene, Ore.	201.2	1490	50	Eugene Broadcast Station	
KGEK	Yuma, Colo.	263	1140	10	Beehler Electrical Equipment Co.	
KGEN	El Centro, Calif.	225.4	1330	15	E. R. Frey and F. M. Bowles	
KGEO	Grand Island, Nebr.	205.4	1460	100	Hotel Yancey	
GKEQ	Minneapolis, Minn.	202.6	1480	50	Fred W. Hermann	
KGER	Long Beach, Calif.	215.7	1390	100	C. Merwin Dobyns	
KGES	Central City, Nebr.	204	1470	10	Central Radio Electric Co.	
KGEU	Lower Lake, Calif.	227.1	1320	50	Lotowana Lodge	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
KGEW	Fort Morgan, Colo.	218.8	1370	10	City of Fort Morgan	
KGEY	Denver, Colo.	201.2	1490	15	J. W. Dietz	
KGEZ	Kalispell, Mont.	205.4	1460	100	Flathead Broadcasting Assn.	
KGFB	Iowa City, Iowa	223.7	1340	10	A. G. Dunkel	
KGFF	Alva, Okla.	205.4	1460	25	Earl E. Hampshire	
KGFG	Oklahoma City, Okla.	215.7	1390	50	Full Gospel Church	
KGFH	La Crescenta, Cal.	223.7	1340	250	Frederick Robinson	
KGFI	San Angelo, Texas	220.4	1360	100	M. L. Eaves	
KGFJ	Los Angeles, Calif.	208.2	1440	100	Ben S. McGlashan	
KGFK	Hallock, Minn.	223.7	1340	50	Kittson County Enterprise	
KGFL	Trinidad, Colo.	222.1	1350	50	Trinidad Broadcasting Co.	
KGFM	Yuba City, Calif.	211.1	1420	15	George W. Johnson	
KGFN	Aneta, N. D.	199.9	1500	15	Haraldson & Thingstad	
KGFO	Terre Haute, Ind.	204	1470	100	KGFO, Inc.	
KGFP	Mitchell, S. D.	212.6	1410	10	Mitchell Broadcast Co.	
KGFW	Ravenna, Nebr.	299.8	1000	10	Otto F. Sothman	
KGFX	Pierre, S. D.	254.1	1180	200	Dana McNeil	
KGGF	Picher, Okla.	206.8	1450	100	Dr. D. L. Connell	
KGGH	Cedar Grove, La.	212.6	1410	50	Bates Radio & Elec. Co.	
KGO	Oakland, Calif.	384.4	780	5000	General Electric Co.	
KGRC	San Antonio, Texas	220.4	1360	50	Gene Roth & Co.	
KGRS	Amarillo, Texas	243.8	1230	150	Gish Radio Service	
KGTT	San Francisco, Calif.	206.8	1450	50	Glad Tidings Temple and Bible Inst.	
KGU	Honolulu, Hawaii	270.1	1110	600	Marion A. Mulrony	
KGW	Portland, Ore.	491.5	610	1000	Oregonian Publishing Co.	
KGY	Lacey, Wash.	243.8	1230	50	St. Martins College	
KHJ	Los Angeles, Calif.	405.2	740	500	Los Angeles Times	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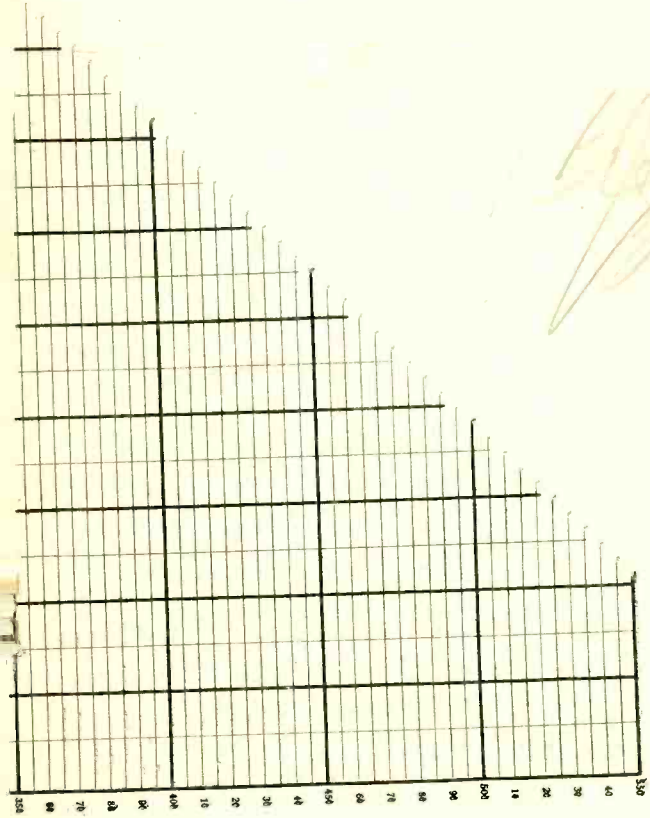
For Instructions see page 21



GTHS—METERS

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
KHMC	Harlingen, Texas	236	1270	100	Harlingen Music Company	
KHQ	Spokane, Wash.	370.2	810	1000	Louis Wasmer, Inc.	
KIAF	Sihtipoc, Minn.	422.3	710	500	Steele Co.	
KICK	Anita, Iowa	461.3	650	100	Atlantic Automobile Co.	
KJBS	San Francisco, Calif.	220.4	1360	50	Julius Brunton & Sons Co.	
KJR	Seattle, Wash.	348.6	860	2500	Northwest Radio Service Co.	
KKP	Seattle, Wash.	265.3	1135	15	City of Seattle	
KLCN	Blytheville, Ark.	285.5	1050	50	Edgar G. Harris	
KLDS	Independence, Mo.	270.1	1110	1500	Reorganized Church of Jesus Christ of Latter Day Saints	
KLIT	Portland, Ore.	206.8	1450	10	Lewis I. Thompson	
KLS	Oakland, Calif.	245.8	1220	250	Warner Bros. Radio Supplies	
KLX	Oakland, Calif.	508.2	590	500	Oakland Tribune	
KLZ	Denver, Colo.	267.7	1120	250	Reynolds Radio Co.	
KMA	Shenandoah, Iowa	394.5	760	500	May Seed & Nursery Co.	
KMED	Medford, Ore.	249.9	1200	50	W. J. Virgin	
KMIC	Inglewood, Calif.	223.7	1340	250	J. R. Fouch	
KMJ	Fresno, Calif.	365.6	820	50	Fresno Bee	
KMMJ	Clay Center, Nebr.	379.5	790	500	M. M. Johnson Co.	
KMO	Tacoma, Wash.	254.1	1180	250	KMO, Inc.	
KMOX	St. Louis, Mo.	299.8	1000	5000	The Voice of St. Louis	
KMTR	Los Angeles, Calif.	526	570	500	KMTR Radio Corp.	
KNRC	Santa Monica, Calif.	374.8	800	500	Keiruff & Ravenscroft Co.	
KNX	Hollywood, Calif.	336.9	890	500	Los Angeles Evening Express	
KOA	Denver, Colo.	325.9	920	10000	General Electric Co.	
KOAC	Corvallis, Ore.	270.1	1110	500	Oregon Agricultural College	
KOB	State College, N. M.	394.5	760	5000	N. M. College of Agri. & Mech. Arts.	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
KOCH	Omaha, Nebr.	258.5	1160	250	Central H. S.	
KOCW	Chickasha, Okla.	252	1190	250	Okla. College for Women	
KOIL	Council Bluffs, Iowa	277.6	1080	2000	Mona Motor Oil Co.	
KOIN	Portland, Ore.	319	940	1000	KOIN, Inc.	
KOLO	Durango, Colo.	199.9	1500	5	Gerald K. Hunter	
KOMO	Seattle, Wash.	305.9	980	1000	Fischer's Blend Station, Inc.	
KOW	Denver, Colo.	475.9	630	250	The Assoc. Industries Broadcasting	
KOWW	Walla Walla, Wash.	299.9	1000	500	Frank A. Moore	
KPCB	Seattle, Wash.	230.6	1300	50	Pacific Coast Biscuit Co.	
KPJM	Prescott, Ariz.	214.2	1400	15	Frank Wilburn	
KPLA	Los Angeles, Calif.	252	1190	500	Pacific Development Radio Co.	
KPNP	Muscatine, Iowa	211.1	1420	100	Central Radio Co.	
KPO	San Francisco, Calif.	422.3	710	1000	Hale Bros. and the Chronicle	
KPPC	Pasadena, Calif.	228.9	1310	50	Pacadena Presbyterian Church	
KPRC	Houston, Texas	293.9	1020	500	Houston Post-Dispatch	
KPSN	Pasadena, Calif.	315.6	950	1000	Pasadena Star-News	
KQV	Pittsburgh, Pa.	270.1	1110	500	Doubleday-Hill Electric Co.	
KQW	San Jose, Calif.	296.9	1010	500	First Baptist Church	
KRAC	Shreveport, La.	220.4	1360	50	Caddo Radio Club	
KRE	Berkeley, Calif.	256.3	1170	100	1st Congregational Church of Berkeley	
KRLD	Dallas, Texas	461.3	650	500	Dallas Radio Laboratories, Inc.	
KRLO	Los Angeles, Calif.	215.7	1390	250	Freeman Lang, A. B. Scott	
KRSC	Seattle, Wash.	211.1	1420	50	Radio Sales Corp.	
KSAC	Manhattan, Kans.	333.1	900	500	Kansas State Agricultural College	
KSBA	Shreveport, La.	267.7	1120	1000	W. G. Patterson	
KSCJ	Sioux City, Iowa	243.8	1230	500	Perkins Brothers Co.	
KSD	St. Louis, Mo.	545.1	550	500	St. Louis Post-Dispatch	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
KSEI	Pocatello, Idaho	333.1	900	250	KSEI Broadcasting Assn.	
KSL	Salt Lake City, Utah	302.8	990	1000	Radio Service Corp. of Utah	
KSMR	Santa Maria, Calif.	272.6	1100	100	Santa Maria Valley Railroad Co.	
KSO	Clarinda, Iowa	227.1	1320	500	Berry Seed Co.	
KSOO	Sioux Falls, S. D.	209.7	1430	250	Sioux Falls Broadcast Assn.	
KTAB	Oakland, Calif.	280.2	1070	500	The Associated Broadcasters	
KTAP	San Antonio, Texas	228.9	1310	20	Robt. B. Bridge, Alamo Broadcast. Co.	
KTBI	Los Angeles, Calif.	288.3	1040	500	Bible Inst. of Los Angeles	
KTBR	Portland, Ore.	282.8	1060	50	M. E. Brown, Pacific	
KTCL	Seattle, Wash.	277.6	1080	500	American Radio Telephone Co.	
KTHS	Hot Sprgs. Nat. Pk., Ark.	384.4	780	1000	The Arlington Hotel	
KTNT	Muscantine, Iowa	256.3	1170	3500	Norman Baker	
KTSA	San Antonio, Texas	265.3	1130	2000	Alamo Broadcasting Co.	
KTUE	Houston, Texas	212.6	1410	5	Uhalt Electric	
KTW	Seattle, Wash.	394.5	760	1000	First Presbyterian Church	
KUJ	Seattle, Wash.	199.9	1500	50	Puget Sound Radio Broadcasting Co.	
KUOA	Fayetteville, Ark.	296.9	1010	500	University of Arkansas	
KUOM	Missoula, Mont.	374.8	800	500	University of Montana	
KUSD	Vermillion, S. D.	483.6	620	250	University of So. Dak.	
KUT	Austin, Texas	232.4	1290	500	University of Texas	
KVI	Tacoma, Wash.	234.2	1280	50	Puget Sound Radio Broadcasting Co.	
KVOO	Bristow, Okla.	348.6	860	1000	Southwestern Sales Corp.	
KVOS	Seattle, Wash.	209.7	1430	50	Voice of Seattle	
KWBS	Portland, Ore.	199.9	1500	15	Schaeffer Radio Co.	
KWCT	Cedar Rapids, Iowa	384.4	780	250	H. F. Paar	
KWG	Stockton, Calif.	344.6	870	50	Portable Wireless Telephone Co.	
KWJJ	Portland, Ore.	228.9	1310	50		

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
KWKC	Kansas City, Mo.	222.1	1350	1000	Wilson Duncan Studios	
KWKH	Shreveport, La.	394.5	760	1000	Henderson Iron Works & Supply Co.	
KWLC	Decorah, Iowa	247.8	1210	50	Luther College	
KWSC	Pullman, Wash.	894.5	760	500	State College of Wash.	
KWTC	Santa Ana, Calif.	352.7	850	5	Dr. John Wesley Hancock	
KWUC	Le Mars, Iowa	243.7	1230	1500	Western Union College	
KWWG	Brownsville, Texas	277.6	1080	500	Brownsville Chamber of Commerce	
KXL	Portland, Ore.	220.4	1360	50	KXL, Broadcasters	
KYA	San Francisco, Calif.	309.1	970	500	Pacific Broadcasting Corp.	
KYW	Chicago, Ill.	526	570	2500	Westinghouse Elect. & Mfg. Co.	
KZIB	Manila, P. I.	249.9	1200	20	I. Beck, Inc.	
KZM	Oakland, Calif.	245.8	1220	100	Western Radio Inst. (Hotel Oakland)	
KZRN	Manila, P. I.	413	726.1	500	Radio Corp. of Philippines	
KZRQ	Manila, P. I.	400	750	500	Radio Corp. of the Philippines	
NAA	Washington, D. C.	434.5	690	1000	United States Navy Dept.	
WAAD	Cincinnati, Ohio	267.7	1120	25	Ohio Mechanics' Institute	
WAAF	Cicago, Ill.	389.4	770	500	Chicago Daily Drovers Journal	
WAAM	Newark, N. J.	348.6	860	500	I. R. Nelson Company	
WAAT	Jersey City, N. J.	245.8	1220	300	Bremer Broadcasting Corp.	
WAAW	Omaha, Nebr.	348.6	860	500	Omaha Grain Exchange	
WABC	Richmond Hill, N. Y.	325.9	920	2500	Atlantic Broadcasting Corp.	
WABF	Kinston, Pa.	205.4	1460	250	Markle Broadcasting Corp.	
WABI	Bangor, Me.	389.4	770	100	First Universalist Church	
WABQ	Philadelphia, Pa.	260.7	1150	500	Keystone Brdcst. Co., Haverford Col.	
WABR	Toledo, Ohio	280.7	1070	50	Scott High School	
WABY	Philadelphia, Pa.	247.8	1210	50	John Magaldi, Jr.	
WABW	Wooster, Ohio	247.8	1210	50	The Col. of Wooster, Dept. of Physics	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
WABZ	New Orleans, La.	247.8	1210	50	The Coliseum Place Baptist Church	
WADC	Akron, Ohio	296.9	1010	1000	Allen Theater Broadcasting Station	
WAFD	Detroit, Mich.	340.7	880	100	Albert B. Parfet Co.	
WAGM	Royal Oak, Mich.	225.4	1330	50	Robert L. Miller	
WAGS	Lexington, Mass.	215.7	1390	5	J. Smith, Carl S. Wheeler	
WAIT	Taunton, Mass.	214.2	1400	10	A. H. Waite & Co., Inc.	
WAIU	Columbus, Ohio	282.8	1060	5000	American Insurance Union	
WALK	Bahayres, Pa.	201.2	1490	50	Albert A. Walker, Portable	
WAMD	Minneapolis, Minn.	225.4	1330	500	Radison Radio Corporation	
WAPI	Auburn, Ala.	325.9	920	1000	Alabama Polytechnic Institute	
WARS	Brooklyn, N. Y.	227.1	1320	500	Amateur Radio Specialty Co.	
WASH	Grand Rapids, Mich.	256.3	1170	250	Baxter Laundries, Inc.	
WATT	Boston, Mass.	201.2	1490	100	Edison Elec. Illuminating Co.	
WBAA	W. Lafayette, Ind.	272.5	1100	500	Purdue University	
WBAK	Harrisburg, Pa.	299.9	1000	500	Pennsylvania State Police	
WBAL	Baltimore, Md.	285.5	1050	5000	Consolidated Gas, Elec. Light & P. Co.	
WBAO	Decatur, Ill.	267.7	1120	100	James Milikin University	
WBAP	Fort Worth, Texas	499.7	600	1500	Fort Worth Star-Telegram	
WBAR	Sisiht, Wis.	270.1	1110	500	Kopp Radio Co.	
WBAW	Nashville, Tenn.	247.8	1210	100	Waldrum Drug Co.	
WBAX	Wilkes-Barre, Pa.	249.9	1200	100	John H. Stenger, Jr.	
WBBC	Brooklyn, N. Y.	227.1	1320	500	Brooklyn Broadcasting Corp.	
WBBL	Richmond, Va.	247.8	1210	100	Grace Covenant Presbyterian Church	
WBBM	Chicago, Ill.	389.4	770	1000	Atlass Investment Co.	
WBBP	Petoskey, Mich.	239.9	1250	100	Petoskey High School	
WBBR	Rossville, N. Y.	256	1170	1000	International Bible Students' Assn.	
WBBW	Norfolk, Va.	286.1	1270	50	Ruffner Junior High School.	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
WBBY	Charleston, S. C.	499.7	600	75	Washington Light Infantry	
WBBZ	Chicago, Ill.	204	1470	100	C. L. Carrell	
WBCN	Chicago, Ill.	288.3	1040	500	Great Lakes Broadcasting Co.	
WBES	Takoma Park, Md.	296.9	1010	100	Bliss Elec. School	
WBET	Boston, Mass.	288.3	1040	500	Boston Transcript Co.	
WBIS	Boston, Mass.	302.8	990	100	Boston Information Service	
WBKN	Brooklyn, N. Y.	267.7	1120	100	Arthur Faske	
WBMH	Detroit, Mich.	211.1	1420	100	Braun's Music House	
WBMS	Union City, N. J.	267.7	1120	100	George Julius Schowerer	
WBNY	New York, N. Y.	236.1	1270	500	B. A. Ruchome, Corp.	
WBOQ	Richmond Hill, N. Y.	325.9	920	500	Atlantic Broadcasting Co.	
WBRC	Birmingham, Ala.	243.8	1230	250	Birmingham Broadcasting Co.	
WBRE	Wilkes-Barre, Pa.	249.9	1200	100	Louis G. Baltimore	
WBRL	Tilton, N. H.	232.4	1290	500	Booth Radio Laboratories	
WBRS	Brooklyn, N. Y.	211.1	1420	100	North American Broadcasting Corp.	
WBSO	Wellesley Hills, Mass.	384.4	780	100	Babson's Statistical Organization	
WBT	Charlotte, N. C.	258.5	1160	1000	C. C. Coddington, Inc.	
WBZ	Springfield, Mass.	333.1	900	15000	Westinghouse Elec. & Mfg. Co.	
WBZA	Boston, Mass.	333.1	900	500	Westinghouse Elec. & Mfg. Co.	
WCAC	Mansfield, Conn.	275.1	560	500	Connecticut Agricultural College.	
WCAD	Canton, N. Y.	365.6	820	1000	St. Lawrence University	
WCAE	Pittsurgh, Pa.	516.9	580	500	Pittsburgh Press	
WCAH	Columbus, Ohio	534.4	560	250	Entrekin Elec. Co.	
WCAJ	University Place, Nebr.	379.5	790	500	Nebraska Wesleyan University	
WCAL	Northfield, Minn.	236.1	1270	500	St. Olaf College	
WCAM	Camden, N. J.	223.7	1340	500	City of Camden	
WCAO	Baltimore, Md.	384.4	780	250	Monumental Radio, Inc.	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
WCAT	Rapid City, S. D.	247.8	1210	100	South Dakota State School of Mines	
WCAU	Philadelphia, Pa.	336.9	890	500	Universal Broadcasting Co.	
WCAX	Burlington, Vt.	254.1	1180	100	University of Vermont	
WCAZ	Carthage, Ill.	340.7	880	50	Carthage College	
WCBA	Allentown, Pa.	222.1	1350	100	Queen City Radio Station	
WCBD	Zion, Ill.	344.6	870	5000	Wilbur Glenn Voliva	
WCBE	New Orleans, La.	227.1	1320	5	Uhalt Brothers Radio Co.	
WCBH	Oxford, Miss.	241.8	1240	100	University of Mississippi	
WCBM	Baltimore, Md.	384.4	780	100	Hotel Chateau	
WCBR	Providence, R. I.	201.2	1490	100	Charles H. Messter	
WCBS	Springfield, Ill.	209.7	1430	250	Harold L. Dewing, Chas. H. Messter	
WCCO	Mpls.-St. Paul, Minn.	405.2	740	7500	Washburn-Crosby Co.	
WCDA	Brooklyn, N. Y.	211.1	1420	250	Italian Educational Broadcasting Co.	
WCFL	Chicago, Ill.	483.6	620	1500	Chicago Federation of Labor	
WCGU	Coney Island, N. J.	218.8	1370	500	Charles G. Unger	
WCLO	Camp Lake, Wis.	227.1	1320	100	C. E. Whitmore	
WCLS	Joliet, Ill.	215.7	1390	150	M. A. Felman Co.	
WCMA	Culver, Ind.	258.5	1160	250	Culver Military Academy	
WCOA	Pensacola, Fla.	249.9	1200	500	Municipal Broadcasting Station	
WCOC	Columbus, Miss.	230.6	1300	100	Crystal Oil Co.	
WCOM	Manchester, N. H.	238	1260	100	172nd Field Artillery Headquarters	
WCOT	Olneyville, R. I.	225.4	1330	50	Jacob Conn.	
WCRW	Chicago, Ill.	223.7	1340	500	Clinton R. White	
WCSH	Portland, Me.	361.2	830	500	Congress Square Hotel	
WCSO	Springfield, Ohio	256.3	1170	500	Wittenberg College	
WCWK	Fort Wayne, Ind.	228.9	1310	500	Chester W. Keen	
WCWS	Danbury, Conn.	214.2	1400	100	Bridgeport Broadcasting Station	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
WCX	Pontiac, Mich.	440.9	680	5000	The Detroit Free Press	
WDAD	Nashville, Tenn.	225.4	1330	500	Dad's Auto Accessories, Inc.	
WDAE	Tampa, Fla.	267.7	1120	500	Tampa Daily Times	
WDAF	Kansas City, Mo.	370.2	810	1000	Kansas City Star	
WDAG	Amarillo, Texas	263	1140	250	J. Laurence Martin	
WDAH	El Paso, Texas	267.7	1120	100	Trinity Methodist Church	
WDAY	Fargo, N. D.	361.2	830	250	Radio Equipment Corporation	
WDBJ	Roanoke, Va.	230.6	1300	250	Richardson Wayland Elec. Corp.	
WDBK	Akron, Ohio	227	1320	250	W. F. Jones	
WDBO	Orlando, Fla.	288.3	1040	1000	Orlando Broadcasting Co.	
WDBZ	Kingston, N. Y.	215.7	1390	50	Kingston Radio Club	
WDEL	Wilmington, Del.	265.3	1130	100	Wilmington Elec. Spec. Co.	
WDGY	Minneapolis, Minn.	260.7	1150	500	Dr. George Young	
WDOD	Chattanooga, Tenn.	245.8	1220	500	Chattanooga Radio Co., Inc.	
WDRC	New Haven, Conn.	282.8	1060	500	Doolittle Radio Corp.	
WDWF	Cranston, R. I.	374.8	800	500	Dutee W. Flint, Inc.	
WDWM	Asbury Park, N. J.	361.2	820	500	Radio Industry Broadcast Co.	
WDZ	Tuscola, Ill.	277.6	1080	100	James L. Bush	
WEAF	New York, N. Y.	491.5	610	50000	National Broadcasting Co., Inc.	
WEAI	Ithaca, N. Y.	483.6	620	250	Cornell University	
WEAM	North Plainfield, N. J.	289.9	1250	250	Borough of North Plainfield	
WEAN	Providence, R. I.	319	940	500	The Shepard Stores	
WEAO	Columbus, Ohio	282.8	1060	750	Ohio State University	
WEAR	Cleveland, Ohio	399.8	750	1000	Willard Storage Battery Co.	
WEBC	Superior, Wis.-Duluth M.	214.8	1240	250	Head-of-the-Lakes Radio Station	
WEBE	Cambridge, Ohio	247.8	1201	10	Roy W. Waller	
WEBH	Chicago, Ill.	365.6	820	2000	Edgewater Beach Hotel-Herald-Exam.	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
WEBJ	New York, N. Y.	256.3	1170	500	Third Avenue Railway Co.	
WEBQ	Harrisburg, Ill.	223.7	1340	15	Tate Radio Co.	
WEBR	Buffalo, N. Y.	241.8	1240	200	H. H. Howell	
WEBW	Beloit, Wis.	258.5	1160	500	Beloit College	
WEDC	Chicago, Ill.	241.8	1240	500	Emil Denemark, Broad. Station	
WEEI	Boston, Mass.	447.5	670	500	Edison Elec. Illuminating Co.	
WEHS	Evanston, Ill.	215.7	1390	100	Victor C. Carlson	
WEVD	New York, N. Y.	245.8	1220	500	Union Course Laboratories	
WEMC	Berrien Springs, Mich.	483	620	1000	Emanuel Missionary College	
WENR	Chicago, Ill.	288.3	1040	500	Great Lakes Radio Broadcasting Co.	
WEPS	Gloucester, Mass.	296.9	1010	100	Matheson Radio Co., Inc.	
WEW	St. Louis, Mo.	352.7	850	1000	St. Louis University	
WFAA	Dallas, Texas	499.7	600	500	Dallas News and Dallas Journal	
WFAM	St. Cloud, Minn.	252	1190	10	St. Cloud Daily Times	
WFBC	Knoxville, Tenn.	234.2	1280	50	First Baptist Church	
WFBE	Cincinnati, Ohio	245.8	1220	250	Hotel Garfield	
WFBG	Altoona, Pa.	280.2	1070	100	The Wm. F. Gable Co.	
WFBJ	Collegeville, Minn.	272.6	1100	100	St. John's University	
WFBL	Syracuse, N. Y.	258.5	1160	750	Onondaga Company	
WFBM	Indianapolis, Ind.	275.1	1090	1000	Indianapolis Power & Light Co.	
WFBR	Baltimore, Md.	225.4	1330	100	Fifth Infantry Maryland Nat. Guard	
WFBZ	Galesburg, Ill.	247.8	1210	50	Knox College	
WFCI	Pawtucket, R. I.	241.8	1240	50	Frank Crook, Inc.	
WFDF	Flint, Mich.	348.6	860	100	Frank D. Fallain	
WFHH	Clearwater, Fla.	366	820	500	Chamber of Commerce	
WFI	Philadelphia, Pa.	405.2	740	500	Strawbridge & Clothier	
WFIW	Hopkinsville, Ky	280.2	1070	1000	Acme Mills, Inc.	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
WFKB	Chicago, Ill.	223.7	1340	500	Francis K. Bridgman	
WFKD	Philadelphia, Pa.	247.8	1210	50	Foulkrod Radio Eng. Co.	
WFLA	Clearwater, Fla.	365.6	820	500	Chamber of Commerce	
WGAL	Lancaster, Pa.	252	1190	15	Lancaster Elec. Supply & Const. Co.	
WGBB	Freeport, N. Y.	245.8	1220	400	Harry H. Carman	
WGBC	Memphis, Tenn.	277.6	1080	15	First Baptist Church	
WGBF	Evansville, Ind.	236.1	1270	250	The Finke Furniture Co.	
WGBI	Scranton, Pa.	230.6	1300	250	Scranton Broadcasters, Inc.	
WGBS	Astoria, N. Y.	348.6	860	500	Gimbel Brothers	
WGCP	Newark, N. J.	280.2	1070	500	Lauter Piano Co.	
WGES	Chicago, Ill.	241.8	1240	500	Guyons Paradise Ballroom	
WGHP	Mt. Clemens, Mich.	319	940	750	George Harrison Phelps, Inc.	
WGL	Secaucus, N. Y.	293.9	1020	1000	Broadcasting Corp.	
WGM	Jeanette, Pa.	208.2	1440	50	Verne & Elton Spencer	
WGMU	New York, N. Y.	201.2	1490	100	Atlantic Broadcasting Co.	
WGN	Elgin, Ill.	305.9	980	500	Chicago Tribune	
WGR	Buffalo, N. Y.	302.8	990	750	Federal Radio Corp.	
WGST	Atlanta, Ga.	270.1	1110	500	Georgia School of Technology	
WGWB	Milwaukee, Wis.	218.8	1370	500	Radio-Cast Corp. of Wis.	
WGY	Schenectady, N. Y.	379.5	790	30000	General Electric Co.	
WHA	Madison, Wis.	319	940	750	University of Wisconsin	
WHAD	Milwaukee, Wis.	293.9	1020	500	Marquette University	
WHAM	Rochester, N. Y.	277.6	1080	5000	Stromberg-Carlson Mfg. Co.	
WHAP	New York, N. Y.	236.1	1270	1000	Defenders of Truth Society, Inc.	
WHAR	Atlantic City, N. J.	272.6	1100	1000	Seaside Hotel	
WHAS	Louisville, Ky.	461.3	650	500	Courier-Journal & Louisville Times Co.	
WHAZ	Troy, N. Y.	379.5	790	500	Rensselaer Polytechnic Inst.	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
WHB	Kansas City, Mo.	336.9	890	500	Sweeney Auto & Electrical School	
WHBA	Oil City, Pa.	260.7	1150	10	Shaffer Music House	
WHBC	Canton, Ohio	236.1	1270	10	Rev. E. P. Graham	
WHBD	Bellefontaine, Ohio	222.1	1350	100	Chamber of Commerce	
WHBF	Rock Island, Ill.	222.1	1350	100	Beardsley Specialty Co.	
WHBL	Chicago, Ill.	204	1470	100	James H. Slusser	
WHBM	Chicago, Ill.	201.2	1490	100	C. L. Carrell	
WHBN	Gainesville, Fla.	296.9	1010	10	University of Florida	
WHBP	Johnstown, Pa.	228.9	1310	500	Johnstown Automobile Co.	
WHBQ	Memphis, Tenn.	232.4	1290	100	Broadcasting Station WHBQ, Inc.	
WHBU	Anderson, Ind.	220.4	1360	15	Citizens Bank	
WHBW	Philadelphia, Pa.	220.4	1360	100	D. R. Kienzle	
WHBY	West De Pere, Wis.	249.9	1200	50	St. Norbert's College, Green Bay-De Pere Broadcasting Station	
WHDI	Minneapolis, Minn.	245.8	1220	500	Wm. Hood Dunwoody Indus. Inst.	
WHEC	Rochester, N. Y.	254.1	1180	100	Hickson Electric Co., Inc.	
WHFC	Chicago, Ill.	215.7	1390	200	Woodson & Wilson, Inc.	
WHK	Cleveland, Ohio	265.3	1130	1000	Radio Air Service Corp.	
WHN	New York, N. Y.	394.5	760	500	Loew's State Broadcasting Station	
WHO	Des Moines, Iowa	535.4	560	5000	Bankers Life Co.	
WHPP	New York, N. Y.	206.8	1450	10	WHPP, Inc.	
WHT	Deerfield, Ill.	416.4	720	5000	Wrigley Bldg.	
WIAD	Philadelphia, Pa.	220.4	1360	100	Howard R. Miller	
WIAS	Burlington, Iowa	475.9	630	100	Home Electric Co.	
WIBA	Madison, Wis.	239.9	1250	100	The Capital Times Strand Theater	
WIBG	Elkins Park, Pa.	440.9	680	50	St. Paul's Protestant Episco. Church	
WIBI	Flushing, N. Y.	267.7	1120	100	Frederick B. Zittell, Jr.	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
WIBJ	Chicago, Ill.	201.2	1490	100	C. L. Carrell	
WIBM	Chicago, Ill.	201.2	1490	100	C. L. Carrell	
WIBO	Chicago, Ill.	416.4	720	500		
WIBR	Steubenville, Ohio	249.9	1200	50	Nelson Brothers Bond and Mfg. Co.	
WIBS	Elizabeth, N. J.	204	1470	150	New Jersey National Guard	
WIBU	Poynette, Wis.	217.3	1380	20	The Elec. Farm. Wis. State Journal	
WIBW	Chicago, Ill.	204	1470	100	C. L. Carrell	
WIBX	Utica, N. Y.	238	1260	150	Hotel Utica	
WIBZ	Montgomery, Ala.	230.6	1300	15	A. D. Trum	
WICC	Bridgeport, Conn.	214.2	1400	250	The Bridgeport Broadcasting Station	
WIL	St. Louis, Mo.	258.5	1160	250	Benson Broadcasting Co.	
WIOD	Miami Beach, Fla.	247.8	1210	1000	Carl G. Fisher	
WIP	Philadelphia, Pa.	508.2	590	500	Gimbel Bros.	
WJAD	Waco, Texas	447.5	670	500	Hotel Raleigh	
WJAG	Norfolk, Nebr.	285.5	1050	500	Norfolk Daily News	
WJAK	Kokomo, Ind.	234.2	1280	50	Kokomo Tribune	
WJAM	Cedar Rapids, Iowa	384.4	780	100	D. M. Perham	
WJAR	Providence, R. I.	483.6	620	500	The Outlet Co.	
WJAS	Pittsburgh, Pa.	270.1	1110	500	Pittsburgh Radio Supply House, Pickering's Studio	
WJAX	Jacksonville, Fla.	336.9	890	1000	City of Jacksonville	
WJAY	Cleveland, Ohio	227.1	1320	500	Cleveland Radio Broadcasting Corp.	
WJAZ	Mt. Prospect, Ill.	263	1140	5000	Zenith Radio Corp.	
WJBA	Joliet, Ill.	322.4	930	50	D. H. Lentz	
WJBB	Tampa, Fla.	344.6	870	250	Financial Journal	
WJBC	La Salle, Ill.	227.1	1320	100	Hummer Furniture Co.	
WJBI	Red Bank, N. J.	263	1140	150	Robert S. Johnson	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
WJBL	Decatur, Ill.	212.6	1410	250	William Gushard Dry Goods Co.	
WJBK	Ypsilanti, Mich.	220.4	1360	15	Ernest Goodwin	
WJBO	New Orleans, La.	263	1140	100	Valdemar Jensen	
WJBR	Omro, Wis.	227.1	1320	100	Gensch and Stearns	
WJBT	Chicago, Ill.	389.4	770	500	John S. Boyd	
WJBU	Lewisburg, Pa.	214.2	1400	100	Bucknell University	
WJBW	New Orleans, La.	238	1260	30	C. Carlson, Jr.	
WJBY	Gadsden, Ala.	234.2	1280	50	Electric Construction Co.	
WJBZ	Chicago Heights, Ill.	208.2	1440	100	Roland G. Palmer	
WJJD	Mooseheart, Ill.	365.6	820	1000	Loyal Order of Moose Station	
WJKS	Gary, Ind.	232.4	1290	500	Johnson Kennedy Radio Corp.	
WJPW	Ashtabula, Ohio	208.2	1440	30	J. P. Wilson	
WJR	Pontiac, Mich.	440.9	680	5000	The Richards-Oakland Co.	
WJZ	Bound Brook, N. J.	454.3	660	30000	R. C. A., Nat'l Broadcasting Co.	
WKAQ	San Juan, Porto Rico	340.7	880	500	Radio Corporation of Porto Rico	
WKAR	East Lansing, Mich.	285.5	1050	1000	Michigan State College	
WKAV	Laconia, N. H.	223.7	1340	50	Laconia Radio Club	
WKBB	Joliet, Ill.	215.7	1390	150	Sanders Brothers	
WKBC	Birmingham, Ala.	218.8	1370	10	H. L. Ansley	
WKBE	Webster, Mass.	228.9	1310	100	K. & B. Electric Co.	
WKBF	Indianapolis, Ind.	252	1190	250	Noble B. Watson	
WKBG	Chicago, Ill.	201.2	1490	100	C. L. Carrell	
WKBH	La Crosse, Wis.	220.4	1360	500	Callaway Music Co.	
WKBI	Chicago, Ill.	322.4	930	50	Fred L. Schoenwolf	
WKBJ	Toccoa, Ga.	209.7	1430	250	Toccoa Falls Institute	
WKBL	Monroe, Mich.	205.4	1460	15	Monrona Radio Mfg. Co.	
WKBM	Newburgh, N. Y.	208.2	1440	100	John Wilbur Jones	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
WKBN	Youngstown, Ohio	214.2	1400	50	Radio Electric Service Co.	
WKBO	Jersey City, N. J.	218.8	1370	500	Camith Corp.	
WKBP	Battle Creek, Mich.	212.6	1410	50	Battle Creek Enquirer and News	
WKBQ	New York, N. Y.	218.8	1370	500	Starlight Amusement Park, Inc.	
WKBS	Galesburg, Ill.	217.3	1380	100	Permil N. Nelson	
WKBT	New Orleans, La.	252	1190	50	First Baptist Church	
WKBU	New Castle, Pa.	204	1470	50	Harry K. Armstrong	
WKBV	Brookville, Ind.	217.3	1380	100	Knox Battery & Elec. Co.	
WKBW	Buffalo, N. Y.	217.3	1380	500	Churchill Evangelistic Assn., Inc.	
WKBZ	Ludington, Mich.	199.9	1500	15	Karl L. Ashbacker	
WKDR	Kenosha, Wis.	322.4	930	15	Edward A. Dato	
WKEN	Kenmore, N. Y.	204	1470	250	Hiram L. Turner	
WKJC	Lancaster, Pa.	252	1190	50	Kirk Johnson & Co.	
WKRC	Cincinnati, Ohio	331.1	900	500	Kodel Radio Corp.	
WKY	Oklahoma City, Okla.	288.3	1040	150	WKY Radiophone Co.	
WLAC	Nashville, Tenn.	225.4	1330	1000	Life and Casualty Ins. Co.	
WLAP	Louisville, Ky.	267.7	1120	100	Virginia Ave. Baptist Church	
WLB	Minneapolis, Minn.	245.8	1220	500	University of Minnesota	
WLBC	Muncie, Ind.	209.7	1430	50	D. A. Burton	
WLBF	Kansas City, Mo.	209.7	1430	50	Everett L. Dillard	
WLBG	Petersburg, Va.	214.2	1400	100	R. A. Gamble	
WLBH	Farmingdale, N. Y.	232.4	1290	30	Jose. J. Lombardi	
WLBI	Wenona, Ill.	238	1260	250	Wenona Legion Broadcasters, Inc.	
WLBL	Stevens Point, Wis.	319	940	1000	Wisconsin Dept. of Markets	
WLBM	Boston, Mass.	230.6	1300	50	Browning Drake Corporation	
WLBN	Chicago. Ill.	204	1470	50	William Evert Hiler	
WLBO	Galesburg, Ill.	217.3	1370	100	Frederick A. Trebbe, Jr.	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
WLBP	Ashland, Ohio	202.6	1480	15	Robert A. Fox	
WLBQ	Atwood, Ill.	202.6	1480	25	E. Dale Trout	
WLBR	Belvidere, Ill.	322.4	930	15	Alford Radio Co.	
WLBT	Crown Point, Ind.	322.4	930	50	Harold Wendell	
WLBV	Mansfield, Ohio	206.8	1450	50	Mansfield Broadcasting Association	
WLBW	Oil City, Pa.	293.9	1020	500	Petroleum Telephone Co.	
WLBX	Long Island, N. Y.	204	1470	250	John N. Brahy	
WLBY	Iron Mountain, Mich.	209.7	1430	50	Aimone Electric	
WLBZ	Foxcroft, Me.	208.2	1440	250	Thompson L. Guernsey	
WLCI	Ithaca, N. Y.	247.8	1210	50	Lutheran Assn. of Ithaca	
WLIB	Elgin, Ill.	305.9	980	15000	Liberty Magazine	
WLIT	Philadelphia, Pa.	405.2	740	500	Lit Brothers	
WLS	Chicago, Ill.	344.6	870	5000	Sears, Roebuck & Co.	
WLTH	Brooklyn, N. Y.	256.3	1170	250	Voice of Brooklyn, Inc.	
WLTS	Chicago, Ill.	493.6	620	100	Lane Technical High School	
WLW	Harrison, Ohio	428.3	700	5000	The Crosley Radio Corp.	
WLWL	New York, N. Y.	370.2	810	1000	The Paulist League	
WMAC	Cazenovia, N. Y.	225.4	1330	500	C. B. Meredith	
WMAF	South Dartmouth, Mass.	428.3	700	500	Round Hills Radio Corp.	
WMAK	Buffalo, N. Y.	545.1	550	750	Norton Laboratories, Inc.	
WMAL	Washington, D. C.	302.8	990	100	M. A. Leese Radio Co.	
WMAN	Columbus, Ohio	234.2	1280	50	First Baptist Church	
WMAQ	Chicago, Ill.	447.5	670	1000	The Chicago Daily News	
WMAY	St. Louis, Mo.	247.8	1210	1000	Kingshighway Presbyterian Church	
WMAZ	Macon, Ga.	270.1	1110	500	Macon Junior Chamber of Commerce	
WMBA	Newport, R. I.	204	1470	100	LeRoy Joseph Beebe	
WMBB	Homewood, Ill.	252	1190	5000	American Bond & Mortgage Co.	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
WMBC	Detroit, Mich.	243.8	1230	100	Michigan Broadcasting Co.	
WMBD	Peoria Heights, Ill.	205.4	1460	250	Peoria Heights Radio Laboratory	
WMBE	St. Paul, Minn.	208.2	1440	10	Dr. C. S. Stevens	
WMBF	Miami Beach, Fla.	384.4	780	500	Flestwood Hotel	
WMGB	Richmond, Va.	220.4	1360	15	Havens and Martin	
WMBH	Joplin, Mo.	204	1470	100	Edwin Dudley Aber	
WMBI	Chicago, Ill.	263	1140	500	Moody Bible Institute	
WMBJ	Monessen, Pa.	232.4	1290	50	Star Theater	
WMBL	Lakeland, Fla.	228.9	1310	50	Benford's Radio Studios	
WMBM	Memphis, Tenn.	209.7	1430	10	Seventh Day Adventist Church	
WMBO	Auburn, N. Y.	220.4	1360	100	Radio Service Laboratories	
WMBQ	Brooklyn, N. Y.	204	1470	100	Paul J. Gollhofer	
WMBR	Tampa, Fla.	252	1190	100	F. J. Reynolds	
WMBS	Harrisburg, Pa.	234.2	1280	250	Mack's Battery Co.	
WMBU	Pittsburgh, Pa.	217.3	1380	50	Paul J. Miller	
WMBW	Youngstown, Ohio	214.2	1400	50	Youngstown Broadcasting Co., Inc.	
WMBY	Bloomington, Ill.	199.9	1500	15	Robert A. Isaacs	
WMC	Memphis, Tenn.	516.9	580	500	The Commercial Appeal	
WMCA	Hoboken, N. J.	370.2	810	500	Hotel McAlpin	
WMCO	Saginaw, Mich.	272.6	1100	250	Wolverine Broadcasting Co.	
WMES	Boston, Mass.	211.1	1420	100	Mass. Educational Society	
WMPC	Lapeer, Mich.	234.2	1280	30	First Methodist Protestant Church	
WMRJ	Jamaica, N. Y.	206.8	1450	10	Peter P. Prinz	
WMSG	New York, N. Y.	236.1	1270	500	Madison Square Garden	
WNAC	Boston, Mass.	352.7	850	500	The Shepard Stores	
WNAD	Norman, Okla.	239.9	1250	500	University of Oklahoma	
WNAL	Omaha, Nebr.	258.5	1160	500	R. J. Rockwell	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
WNAT	Philadelphia, Pa.	283.3	1040	100	Lennig Bros. Co.	
WNAX	Yankton, S. D.	302.8	990	1000	Gurney Seed & Nursery Co.	
WNBA	Forest Park, Ill.	208.2	1440	200	Michael T. Rafferty	
WMBF	Endicott, N. Y.	206.8	1450	50	Hewitt-Wood Radio Co.	
WNBH	New Bedford, Mass.	260.7	1150	250	New Bedford Hotel	
WNBJ	Knoxville, Tenn.	206.8	1450	50	Lonsdale Baptist Church	
WNBL	Bloomington, Ill.	199.9	1500	15	Gray, Trimble and Smith Electric Co.	
WNBO	Washington, Pa.	211.1	1420	15	John Brownlee Springs	
WNBQ	Rochester, N. Y.	202.6	1480	15	Gordon P. Brown	
WNBR	Memphis, Tenn.	228.9	1310	20	Popular Radio Shop	
WNBX	Springfield, Vt.	241.8	1240	10	WNBX Broadcasters	
WNJ	Newark, N. J.	280.2	1070	500	Herman Lubinsky	
WNOX	Knoxville, Tenn.	265.3	1130	1000	Peoples Telephone & Telegraph Co.	
WNRC	Greensboro, N. C.	223.7	1340	500	Wayne M. Nelson	
WNYC	New York, N. Y.	535.4	570	500	New York Municipal Radio Station	
WOAI	San Antonio, Texas	302.8	990	5000	Southern Equip. Co.	
WOAN	Lawrenceburg, Tenn.	285.5	1050	250	James D. Vaughan	
WOAX	Trenton, N. J.	239.9	1250	500	F. J. Wolff	
WOBR	Shelby, Ohio	204	1470	10	Karl Smith	
WOBT	Union City, Texas	205.4	1460	15	Tittsworth's Radio & Music Shop.	
WOBU	Charleston, W. Va.	267.7	1120	50	Charleston Radio Broadcasting Co.	
WOC	Davenport, Iowa	352.7	850	5000	The Palmer School of Chiropractic	
WOCL	Jamestown, N. Y.	223.7	1340	25	A. E. Neroton	
WODA	Paterson, N. J.	293.9	1020	1000	O'Dea Temple of Music	
WOI	Ames, Iowa	265.3	1130	2500	Iowa State College	
WOK	Homewood, Ill.	252	1190	5000	Karzas-Chicago Beach Hotel	
WOKO	Peekskill, N. Y.	215.7	1390	250	H. E. Smith	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
WOKT	Rochester, N. Y.	209.7	1430	500	Titus-Ets Corp.	
WOMT	Manitowoc, Wis.	222.1	1350	50	The Mikado Theater	
WOO	Philadelphia, Pa.	508.2	590	500	John Wanamaker	
WOOD	Fernwood, Mich.	260.7	1150	500	Walter B. Stiles, Inc.	
WOQ	Kansas City, Mo.	336.9	890	500	Unity School of Christianity	
WOR	Newark, N. Y.	422.3	710	5000	L. Bamberger & Co.	
WORD	Batavia, Ill.	275.1	1090	5000	Peoples Pulpit Assn.	
WOS	Jefferson City, Mo.	468.5	640	500	Missouri State Marketing Bureau	
WOW	Omaha, Nebr.	508.2	590	1000	Woodmen of the World	
WOWO	Fort Wayne, Ind.	228.9	1310	1000	Main Auto Supply Co.	
WPAP	Cliffside, N. J.	394.5	760	500	Palisades Amusement Park	
WPCC	Chicago, Ill.	223.7	1340	500	North Shore Congregational Church	
WPCH	New York, N. Y.	309.1	970	500	Concourse Radio Corp.	
WPEP	Waukegan, Ill.	215.7	1390	500	Maurice Mayer	
WPG	Atlantic City, N. J.	272.6	1100	5000	Municipality of Atlantic City	
WPRC	Harrisburg, Pa.	209.7	1430	100	Wilson Printing & Radio Co.	
WPSC	State College, Pa.	299.8	1000	500	State College of Pa.	
WPSW	Philadelphia, Pa.	202.6	1480	50	Philadelphia School of Wireless Tel.	
WQAA	Parkesburg, Pa.	215.7	1390	500	Horace A. Beale, Jr.	
WQAM	Miami, Fla.	322.4	930	750	Electrical Equip. Co.	
WQAN	Scranton, Pa.	230.6	1300	100	Scranton Times	
WQAO	New York, N. Y.	394.5	760	500	Calvary Baptist Church	
WQJ	Chicago, Ill.	447.5	670	500	Calumet Baking Powder Co.	
WRAF	Le Porte, Ind.	208.2	1440	100	Radio Club, Inc.	
WRAH	Providence, R. I.	199.9	1500	250	Stanely N. Read	
WRAK	Escanaba, Mich.	282.2	1060	50	Economy Light Co.	
WRAM	Galesburg, Ill.	247.8	1210	50	Lombard College	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
WRAV	Yellow Springs, Ohio	340.7	880	100	Antioch College	
WRAW	Reading, Pa.	238	1260	100	Avenue Radio & Elec. Shop	
WRAX	Philadelphia, Pa.	212.6	1410	250	Beracah Church, Inc.	
WRBC	Valparaiso, Ind.	238	1260	250	Immanuel Luther Church	
WRC	Washington, D. C.	468.5	640	500	Radio Corp. of America	
WRCO	Raleigh, N. C.	217.3	1380	250	Wynne Radio Co.	
WRCV	Norfolk, Va.	209.7	1430	100	Radio Corp. of Virginia	
WREC	Memphis, Tenn.	254.1	1180	50	WREC, Inc.	
WREN	Lawrence, Kan.	254.1	1180	750	Jenny Wren	
WREO	Lansing, Mich.	230.6	1300	500	Reo Motor Car Co.	
WRES	Quincy, Mass.	217.3	1380	50	Harry Leonard Sawyer	
WRHF	Washington, D. C.	319	940	150	Washington Radio Hospital Fund	
WRHM	Minneapolis, Minn.	260.7	1150	1000	Rosedale Hospital, Inc.	
WRK	Hamilton, Ohio	205.4	1460	100	WRK Broadcasters	
WRM	Urbana, Ill.	272.6	1100	1000	University of Illinois	
WRMU	New York, N. Y.	201.2	1490	100	A. H. Grebe & Co., Inc.	
WRNY	Cotaysville, N. Y.	309.1	970	500	Experimenter Pub. Co.	
WRPI	Terre Haute, Ind.	208.2	1440	100	Rose Polytechnic Inst. Broadcast. Asn	
WRR	Dallas, Texas	352.7	850	500	City of Dallas	
WRRS	Racine, Wis.	322.4	930	50	F. G. Leavenworth	
WRSC	Chelsea, Mass.	205.4	1460	15	The Radio Shop	
WRST	Bay Shore, N. Y.	211.1	1420	250	Radiotel Mfg. Co., Inc.	
WRVA	Richmond, Va.	254.1	1180	1000	Larus & Bro. Co., Inc.	
WSAI	Mason, Ohio	361.2	830	5000	United States Playing Card Co.	
WSAJ	Grove City, Pa.	223.7	1340	250	Grove City College	
WSAN	Allentown, Pa.	222.1	1350	100	Allentown Call Pub. Co.	
WSAR	Fall River, Mass.	252	1190	100	Doughty & Welch Elec. Co., Inc.	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
WSAX	Chicago, Ill.	204	1470	100	Zenith Radio Corp.	
WSAZ	Huntington, W. Va.	241.8	1240	100	McKellar Elec. Co.	
WSB	Atlanta, Ga.	475.9	630	1000	Atlanta Journal	
WSBC	Chicago, Ill.	232.4	1290	500	World Battery Co.	
WCBF	St. Louis, Mo.	440.9	680	250	WSBF Broadcasters	
WSBT	South Bend, Ind.	238	1260	500	South Bend Tribune	
WSDA	New York, N. Y.	227.1	1320	250	City Temple	
WSEA	Virginia Beach, Va.	263	1140	500	Virginia Beach Broadcasting Co.	
WSIX	Springfield, Tenn.	212.6	1410	150	638 Tire and Vulc. Co.	
WSKC	Bay City, Mich.	491.5	610	250	World's Star Knitting Co.	
WSM	Nashville, Tenn.	340.7	880	5000	National Life & Accident Ins. Co.	
WSMB	New Orleans, La.	322.4	930	500	Saenger Theaters, Inc. The Maison Blanche Co.	
WSMK	Dayton, Ohio	296.9	1010	200	S. M. Krohn, Jr.	
WSOE	Milwaukee, Wis.	270.1	1110	500	School of Engineering of Milwaukee	
WSRO	Middletown, Ohio	384.4	780	100	Radio Co.	
WSSH	Boston, Mass.	288.3	1040	100	Tremont Temple Baptist Church	
WSUI	Iowa City, Iowa	422.3	710	500	University of Iowa	
WSVS	Buffalo, N. Y.	205.4	1460	50	Seneca Vocational School	
WSYR	Syracuse, N. Y.	225.4	1330	500	Clive B. Meredith	
WTAD	Quincy, Ill.	236.1	1270	250	Illinois Stock Medicine Broad. Corp.	
WTAG	Worcester, Mass.	516.9	580	500	Worcester Telegram Gazette	
WTAL	Toledo, Ohio	280.2	1070	100	Toledo Broadcasting Co.	
WTAM	Cleveland, Ohio	399.8	750	3500	Willard Storage Battery Co.	
WTAQ	Eau Claire, Wis.	254.1	1180	500	Gillette Rubber Co.	
WTAR	Norfolk, Va.	268	1140	500	Reliance Electric Co.	
WTAS	Chicago, Ill.	275.1	1090	3500	Illinois Broadcasting Corp.	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
WTAW	College Station, Texas	309.1	970	500	Agricultural and Mech. Col. of Texas	
WTAX	Streator, Ill.	322.4	930	50	Williams Hardware Co.	
WTAZ	Lambertville, N. J.	220.4	1360	15	Thomas J. McGuire	
WTFF	Mt. Vernon Hills, Va.	204	1470	50	Independent Pub. Co.	
WTHS	Atlanta, Ga.	227.1	1320	200	Atlanta Technological High School	
WTIC	Hartford, Conn.	535.4	560	500	The Travelers Ins. Co.	
WTMJ	Milwaukee, Wis.	293.9	1020	1000	Milwaukee Journal	
WTRC	Brooklyn, N. Y.	204	1470	50	Richard Weber	
WTRL	Midland Park, N. J.	206.8	1450	50	Technical Radio Laboratory	
WWAE	Chicago, Ill.	227.1	1320	500	Dr. George F. Courrier	
WWJ	Detroit, Mich.	374.8	800	1000	The Detroit News	
WWL	New Orleans, La.	275.1	1090	100	Loyola University	
WWNC	Asheville, N. C.	296.9	1010	1000	Asheville Chamber of Commerce	
WWRL	Woodside, N. Y.	267.7	1120	100	W. H. Reuman	
WWVA	Wheeling, W. Va.	389.4	770	100	John C. Stroebel, Jr.	

CANADIAN STATIONS

CFAC	Calgary, Alta.	434.5	690	500	Calgary Herald	
CFCA	Toronto, Ont.	356.9	840	500	Toronto Star	
CFCF	Montreal, P. Q.	410.7	730	1650	Canadian Marconi Co.	
CFCH	Iroquois Falls, Ont.	499.7	600	250	Abitibi Power and Paper Co., Ltd.	
CFCN	Calgary, Alta.	434.5	690	1800	W. W. Grant, Ltd.	
CFCQ	Vancouver, B. C.	410.7	730	10	Sprott-Shaw Radio Co.	
CFCT	Victoria, B. C.	329.5	910	500	The Deaville Station	
CGCY	Charlottetown, P. E. I.	312.3	960	100	Island Radio Co.	
CFGC	Brantford, Ont.	296.9	101	50	Brandt Radio Supply Co., Ltd.	
CFJC	Kamlopps, B. C.	267.7	1120	15	N. S. Dalgleish and Sons	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
CFLC	Prescott, Ont.	296.9	101	50	Radio Association of Prescott.	
CFMC	Kingston, Ont.	267.7	1120	20	Monarch Battery Mfg. Co., Ltd.	
CFNB	Fredericton, N. B.	247.8	1210	25	James S. Neill & Sons, Ltd.	
CFQC	Saskatoon, Sask.	329.5	910	500	The Electric Shop, Ltd.	
CFRB	Township of King, York County, Ont.	291.1	1030	1000	Standard Radio Mfg. Corp., Ltd.	
CFRC	Kingston, Ont.	267.7	1120	500	Queen's University	
CFYC	Vancouver, B. C.	410.7	730	500	International Bible Students' Assn.	
CHCS	Hamilton, Ont.	340.7	880	10	Hamilton Spectator	
CHCY	Edmonton, Alta.	516.9	580	250	International Bible Students' Assn.	
CHGS	Summerside, P. E. I.	267.7	1120	25	R. T. Holman, Ltd.	
CHIC	Toronto, Ont.	356.9	840	500	Northern Electric Co., Ltd.	
CHMA	Edmonton, Alta.	516.9	580	250	Christian & Missionary Alliance	
CHNC	Toronto, Ont.	356.9	840	500	Toronto Radio Research Society	
CHNS	Halifax, N. S.	322.4	930	100	Northern Elec. Co., Ltd.	
CHPC	Vancouver, B. C.	410.7	730	1000	Central Presbyterian Church	
CHRC	Quebec, Que.	340.7	880	5	E. Fontaine	
CHSC	Unity, Sask.	267.7	1120	50	H. N. Stovin Radio Sales	
CHUC	Saskatoon, Sask.	329.5	910	500	International Bible Students' Assn.	
CHWC	Regina, Sask.	312.3	960	150	R. H. Williams & Sons, Ltd.	
CHYC	Montreal, Que.	411	730	750	Northern Elec. Co., Ltd.	
CJBC	Toronto, Ont.	291.1	1030	500	Baptist Church	
CJBR	Regina, Sask.	312.3	960	500	Sask. Co.operative Wheat Prod., Ltd.	
CJCA	Edmonton, Alta.	516.9	580	500	Edmonton Journal, Ltd.	
CJCJ	Calgary, Alta.	434.5	690	250	Radio Service & Repair Shop	
CJCU	Mission City, B. C.	247.8	1210	5	E. R. Streeter	
CJGC	London, Ont.	329.5	910	500	London Free Press	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
CJGX	Yorkton, Sask.	475.9	630	500	The Winnipeg Grain Exchange	
CJOR	Sea Island, B. C.	291.1	1030	50	G. C. Chandler	
CJRM	Moose Jaw, Sask.	296.9	1010	500	James Richardson & Sons, Ltd.	
CJSC	Toronto, Ont.	356.9	840	500	The Evening Telegram	
CJWC	Saskatoon, Sask.	329.5	910	250	Wheaton Elec. Co.	
CJYC	Toronto, Ont.	291.1	1030	500	Universal Radio of Canada, Ltd.	
CKAC	Montreal, Que.	410.7	730	1200	La Presse	
CKCD	Vancouver, B. C.	410.7	730	1000	Vancouver Daily Province	
CKCI	Quebec, Que.	340.7	880	22½	Le Soleil, Ltd.	
CKCK	Regina, Sask.	312.3	960	500	Leader Pub. Co.	
CKCL	Toronto, Ont.	356.9	840	500	The Dominion Battery Co., Ltd.	
CKCO	Ottawa, Ont.	434.5	690	100	Dr. G. M. Geldert	
CKCV	Quebec, P. Q.	340.7	880	50	G. A. Vandry	
CKCW	Birketon Junction, Ont.	312.3	960	5000	Canadian Broadcasting Corp.	
CKCX	Toronto, Ont.	291.1	1030	500	International Bible Students' Assn.	
CKFC	Vancouver, B. C.	410.7	730	50	United Churches of Canada	
CKLC	Red Deer, Alta.	356.9	840	1000	Alberta Pacific Grain Co., Ltd.	
CKMC	Cobalt, Ont.	247.8	1210	5	R. L. MacAdam	
CKNC	Toronto, Ont.	356.9	840	500	Canadian National Carbon Co., Ltd.	
CKOC	Hamilton, Ont.	340.7	880	50	Wentworth Radio Supply Co., Ltd.	
CKPC	Preston, Ont.	247.8	1210	7½	Wallace Russ	
CKPR	Midland, Ont.	267.7	1120	50	E. O. Swan	
CKSH	St. Hyacinthe, P. Q.	312.3	960	50	City of St. Hyacinthe	
CKSM	Toronto, Ont.	291.1	1030	1000	St. Michael's Cathedral	
CKUA	Edmonton, Alta.	516.9	580	500	University of Alberta	
CKWX	Vancouver, B. C.	410.7	730	100	Western Electric	
CKWX	Vancouver, B. C.	410.7	730	10	A. Holstead and Wm. Hanlon	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
CKY	Winnipeg, Man.	384.4	780	500	Manitoba Tel. System	
CNRA	Moncton, N. B.	322.4	930	500	Canadian National Railways	
CNRC	Calgary, Alta.	434.5	690	500	Canadian National Railways	
CNRE	Edmonton, Alta.	516.9	580	500	Canadian National Railways	
CNRM	Montreal, Que.	410.7	730	1650	Canadian National Railways	
CNRO	Ottawa, Ont.	434.5	690	500	Canadian National Railways	
CNRQ	Quebec, P. Q.	340.7	880		C. N. R.	
CNRR	Regina, Sask,	312.3	960	500	Canadian National Railways	
CNRS	Saskatoon, Sask.	329.5	910	500	Canadian National Railways	
CNRT	Toronto, Ont.	356.9	840	500	Canadian National Railways	
CNRV	Vancouver, B. C.	291.1	1030	500	Canadian National Railways	
CNRW	Winnipeg, Man.	384.4	780	500	Canadian National Railways	

CUBAN STATIONS

PWX	Havana, Cuba	400	750	500	Cuban Telephone Co.	
2CT	Havana, Cuba	350	855	50	Casimiro Pujadas	
2FG	Hershey, Cuba	300	999.4	20	Alberto A. Ferrera	
2GF	Havana, Cuba	192	1540	5	Francisco Williams	
2HP	Havana, Cuba	205	1460	200	Cristina W. Vda. Crucet	
2JF	Marianao, Cuba	245	1220	5	Jose L. Ferriol	
2JT	Havana, Cuba	461	650	5	Jose A. Terry	
2JL	Havana, Cuba	294	1020	5	Jose Leiro	
2MA	Havana, Cuba	305	980	50	Modesto Alvarez	
2MF	Madruga, Cuba				Moises Fernandez	
2MG	Havana, Cuba	284	1055	20	Manuel Y. Guillermo Sales Music Store	
2MK	Havana, Cuba				R. V. Waters	
2MU	Havana, Cuba	225	1330	10	Ulpiano Muniz	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
2OK	Havana, Cuba	360	833	100	Mario Garcia Velez	
2OL	Havana, Cuba	280	1170	100	Oscar Collado	
2RK	Havana, Cuba	315	950	100	Raoul Karman Casa De La Porte	
2TW	Havana, Cuba	270	1110	20	Roberto E. Ramirez	
2UF	Havana, Cuba	355	844	20	Roberto E. Ramirez	
2XA	Havana, Cuba	230	1300		Lecuona Music Co.	
2XX	Havana, Cuba	225	1333	5	Antonio A. Ginard	
5DW	Matanzas, Cuba	270	1110	100	Ramon Saria Calderon	
5EV	Colon, Cuba	360	833	5	Leopoldo V. Figueroa	
6BY	Cienfuegos, Cuba	260	1153	200	Jose Ganduxe	
6EV	Caibarien, Cuba	250	1200	50	Maria Josefa Alvarez	
6HS	S. La Grande, Cuba	250	1200	10	Santiago Ventura	
6KC	Ciegfuegos, Cuba	240	1250	10	Carlos Hernandez	
6KP	Sancti Spiritus, Cuba	195	1540	20	Antonio Galguera	
6KW	Tuinucu, Cuba	340	880	100	Frank H. Jones	
6LO	Caibarien, Cuba	325	920	250	Manuel A. Alvarez	
6RG	Santa Clara, Cuba	200	1500	20	Rafael Garcia Perez	
6XJ	Tuinucu, Cuba	278	1080	100	Frank H. Jones	
6YR	Camaguey, Cuba	200	1500	20	Diege Iborra	
7AZ	Camaguey, Cuba	225	1333	10	Pedro Nogueras	
7BY	Camaguey, Cuba	235	1277	20	Eduardo, V. Figueroa	
7EV	Camaguey, Cuba	190	1580	5	Gonzalo Toraya	
7FU	C. Avila, Cuba	300	999.4	5	Feliciano Isaac	
7GT	Camaguey, Cuba	195	1540		Armando Vaquer	
7HS	C. deAvila, Cuba	192	1560	10	Porfirio de laCruz	
7IR	C. deAvila, Cuba	193	1550		Armando Denguria	
7LO	Camaguey, Cuba	230	1300	20	Miguel Lopez Martinez	

Call	City and State	Wave Lengths	Kilo Cycles	Power Watts	Operator	Dial Setting
7JQ	Florida, Cuba	42	7130		Leonard B. Fox	
7KP	Camaguey, Cuba	43	6970	50	Melchor Aguero	
7MN	Camaguey, Cuba	273	1100	100	Melchor Aguero	
7NM	Nuevitas, Cuba	264	1136	20	Domingo Caymares	
7SR	Camaguey, Cuba	350	860	500	Salvador C. Rionda	
8BY	Santiago, Cuba	240	1200	100	Alberto Ravelo	

MEXICAN STATIONS

CYA	Mexico City, Mex.	265	1130	500	Partido Liberal Avanzado	
CYB	Mexico City, Mex.	270	1110	500	El Buen Tono	
CYF	Oaxaxa, Oax, Mex.	270	1110		Federico Zorrilla	
CYG	Mexico City, Mex.	300	1000	1000	Secretara de Guerra y Marina	
CYH	Monterey, Mexico	311	964	1000	Tarnava & Cia	
CYJ	Mexico City, Mex.	410	730	1000	General Electric Co.	
CYL	Mexico City, Mex.	480	625	500	La Casa del Radio	
CYR	Mazatlan, Sin. Mex.				Rosseter Y Cia	
CYX	Mexico City, Mex.	333	900	500	Excelsior & Revista de Revistas	
CYZ	Mexico City, Mex.	400	750		Liga Central Mexicana de Radio Mex.	
CZA	Mexico City, Mex.	70-500-1070 meters			Aviation Dept., War Ministry	

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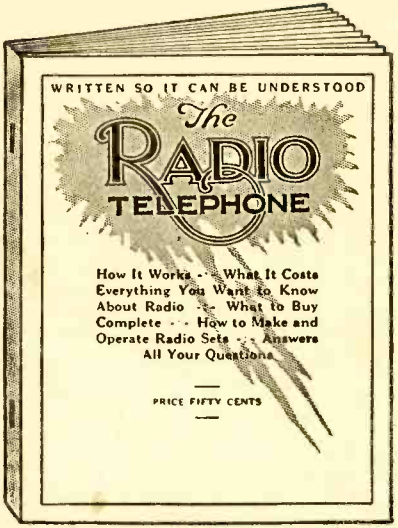

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