

A HISTORY OF BOOTLEGGING IN INDIANAPOLIS:
The Rise and Fall of the Ten-Watt Voices.

By Charles A. Taylor, retired bootlegger.

Bootlegging in Indianapolis has had an eleven-year-plus history with earliest recorded forms appearing in 1953, and a path of development that has shown a striking parallel to the development of broadcasting in North America. Bootlegging in Indianapolis reached its zenith in 1971-72 with the notorious Radio Free Newtown, and now lies in a dormant state with only an occasional wobbly heterodyne around 750 kHz or some other clear frequency to prove that it has not died. During the eleven year period, it has seen network broadcasting, FM studio-transmitter links, remote transmitter sites, hi-fi par excellence, and stable, crystal-controlled AM and FM transmitters.

As early as 1961, the author was frequently constructing low-power mediumwave transmitters, and loading them into the longwire-radiating harmonics into the WHF-TV band in the meantime. Perhaps the earliest consistent effort in 1963 was WNRC with two watts at 575 kHz (or, simply kilocycles in those days). The call letters stood for National Radio Club, of which the author was a member at that time. The transmitter was a simple modulated oscillator with the output frequency set by zero-beating the second harmonic against broadcast stations on 1150 kHz. Surprisingly stable, it drifted about 50 Hertz per hour and modulation did not shift the carrier frequency more than five Hertz. A tape recorder served as modulator.

Friend and ex-NRCer Charles Callahan soon after dabbled in bootlegging with WY30, two watts on a nominal 750 kHz (but recorded and verified by the author on 756 kHz). WY30 won a highschool science fair for Mr. Callahan.

Two truly consistent bootleggers then appeared in early 1964. One was WRJS on an average frequency of 1201 kHz with one watt radiated from an 88-foot longwire. WRJS had two turntables and two tape recorders with a home-brew audio board, and appeared every weekend. WRJS was operated by Barry ("B.J. Goldstein") Jansen, of later, Radio Free Naptown, notoriety. The other was WISK. Owned by Steven Ross, and operated by several highschoolers near Washington Highschool on the Indianapolis near-southwest side, WISK operated on a nominal 610 kHz with 100 mW radiated by a 75-foot longwire using an Allied wireless microphone oscillator. The author, after meeting Ross and company, succeeded in measuring WISK's frequency from his northeast side home, as being 655 kHz.

WISK was notable as it had its own studio, a small shed built the Depression, plenty of audio equipment, and maintained a broadcast schedule of twenty four hours a day, seven days a week consistently. Unfortunately (or perhaps fortunately, as we were to find), WISK covered all of a block radius.

WNRC-575 was abandoned before I met Steven Ross of WISK, because of limited coverage, and work was completed on a new transmitter of 15 watts.

Using a crystal-controlled oscillator (the triode section of a 6CU6 operated at 30 volts, plate potential), a buffer (the pentode section of the 6CU6, operated at 150 volts, screen and plate potential), and a 6DQ6 final matched to the output by a "L" tuning network, the new transmitter was palmed into service with a 100-foot longwire, as WXAB. Various frequencies were tested: 730, 735, 740, 750, 770, 870, 910, and 1030 kHz; 750 being the optimum daytime frequency due to minimal co-channel interference. Operation was confined, however, to daylight hours, because of intense co-channel interference from WSB, Atlanta, Georgia, after sunset. The frequency was set precisely by zero-beating with other broadcast stations on 750 kHz. Some good degree of second-harmonic suppression on 750 kHz was necessary to preclude interference to local WBR1-1500 throughout the immediate neighborhood. WXAB modulation came from a single record changer, a tape recorder, and some shortwave relays. The effort was rather sporadic, however, limited primarily to the weekends.

Concurrently, a 5-watt, crystal-controlled transmitter went into operation as WPDG, after I constructed it for a younger friend who lived two blocks from my home. WPDG utilized a single turntable and a microphone, with fading and mixing controls an integral part of the separate modulator. The 5-watt final, a 6V6, fed a 50-foot longwire through an "L" tuning network. The station operated on a weekend schedule. As with WXAB, the operation was confined to daytime hours.

All the frequencies tested by WXAB were also tried for WXAB, and both stations settled down on 750 kHz with a shared-time agreement.

Owing to characteristics of the radiator antennas utilized by WXAB and WPDG—both horizontal longwires, erected only approximately 30 feet above earth—coverage was poor. In the case of WXAB, coverage was limited to approximately three blocks radius; WPDG's coverage was limited to about one block radius.

But, to return to WISK:

WXAB, with a paucity of studio equipment, was severely limited in its broadcasting activity. On the other hand, WISA possessed a studio-full of audio equipment, but with only a very low-power transmitter to radiate its programs. Friend Ross and Company requested that I construct a 5-watt transmitter to radiate WISA. After some thought, I offered the use of the 15-watt WXAB transmitter if I would be included in the WISA grouping. Ross eagerly accepted, and I became the WISA chief engineer at the age of 17 years (and took on a heavy work load too; bootlegger or not, WISK was to demand many, many hours of attention.)! Under the new grouping, Steven Ross became station manager, program director, and leading disc-jockey, associates Steven McCullough and Harold Kidner (both currently coming names in central Indiana broadcasting) became disc-jockeys (air names: wonder boy and happy Harold, respectively), and I, besides becoming chief, became a disc-jockey (air name, Chief Crazy Cat). Actual names were also used alternatively.

Negotiations completed, the 15-watt WXAB transmitter was transferred to WISA in October 1965, and tuned into the WISK 100-foot horizontal longwire radiator antenna. The station, however, did not go on the air immediately with higher power because the manifold multiplied RF fields in the studio raised havoc with the program equipment! So WISA closed down for two months and during this time a new audio control console was constructed, three new turntables installed, and the tape cassette machine overhauled.

In middle December 1965, WISK returned to the air for tests—this time on 730 kHz (There was a definite rationale to the selection of this frequency, as will be related later). The 15-watt transmitter increased the WISK coverage significantly—but still more coverage was the desire. Pooling resources, a 50-foot, tubular TV mast was purchased, and erected near the WISK studio, to become the WISK radiator tower. Quick tests showed the new tower to multiply the WISK coverage many times, and just in time to return to the air for Christmas 1965! Where before, the WISK coverage was limited to somewhat less than a block, now the station could be heard clearly over many, many blocks. Before, on 730 kHz, WISA was received at my home regularly beneath WJGS, Bowling Green, Ohio; on 1550 kHz, WISK was taped at its 2100 EST sign-off on 24 March 1966, on top of CBE and the skywave present on that channel.

Because of the expanded coverage on 1550 kHz, we were now covering into the community of Speedway, Indiana (Site of the 500 Indy raceway). Shortly afterward, we received a visit from the chief engineer of WCVL (1550 kHz) in Crawfordsville, Indiana. Residents of Crawfordsville, driving down the Crawfordsville Road to Indianapolis to shop here, were finding their hometown station WCVL overridden at Speedway by WISA! The chief engineer of WCVL, armed with a field intensity meter, tracked down WISA and walked into the studio one March afternoon in 1966 as Steve Ross was on the air. Fortunately, the chief engineer was favorably impressed and as a consequence said that he wouldn't report WISK to the Federal Communications Commission; nevertheless, Ross took WISA off the air shortly after the WCVL chief engineer left. The entire WISK staff met shortly afterward, to commiserate.

ate together: being off the air was unbearable. Alternatives were discussed: I was considering erecting another tower to develop a directional pattern in order to null WISA's signal in the direction of Crawfordsville. Such a development would have been a possible first in Indianapolis bootlegging. Thankfully, however, a crystal for 1110 kHz, which had been ordered a week earlier for experimentation, arrived soon afterward to solve our problem.

Taking advantage of the forced hiatus, the WISK studio was completely remodeled and WISK was returned to 1110 kHz. After a week of silence, WISK returned to the air on 1110 kHz.

WISK Radio
Indianapolis, Indiana

March 25, 1966

C. Alan Taylor
939 Eastern Avenue
Indianapolis, Indiana
46201

Mr. Taylor:

This is to verify and confirm your reception of WISK Radio on March 24, 1966 at 9:00 A.M., E.S.T.

WISK transmits on 1110 kHz using a 15 watt broadcast transmitter feeding a guyed tubular 58 foot non-directional vertical radiator and associated ground system located at W 86° 12' 07" E 39° 46' 13".

The transmitter utilizes a crystal ground to exactly 1110 kHz. This excites the triode section of a type 6C8 tube operated with a 50 V.D.C. regulated plate potential in order to maintain a tolerance of plus or minus 5 Hz.

The buffer consists of the pentode section of the 6C8 operated at a regulated screen and plate potential of 150 V.D.C.

The power amplifier consists of a type 6DQ5 ED tube operated at class B with screen potential of 250 V.D.C. and plate potential of 300 V.D.C. The power amplifier feeds the radiator tower through a Pi matching network.

Under normal conditions, WISK serves with primary service contours a radius of approximately one mile from its radiator tower.

Respectfully yours,



Steven Ross,
Owner and Manager,
WISK Radio

In the latter half of 1964, while WISK was still operating at 100 mW, WRJS, owned and operated by Barry Jansen on the Northeast side of Indianapolis, vacated its nominal 1200 kHz and moved to a nominal 1180 kHz with an increased 10-watt output and a new callsign: WAWF. As did WRJS, WAWF drifted in frequency, averaging 1176 kHz. The frequency not only drifted about 2 kHz above and below 1176 kHz, it also wobbled in synchrony with modulation, particularly bass modulation. This caused an annoying, spluttering heterodyne after sunset with WHAM, Rochester. In an attempt to avoid this and adjacent-channel interference from WOWO (1190 kHz), Fort Wayne, WAWF moved to a nominal 1170 kHz. Here again, the frequency drifted a small percentage around an average frequency—this time 1167 kHz. The cochannel and adjacent-channel interference abated somewhat.

Later, in early 1965, WAWF shifted upwards to a new frequency, to 1540 kHz, and changed callsigns to WMRT. Added was a 1-watt FM transmitter at 89.1 MHz which was programmed in parallel with 1540 kHz. When the frequency change was effected, Jansen modified the master oscillator of the WMRT MW transmitter to reduce frequency excursions due to modulation, and drifting. Moderately successful, this measure confined the drift to about 1 kHz around 1540.5 kHz.

WMRT's operation was primarily confined to weekends, with long periods of relaying other Indianapolis FM stations. But Jansen had a sizeable quantity of studio equipment and was able to produce versatile programs, mostly of a rock format.

WMRT's coverage area was considerable, but not as extensive as attained by WISK on 1550 kHz, owing to the WMRT 88-foot horizontal longwire at a height of 18 feet above earth. In fact, the major portion of the useable radiation was from the 18-foot downlead which connected at its base to the feedline coaxial cable.

At my urging, Jansen began to experiment with crystal control in order to improve the WMRT carrier frequency stability. Early attempts were only moderately successful because the master oscillator circuitry of the WMRT MW transmitter did not lend itself to crystal control and tended to operate off-frequency. The oscillator could not be brought closer than 30 Hertz or so to precisely 1540 kHz.

In mid-1966, I lent a separate crystal oscillator-buffer combination to Jansen to substitute for the WMRT MW transmitter master oscillator. A 730-kHz crystal (originally used for WXAB and WPDG) was substituted in the new oscillator and the transmitter returned for the second harmonic—1460 kHz. This combination placed WMRT precisely on frequency.

Later, the WMRT transmitter was modified to increase its power output to 50 Watts. With this power output, the WMRT MW coverage area expanded considerably. Unfortunately, before remedial steps were taken, inadequate harmonic suppression in the WMRT MW transmitter caused harmonics, the old bane of the bootleg broadcaster, to be radiated up to 8760 kHz.

Appearing before Christmas of 1965 was a new voice, WSSE on 1550 kHz. WSSE was operated by Steven Everitt, also of later Radio Free Naptown fame. WSSE utilized a 20-watt, crystal-controlled transmitter, which excited a 50-foot horizontal longwire, on the Indianapolis Northeast side. WSSE possessed an audio control console and turntables, a tape recorder, and a microphone. Live programming on the weekends was the rule in contradistinction to WMRT. Steve Everitt, having considerable talent, used his facilities to the maximum. WSSE's format was strictly rock, with frequent, all-night weekend operations.

Network operation was initiated at this time. Using ordinary telephone lines as the interconnecting medium, WMRT netted with WSSE—with either one or the other originating programming. Essentially hi-fi audio passed down the telephone lines, so results were excellent.

For a period of about two months, WISK on the near Southwest side of Indianapolis, and WSSE on the Northeast side, were operating simultaneously on 1550 kHz. There was an area of mutual overlap of signals on the near Northeast side of Indianapolis. This, however, was not a problem because the overlap occurred in an area of marginal signal intensity for both WSSE and WISK, where additional limiting of service was caused by cochannel interference from WCVL (1550 kHz, 250 Watts), Crawfordsville, Indiana; and WCTW (1550 kHz, 250 Watts), New Castle, Indiana. Despite its lower power (15 Watts), WISK had the lion's share of the coverage on 1550 kHz due to its superior ground-wave radiator, a 58-foot tower.

In February 1966, WISK closed down on 1550 kHz and left the air for a week while remodeling the station studios. During this hiatus, the transmitter was returned to 1110 kHz, a pi network installed between the transmitter output and the tower feedline (an L network had been used previously), and a telephone was installed in the studios.

When WISK returned to the air, it was discovered that the station was audible during the daytime anywhere in Indianapolis: the shift to 1110 kHz had almost totally eliminated co-channel interference, except for a slight SAH from WMBI Chicago, audible at my home. The pi network very much attenuated harmonics of 1110 kHz, so much so that the frequency was checked periodically by bringing a shortwave receiver into the studios and monitoring the SAH of the station's third harmonic against CHU on 3330 kHz.

The new telephone allowed us to receive request calls from the surrounding areas. When a call was received, we asked the listener's approximate address and later placed a mark on a map of Indianapolis, to document WISK's coverage.

The station schedule by this time was 0800-2100 weekdays, and 0800-2400 on Fridays and Saturdays. Most testing was performed on Sundays between 0630 and 0800, when I went to the station for maintenance and to do the Sunday morning program, Sunday Serenade (with light pops such as Percy Faith and Tijuana Brass). My sign-on and extroductory theme was "Theme from a Summer Place." Dale "Batman" Mayhew followed immediately at 1200 with the station's usual rock format. The 0800-1200 slot was held open with light pops in anticipation of doing a remote from a nearby church during that period.

Steven Ross, the station's manager, had the station's call letters stencilled on the doors of his Rambler, which we dubbed "the WISKmobile".

Alas, it could not last! A portend of things to come was the burning of Hawthorne House on 13 April 1966. Hawthorne House was a recreation hall near Washington Highschool, from where we were to do our first remote via the newly installed telephone line, of a dance to given on the 13th. The next day, on the evening of the 14th, I tuned in the station from here at 939 Eastern, and was mystified to hear long periods of uninterrupted music. Sensing that something was amiss, I called the station—the FCC was there! I made a beeline for the station to check the situation, and found a ghost-pale Steven Ross and Dale Mayhew. FCC Officer Edward A. Petersen from the Chicago office of the FCC, had arrived at the station about an hour earlier! Rather than closing down the station immediately, he had directed Ross and Company to keep the station in operation in order to perform field intensity measurements at one mile distance from WISK, and to tape-record the station.

Upon his return, Petersen reported a field intensity at one mile of about 1 mV-per-meter, and then did the honor of our final sign-off announcement: "This is an unlicensed station WISK, operating on an unassigned frequency of 1110 kHz. By official order of the Federal Communications Commission, this station is now being closed down permanently". With that, we reconvened in Ross' home for coffee, where I supplied the transmitter schematic to E.A. Petersen, who had us sign statements that we would not return WISK to the air. Black Friday was here...it was over!

The next morning, at work at WFMS (95.5 MHz), I tuned 1460 kHz to find WMRT in operation. A quick telephone call and the station left the air immediately! And not too soon, either; because WSSE had also been closed down the night before, after WISK! WMRT was safe!

WISK and WSSE had been closed down by the FCC, and WMRT frightened into silence. A group of unemployed bootleggers met to commiserate together.

In retrospect, it was a mistake to move WISK to 1110 kHz. It had been my philosophy to place WISK on a crowded channel to prevent excessive coverage. At close-in distance, WISK would override cochannel interference, but would be completely submerged at a greater distance. This could not be effected simply by using a lower transmitter power on a clearer frequency, since it is absolutely necessary to override electrical interference of a man-made and natural character (such as power-line noise, TVI, fluorescent and neon-light buzz, lightning static, etc.) which demands a fairly high field intensity. A clear channel was out of the question; a more satisfactory channel would have been a Class-IV (graveyard) frequency, using perhaps 10 watts, daytime power; and 25 watts, nighttime power. No Class-IV channel was available in Indianapolis, as all are less than 40 kHz from a metropolitan station.

A carefully designed and constructed, crystal-controlled transmitter was a minimal requirement; otherwise, the usual bootleg heterodyne and harmonic-ridden signal would reveal our presence.



June 7, 1966
Mr. C. Alan Taylor
939 N. Eastern Ave.
Indianapolis, Ind.

Mr. Taylor:

This is to verify your reception of radio station WMRT on May 26, 1966 at 10:05 PM, EST on approximately 1540 kc. WMRT began broadcasting on 1540 on April 2, 1965 with 10w from an antenna of 88 ft., directed North-South.

Barry L. Jansen Chief engr.

Broadcast Station WQRK
Calrad Enterprises Inc.
4415 N. Priscilla
Indianapolis, In. 46226

C. Alan Taylor
939 Eastern Ave.
Indianapolis, In. 46201

Mr. Taylor: October 23, 1966

This is to verify and confirm your reception of broadcast station WQRK on 1550 kHz at 11:00 PM, EST.

WQRK operates weekends only on 1540 kHz daytime and 1550 kHz nighttime (soon to be 1560 and 1580 kHz, respectively) utilizing a 10 watt broadcast transmitter feeding a 20 foot top-loaded vertical antenna.

The 10 watt transmitter consists of a crystal controlled 6AU6A oscillator to maintain a nominal 2 Hz tolerance. After complete warmup, the frequency is normally maintained to a tolerance of 0.25 Hz. The oscillator feeds a 6SJ7 buffer amplifier which in turn drives a class B 6DQ6 B tube which develops an efficiency of 50% in a high-level modulation circuit.

The transmitter is driven by a high-powered modulator which is preceded by an instantaneous attack limiter which is fed by the studio equipment.

The output of the transmitter is fed into a 52 ohm coaxial feedline by way of a Pi matching circuit. The coax is in turn matched to the base of the antenna through a tuned L circuit for a nominal harmonic attenuation of 53 db. The antenna has a base resistance of 8.3 ohms and a base reactance of approximately 260 ohms.

Thank you for your attention.

BLJ:de

Barry L. Jansen
Barry L. Jansen
Chief Engineer,
WQRK Radio

WAKS Radio
 1024 Kessler Blvd. E. Dr.
 4801 Guilford Ave.
 Indianapolis Indiana
 253-8326 283-3355

Mr. C. A. Taylor:

This is to verify and confirm reception of WAKS Radio on August 9, 1966, at 4:00 P.M. on 1110 kHz.

WAKS Radio operates on 1110 kHz. with 10 watts from a 55' guyed tubular tower and associated ground system located at W 86°08'17" N 39°53'22".

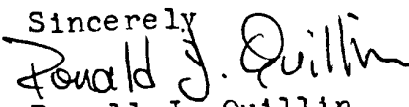
The WAKS transmitter consists of a crystal controlled 6AU6 oscillator for a nominal tolerance of 2 Hz. This feeds a 6SJ7 buffer which in turn drives a 6DQ5B power amplifier. This stage operates with a 50% efficiency running class B. The output of the transmitter is fed into a pi network which matches into a 53 ohm coaxial cable feed line which is then matched through a tuned L network into the tower. The tower has a base resistance of 19 ohms and a reactance of -j587 ohms. The system provides a nominal 53 db harmonic attenuation. Field intensity measurements were made at 1 mile and the following readings were noted:

0°	2.2 mv/m
90°	1.6 mv/m
180°	1.6 mv/m
270°	3.0 mv/m

The WAKS Radio studio is 1.3 miles south of the transmitter and is linked to the transmitter through an equalized broadcast telephone line.

Thank you for your attention to the new sounds of India nowhere-at radio. We hope you will be a regular listener to all the newest sounds.

RJQ;ofc

Sincerely

 Ronald J. Quillin
 Chief Engineer
 WAKS Radio

In June 1966, after the untimely demise of WISN (1110 kHz) and WSSE (1550 kHz), plus the frightening into silence of WAKR (1460 kHz), several of the principals met to commiserate and to explore new possibilities. We planned what was to be a "last fling" (but which went far beyond that).

In this new scheme, we would pool resources and efforts in the construction and operation of a new station. This time, the transmitter was to be disassociated from the studio, so that if the FCC were to locate the transmitter, no clue would be available to find the studio and the operators. The transmitter would be located at the home of one of us who had not been directly involved in the operation of the bootleg stations in Indianapolis.

One prospective transmitter site on the Indianapolis far east side was located, and a test transmitter and a thirty-foot tower erected to determine coverage. This radiated open carrier and test tone, but the site was abandoned with the projection that coverage of central Indianapolis would be inadequate.

Another prospective transmitter site was located at 1024 East Kessler Avenue, on the Indianapolis central north side. The former 58-foot WISN tower was dismantled and erected at the new site. In the interim, my 15-watt transmitter, also used formerly at WISN, returned to 939 Eastern Avenue for overhaul and modifications: a new exciter was installed, and the transmitter's power was reduced to 10 Watts for improved reliability. After brief tests at 2.5 Watts on 1110, 1540 and 1550 kHz, 1110 kHz was selected as the station frequency, and the new station went on the air as WAES with 10 Watts. An immediate increase of coverage over that of WISN was evident, despite the transmitter power reduction from 15 to 10 Watts. This was mainly the result of an improved ground system and the addition of a peak-modulation limiter, yielding higher average modulation.

Initially, we recorded all programming for WAES at the studio (1.3 miles south of the transmitter) and took it north to the transmitter site for airing. Naturally, we preferred live programming, and recalling prior success in feeding high-quality audio over telephone lines, we conducted experiments using dialled connections between the studio and transmitter, with excellent results. This became the usual mode of linkage. Frequent programming also originated from the transmitter site by Ronald Quillin, in whose room the transmitter and modulator operated. With locally-originated broadcasts, usually late evening or early morning, the phone line was open to accept calls from listeners, in dedication and talk shows.

The usual broadcast day at WAKS was from 1300 to 2200; except for weekends, when operation was frequently all night.

Later, we changed the callsign to WARQ, to KAOS, and finally to WQRK. During the latter part of this period, a crystal-controlled, low-power repeater (WARQ-1, 1 Watt, 1540 kHz) operated from 939 Eastern Avenue, during daylight hours.

Toward latter September, grapevine intelligence told us that the FCC was in Indianapolis, so WQRK (as it was known now) closed down for the duration. At this juncture, we decided to move WQRK to a new location.

In October 1966, we decided to resume operation of WQRK, this time at 4415 North Priscilla Avenue, the former WMRT site. The FCC had never closed down WMRT, so an FCC closure would have been a first time for this site.

WQRK was projected for 1540 or 1550 kHz. Construction was unusually lengthy as we were convinced of the necessity of improving the radiator and ground system over previous operations.

The first construction was the ground system. Barry Jansen, principal of earlier WMRT, and I worked alone on this project. First, a copper ground stake was driven at the center of Jansen's back yard. 16 shorter ground stakes were driven at the periphery of the yard, at 22.5° azimuths relative to the central stake. 30 feet of bare, #20 AWG copper wire was stretched from each peripheral stake to the central stake and soldered to both. Using the radials so

formed as a guide, a 3-inch deep slit was cut in soil along the entire length of each radial, using a butcher knife by one of the team while the other followed laying the radial into the slit with a solder aid. Watering each slit afterward closed it. 16 such radials completed the ground system.

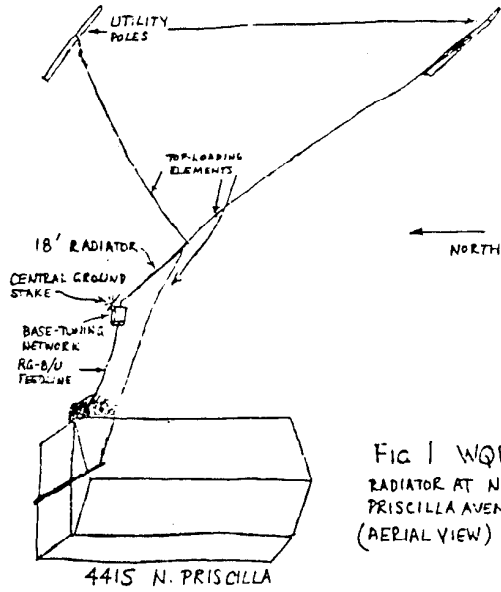
Next, attention turned to the construction of the radiator: we stretched three insulated wires horizontally from convenient supports at a 20-foot height. These were joined and soldered in the form of a "Y", as viewed aerially. A heavy, one-half-inch width braid strap was joined and soldered to the junction of the "Y" and dropped 18 feet vertically to a point over the central ground stake. This vertical downlead was the radiator; the three horizontal wires, the toploading hat. (see figures 1, 2 and 3 for illustrations of the radiator and ground system.)

In a wooden box, an "L" base-tuning network was constructed beforehand. The vertical downlead connected via a feedthrough insulator through a side of the box to the "L" network within. A ground strap was connected between the central ground stake (and the radial system) and the "L" tuning network via another feedthrough. From the other side of the "L" network enclosure, a 35-foot length of RG-8/U coaxial cable reached to the transmitter inside Jansen's home. The transmitter was initially tuned into a 50-Ohm dummy load for a correct impedance match to 50 Ohms. Then the RG-8/U feedline was connected to the transmitter; and with the transmitter on low power (2.5 Watts), the "L" network at the base of the radiator was resonated into the radiator utilizing a 2.5-Ampere R.F. ammeter. Adjustments were completed with full power of 10 Watts.

On the evening of the completion, upon returning home, I had the transmitter put on the air with modulation, on 1550 kHz. Despite the post-sunset channel's crowded and noisy condition, WQRK easily topped and nearly quieted 1550 kHz at 939 Eastern Avenue, at a distance of 4 miles! We determined that 1540 kHz (clear in central Indiana in those years) should be used as a daytime channel, and 1550 kHz as a nighttime channel. The changeover was accomplished instantaneously by switching from one crystal and frequency-trimmer pair to another with a statite R-F switch. Changeover occurred at local change-of-mode times.

In December of 1966, after I had been in U.S. Navy Recruit Training Command "bootcamp" for one and one-half month, WQRK moved to 1560 kHz, daytime; and 1580, nighttime. WQRK also returned to 1024 East Kessler Avenue several times, reverting to 4415 North Priscilla Avenue each time. I did my last show on WQRK in December of 1966, while home on leave.

Contemporaneous to WQRK were two other stations: WAES (AM and FM) and WOGO, neither of which was related to WQRK or any previous bootleg operation. WAES, the Arlington Highschool Broadcasting Company (from which the station took its callsign), was operated on 1140 kHz and 101.7 MHz by Dave Meyer at 8114 Shibley Drive on the Indianapolis far east side. Neither transmitter was crystal controlled, so at least the 1140 transmitter drifted several hundred Hertz about 1140 kHz. The transmitters were listed as 3 Watts (AM) and 100 milliwatts (FM). The AM transmitter was audible with a heterodyne at 939 Eastern Avenue, but only covered about 0.5 mile radius, consistently. The schedule was listed as "weekdays, 1530-1630; Fridays, 1515-1915 marathon; and Sundays, 1400-1600". This schedule was observed at being consistent. WOGO operated 1150 kHz with 20 Watts from 5843 North Oakland on the Indianapolis far northeast side. The principal was Tim Lenahan. The transmitter was crystal controlled, and fed a 30-foot tower. The transmitter utilized the triode section of a 6HP8 as the oscillator, the pentode section of the 6HP8 as the buffer, and a 6DQ6G as the final. WOGO was only poorly audible from 939 Eastern Avenue.



It ended for WQRK in February of 1967, with a visit from Edward A. Petersen of the Chicago field office of the FCC. I was attending Electronics Technician School at the U.S. Naval Training Center at Lakes, Illinois, when the closure occurred. Nevertheless, for my involvement in WQRK, my FCC first-class license was suspended for one year. That was enough for me, and I retired permanently from the world of bootlegging.

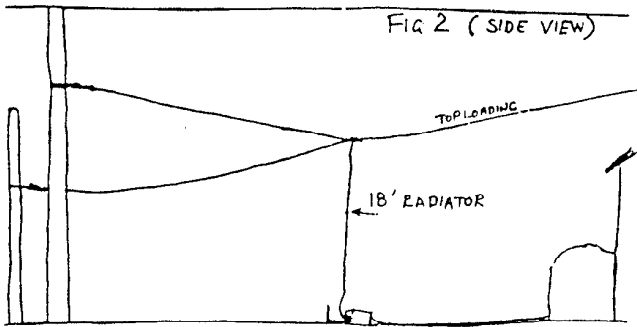
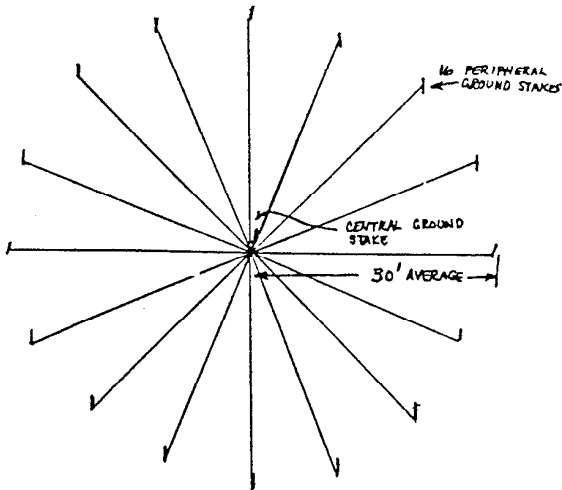


FIG 3
RADIAL SYSTEM



WPDG (previously 750 kHz with 3 Watts from 836 North Temple Avenue) reactivated with 5 Watts from 710 North Bancroft on the Indianapolis east side, in February of 1968.