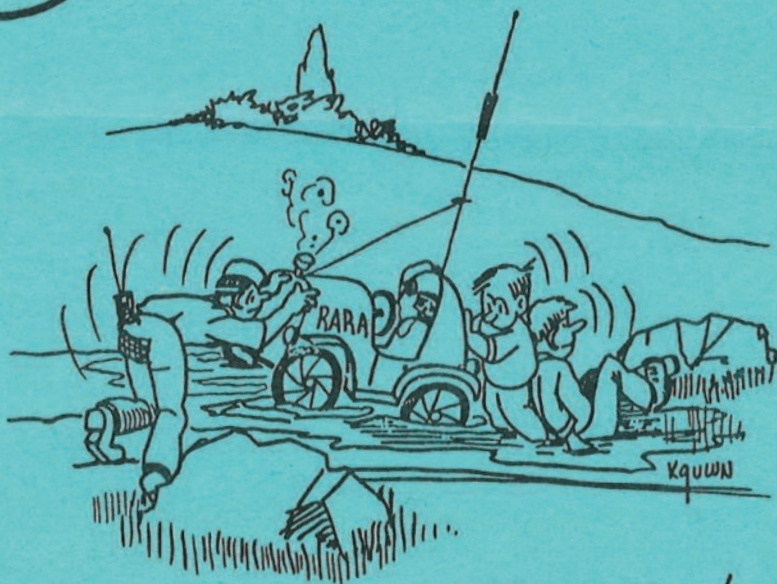


Ham Rag

Rockford Amateur Radio Association

JANUARY 1985



LET'S ALL GET BEHIND RARA AND PUSH!

27th Jan 11:00
Meeting - at 9:00 am
Burns

President's Log

It's been a long time since I've had to write a president's log (1973 I think), but I guess it's time to give it a shot again. Times have changed a lot even in the eleven years since I started in ham radio. I can remember using a 13 watt one tube CW transmitter (yes, even I once used Morse code) which was built on a pine board. The excitement of using something you've built and actually communicating with it! One thing I thought might make an interesting meeting is to have 5 to 10 groups, each building a small project so that the people who have experience soldering ect., can assist people that have not. I would be interested in hearing suggestions for what the project could be (such as a code oscillator, audio amplifier ect.). Gene Duncan will be in charge of programming this year and all ready has many good ideas for upcoming meetings. If you have an idea for a meeting give Gene a call.

Another idea for a club project is that maybe it is time for another Rockford hamfest. Our club always seems to come out of the woodwork for club projects so I feel it can work even if it was on a small scale.

Of course the first item on the agenda is the Awards Banquet. I've always been a fan of good food and with the good things the Warsaw Inn has to offer I know I won't be disappointed. What I really enjoy is seeing all the people I haven't seen for a long time.

In February we will have our annual auction, so start sorting out all the goodies you don't want and hope to move into someone else's. If you are new to ham radio, the auction is usually a place where you can buy all kinds of parts, gadgets, radios, just about anything you can think of to start your own collection. This is a good meeting to invite a friend to. After all you might need help carrying out all the new things that you purchase.

I'm looking forward to an exciting year where we can all work together and have fun, and I'm sure you are too.

See you at the meetings.

Have you been good little boys and girls? Did you all have a Merry Christmas and get jut what you wanted? I didn't. Mrs. Santa Claus suggested that I get rid of some of the stuff I've accumulated in my shack over the years. Oh, well, there's next Christmas to look forward to and Milwaukee isn't many miles away from here.

Congratulations to five members of the latest RARA novice class who are awaiting their first ham call.

Rob Krenek Sr. 3076 Laurelhurst, Rockford, Il. 61111 654-7128
 Rob Krenek Jr. 3076 Laurelhurst, Rockford, Il. 61111, 654-7128
 Phil Harris 6491 Postwick, Rockford, Il. 61103, 633-5714
 Pat Hayes P.O.Box 128 Poplar Grove, Il. 61065

765-3330

Mike Lotz 2823 Woodhill, Rockford, Il. 61111, 8776490

If you should meet one of these new amateurs give them a nice RARA greeting and welcome them to the club.

REMEMBER JANUARY 12th IS OUR ANNUAL AWARDS DINNER. THIS YEARS DINNER WILL BE HELD AT THE WARSAW INN ON EAST STATE ST. ACTOSS FROM THE ENTRANCE TO ROCKFORD COLLEGE. COST OF THE DINNER IS ONLY \$8.00 FOR AN ALL YOU CAN EAT DINNER CONSISTING OF POLISH SAUSAGE, ROAST BEEF, SAURKRAUT, MASHED POTATOES, SALAD VEGETABLES, AND ASSORTED PASTRIES FOR DESSERT. DINNER WILL BE SERVED FAMILY STYLE. A CASH BAR WILL BE OPEN AT 6PM WITH DINNER FOLLOWING AT 7PM. BE SURE TO GET YOUR RESERVATION IN SO WE WILL HAVE AN ACCURATE COUNT TO GIVE TO THE WARSAW INN. SEE YOU THERE!! 73, Happy New Year! Chuck, N9CCH

CLASSES CLASSES CLASSES CLASSES CLASSES CLASSES

Beginning March 14, 1985, RARA will again sponsor licensing classes at Harlem Community Center. Plans are being made for a novice class, a General class or an Advanced/Extra SEMINAR. Either/or one of the last two, but not both. which ever class we get the most requests for is the one we will run this spring. Cast your votes with:

Gene, AK9N, 654-0675 after 5:00 pm
 Carol, KI9G, 6333249, after 4:00 pm
 or on the 2/10 meter Monday night nets.

ROCKFORD AMRTEUR RADIO ASSOCIATION
 P.O.BOX 1744
 ROCKFORD, ILL. 61110

OFFICERS

DIRECTORS

Pres. Gene Harlan, WB9MMM, 398-2683
 V. Pres. Gene Duncan, K9IKP, 393-4751
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 Bob Davidson, WA9NTT, 877-6274
 Chuck Henley, N9CCH, 633-6524
 Kay Becker, N9DRL, 397-3169
 Brad Ambro, KA9LTR, 623-2271

Tech-Topics

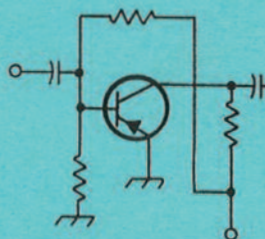
Here we are, starting a new year, ready with the newest equipment or with a yen to buy it. Let's take a quick look at parts of this "state of the art" equipment. It seems that things as "simple" as power supplies are getting more difficult to deal with. This comment comes as a result of a review I read recently, which noted interface to TV's, cordless phones, etc., caused by a power supply. Let's face it, this isn't something we are used to worrying about.

The power supply in question was one of the new switching ones now being offered by the major equipment manufacturers. A discussion of how power supplies work, then and now, is in order. The new all solid state rigs, along with new semiconductors available, have made possible a few changes in the approaches. First, the new rigs have made the requirements simple. Gone is the need for high voltage, low voltage, filament supplies, bias supplies, ect. Now with new integrated circuits and a little innovation, all the transceivers need is one low voltage, often chosen at 13.8 volts DC to be compatible with automobile power systems. This puts a little challenge on the power supply builder, because it has to be at relatively high currents (20 to 30 amps), but it all isn't that bad. The classic way to do this is to run the line current through a hefty transformer to reduce the voltage. Then the resulting alternating current is rectified, filtered, and run through a voltage regulator. Although this sounds simple, and does turn this AC into DC and finally into finely regulated DC for the radio, it is not without problem. First, the line frequency is only 60 hertz, which causes a need for a transformer with a lot of iron in it to transform the needed energy. This frequency also makes the filters required quite large physically. An additional major concern is the current required, which causes greater voltage losses, which means you need to set the input voltages to the regulator, and decreases efficiency. In the end it all works, it is relatively simple, it is as big as the radio it powers, and it runs about 35 percent efficiency. This is quite acceptable for our purposes, and has served just fine, thank you.

Now, what does the new approach do to better this? We know it can be better, because the new supplies sit quietly under the radio, run cool as could be, etc. Let's look at the difficulties noted above and "design" a new power supply. First we need to raise the frequency that goes through the transformer. With an operating frequency of around 50 kilohertz the size of the transformer is much smaller, and we can use some of the ferrite materials tailored to this use for it. All we have to do is rectify and filter the 60 Hz AC before the transformer, and then switch it on and off at 50 Khz with some of those new high power field effect transistors. Hey, with the frequency this high, the filters required are smaller, and our second problem is solved. Now if we can compensate for the losses in the regulator-wait a minute, we can play some games with an inductor or two and regulate the 50 Khz going into the transformer. This takes care of all our problems, and the supply is small, and the efficiency is up around 80 percent. Ah, perfection achieved. But there is no free lunch, for we have created a radio frequency generator. To maintain efficiencies and keep component stresses low the 50 Khz must be switched quickly. So with a few more

filters things are better, and we will do a good job on the output so the radio isn't affected, and we must meet FCC specs, and the interference doesn't change too much between no load and full load so nobody will notice anyway, right? Let's just say that this power supply will fall among the many new technology devices that may cause us some unexpected inconvenience once in a while. Well, there are some of the compromises with "state of the art", it's good, but perfection isn't achievable, so use care when jumping to the better.

73,
Steve, KB9IW



Secretary's Log

The December RARA meeting was held at Harlem Community Center instead of at Rock Valley. Apparently the college was closed for Christmas. In spite of the last minute change attendance was good. Thank heavens for 2 meters and the telephone!

Congratulations to the 4 people who passed the novice test. Chuck, AI9M, will be battling for air time with his son Pat. New classes for novice will start March 14, 1985. If you know of anyone that is interested in classes let Carol, KI9G, or Gene AK9N, know.

N9CCH, Chuck, read the menu for the Awards banquet which will be Jan. 12, 1985, at Warsaw Inn. Sounds yummy! Mark the date on your calendar. The cost is \$8.00 per person. A cash bar will be open at 6 P.M. with the meal served at 7 P.M.

Moe, N9CCE, talked about General Docket PRB-1 which is before the FCC. Cities want to restrict antenna height, etc. We would like the FCC to override the cities. Send letters like the sample he provided to the FCC by Dec. 24.

Shari, WB9SFT, read a letter from Swedish American Wight Center and the Roadrunners thanking the club for our help with the marathon. Shari, Chuck, and Kevin, N9EGF, also gave a ham radio presentation at Lincoln a week ago. Shari read some letters from the students.

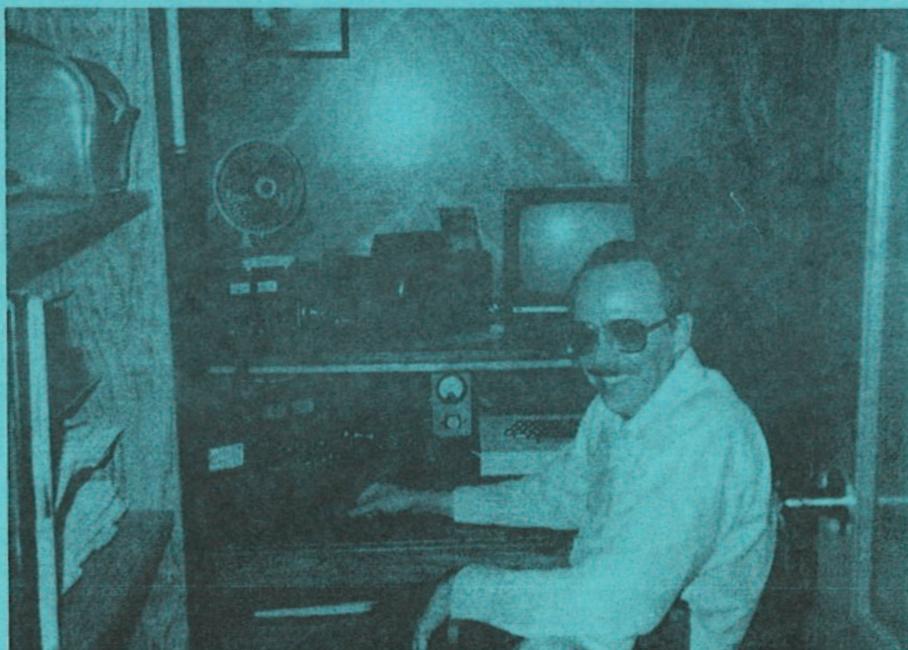
Gene, WB9MMM announced that Awareness Day will be held on February 23, 1985, at North Towne. Dale, KT9P and Frank, KS9X, are co-chairmen. Help will be needed. Mark that date on your calendar.

Gene, AK9N, presented a program on how the electric company finds power line noise. Interesting! He also showed a film on the Byron nuclear plant. Thanks Gene!

73,
N9DRL, Kay

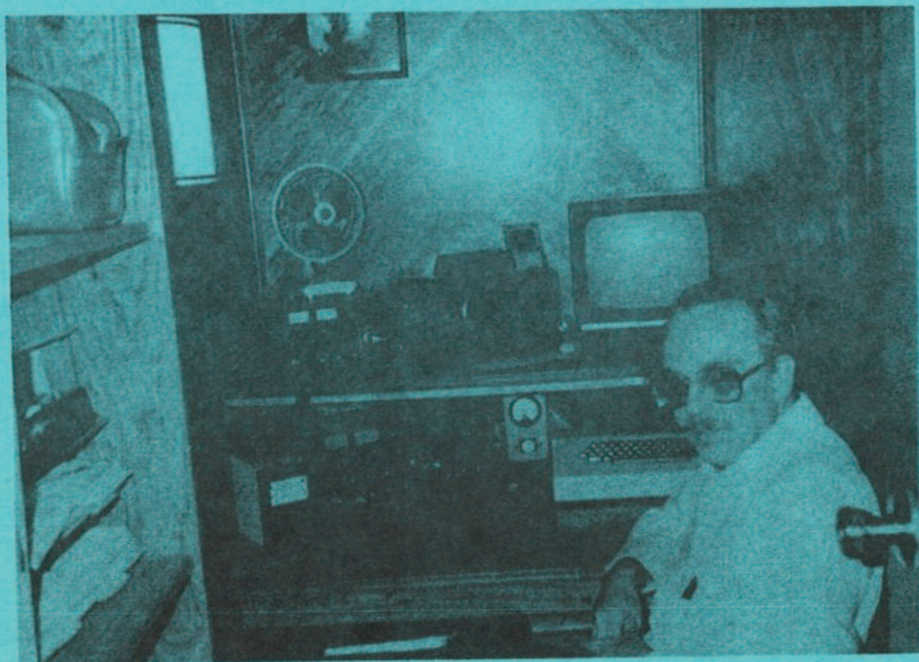


Paul F
K



Photos
Marvin K

Franklin
RNR



by
C9WF

MEET K9RNR

Paul Franklin is K9RNR. Paul started out in amateur radio at the age of 16. He then received the novice call KN9RNR on March 31, 1956. At the same time Paul's father, Tava Franklin received the call KN9RNQ. Paul's dad lives in Huntsville, Alabama. His call is K4AEB. Paul and his father have a schedule every Sunday on 40 meters.

Paul received his full privilege General class on Feb. 27, 1962. Paul now holds the prized and not so easy to get, Extra class. Congrats, Paul!

Paul is employed at Sunstrand as a computer supervisor. Judy, Paul's wife, seems to enjoy Paul having ham radio as a hobby. The shack is a small 4 foot by 8 foot room and was built by Paul during other home remodeling. The paneled walls and carpet on the sure look great. What he has in the shack is more important than the size.

A Yaesu FT-980 is the HF transceiver and a Yaesu 726R is the all mode 2 meter rig. For added pleasures, Paul has a Robot 800 RTTY machine and a Heathkit Crossfire tuning indicator. You can see by the pictures that everything is arranged very nicely.

A TET seven element tribander is on a tower sitting on the garage roof at the back of the house. Paul also uses a 40 meter bazooka dipole. With all the nice equipment Paul has, he earned DXCC mixed No. 4807 dated October, 1984. Paul is very proud of his ARRL and De Vry Volunteer Examiner certificates on the shack wall.

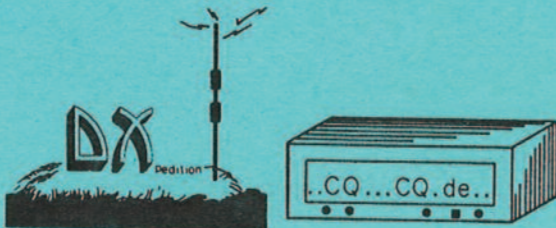
Paul loves a hamfest. So last spring, Paul, K9RNR, Dale, KT9P, Frank, KS9X and Gene, AK9N all went to the Dayton Hamfest in Dayton, Ohio. Paul was observed by myself and Kay, N9DRL, having a grand time looking at all the goodies. Just wait till next year.

Paul has a knack of helping get large antennas onto a tower. He helped me get my KLM 34xa up 60 feet onto the mast. He really knows how to do it and makes it look so easy. (Along with about 8 other fellows!!!!) In January Paul also helped Gene, W9MWM with his antenna raising party and we all know how cold last January was.

I sure has a nice time taking pictures of your shack, Paul. It's great. I know a lot of important work goes on in there.

73 to everyone and see you all again!

KC9WF, Marvin



MODEM UPDATE

Since I last wrote on modems in early 1984, I found myself in the unique position of having \$60 burning a hole in my pocket, a burning desire to check out what is happening on Bulletin Boards (BBS), and perhaps find some useful and cheap programs to use on Flakey (my computer). In the last article, I stated erroneously that software was required to use a modem. This statement is only somewhat true. Modems use as interface a telephone (either directly connected or acoustically coupled) and an interface to a computer or terminal. Since Flakey has been suffering from a bad case of disorientation (it doesn't know if its coming or going on my bus), I decided to try to hook my terminal straight to the modem. After searching through a lot of ads for both new and used modems, I selected the Volksmodem by Anchor primarily because it was cheap (\$60). This modem connects directly to the phone line and interfaces to the computer/terminal via an RS-232C connection. My terminal puts out an RS-232 signal at baud rated from 300 to 9600--so far so good. Just wire up a cable or the terminal, plug it into the terminal and modem, dial up a BBS, get out the rabbits foot, and hope for the best. I did just that, and guess what...it actually worked. Hold it, I had said earlier that software was required to run a modem. Well, the answer is yes and no...it depends. If your computer can emulate a terminal, and give and take what your modem is looking for, for example RS-232C signals, then probably no software is required for usage, if not software may be required. In order to transfer files or programs from a BBS, software to read the input and save the files to disk or tape is required. So if all you wish to do is play games and read and leave messages on bulletin boards, a terminal is adequate.

Now on to the hardware side. First, is your computer capable of generating and using the signals necessary to run the modem--will you give and get what you need. Often, these signals are RS-232C, a name for a standard for the pin-out configuration for the classic 25 pin "D" shaped connector that has become so familiar to us. Pin outs as defined to the best of my knowledge are given in table 1. So if your computer doesn't have an RS-232 and your modem expects it, you have to put something between the two and let them talk. This black box could be hardware, software, or both.

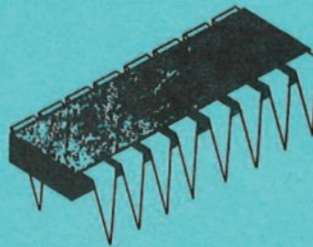
Now on the other end, the modem has two interfaces, computer, which I have discussed, and phone--next on the agenda. There are two ways to connect the modem to Ma Bell. First, you can use acoustic coupling, which as the name suggests, sound is what is exchanged between the modem and the phone lines. How this set up works is that there is a cradle where the phone hand-piece fits with cups to secure them in place and reduce extraneous noise from interfacing. One such modem is made by MFJ--also known to us for their antenna matches and SWR devices--and sells for about \$130. Articles have appeared in Ciarcias Circuit Cellar column in Byte for the construction of this type of modem for about \$50. The last such article had a chip count of around 15. The major problem to this type of hookup is that the error rate is high, due to extraneous electrical and audio signals working their way into the system. Also you are depending on a good mechanical coupling for signals to be passed. The major advantage is that the device/design does not require FCC approval. The other method is data access arrangement (DAA)

which is used by the Volksmodem, S-100 cards, and others. This connection method involves bringing a telephone line from the nearest phone jack to the modem. It seems most modems use the modular jack which makes hooking up the device a snap. In this circuit, the RS-232C computer signals are massaged into phone compatible signals and dropped on the phone line. The major advantage is that there is a lower error rate.

One other thing that has been mentioned about modems is their speed, measured in baud rate. This measure is bits per second with roughly 10 bits to a byte because of extra control bits. Thus, 300 baud is roughly 30 characters per second, and 1200 baud is 120 characters per second. As with all things, the faster the modem the more information can be passed in a given time. However, when using BBS, and commercial data based, this extra speed may be just added expense. First, because the faster equipment is more expensive. Second, especially with commercial data bases, the faster rate carries a premium usage rate, not 4 times more, but significantly higher none the less. Since most of your usage will typically be entering command and reading responses which typically runs much slower than 30 cps, the extra speed is wasted and winds up a heavy dollar burden. One other notation Ma Bell has been kind enough to establish standards for modems, Bell 103A indicated 0-300 baud with specified tones for spaces and marks (0's and 1's) in both answer and originals, and Bell 203 for 1200 baud. So if you see someone advertising a modem conforming to Bell 103A standard, you know it will run at 300 baud.

One final note, since most known BBS are a long distance phone call from Rockford, be prepared to give Ma Bell a good chunk of your paycheck if you start actively using them. Next time I will write on some of the Chicago area BBS I have accessed.

73 & gud luck
Doc



Remember THE AWARDS DINNER JANUARY 12, 1985 AT THE
WARSAW INN ACROSS FROM ROCKFORD COLLEGE. GET YOUR
RESERVATION IN TO NOW SOON. COST IS \$8.00 PER
PERSON FOR AN ALL YOU CAN EAT FAMILY STYLE DINNER.
CASH BAR OPEN AT 6PM WITH DINNER AT 7PM.

RS-232 C STANDARD PIN ASSIGNMENTS

- 1 FG - Frame Ground, protective ground connection
 - 2 TD - Transmit Data, from DTE to DCE
 - 3 RD - Receive Data, DCE to DTE
 - 4 RTS - Request to Send, the DTE asking permission to send to the DCE
 - 5 CTS - Clear to Send, the DCE granting transmit permission
 - 6 DSR - Data Set Ready, indicates that the DCE is powered up
 - 7 SG - Signal Ground, ground reference for the TD and RD signals
 - 8 Carrier Ground
 - 9 Reserved
 - 10 Reserved
 - 11 Unassigned
 - 12 Sec Carrier Detect
 - 13 Sec Clear to Send
 - 14 Sec Transmitted Data
 - 15 TC - Transmit Clock, clock used to generate the serial transmitted data (DCE to DTE)
 - 16 Sec Received Data
 - 17 RC - Receiver Clock, clock for received data (DCE to DTE)
 - 18 Unassigned
 - 19 Sec Request to Send
 - 20 DTR - Data Terminal Ready, indicates that the DTE is powered up
 - 21 Signal Quality Detector
 - 22 RI - Ring Indicator, says that the incoming phone line is ringing; used with modems with answer capability
 - 23 Data Rate Selector
 - 24 XTC - External Transmit Clock, likt TC but from DTE to DCE
 - 25 Set (?) Transmitter Clock
 - 26 Unassigned
- DCE = Data Communications Equipment, DTE=Data Terminal Equipment



Ham Mart

FOR SALE: TS 520 Kenwood Transceiver with digital frequency readout, and desk mike. \$450; Sencor Scope with 3 sets probes with stand. Like new \$300.
Call Gertrude, KB9PC, 963-0450

Cash paid for non working soild state color TV's , VCR's and mV parts. 815-938-2221 COLLECT; 815-233-0224 after 5 PM.

Clarence Wilken, RR 2, Box 3, Forreston, Ill. 61030

Amateur Testing

Wheaton Community Radio Amateurs

HAMFEST

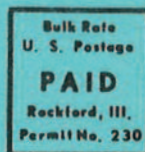
Amateur Testing

Sunday, January 20, 1985 (Doors open 8 a.m.)
Arlington Park Expo Center - Arlington Heights, Illinois

- Free Flea Market Tables • 100 Commercial Booths • All-in-one Building
- Acres of Clear Paved Parking • Reserved Flea Market Tables • Special Computer Section

TICKETS: Send S.A.S.E. to General Info:
\$3.00 in advance Wheaton Comm. Radio Amateurs (312) 231-7497
\$4.00 at door P.O. Box QSL, Wheaton, IL 60187 Talk in on 146.01/61 Mhz.

ROCKFORD AMATEUR RADIO ASSOC.
P.O. BOX 1744 ROCKFORD, ILL. 61110
ADDRESS CORRECTION REQUESTED



NETS:

28.7 Mhz. Monday 9:00 P.M.

50.4 Mhz. Nightly 9:00 P.M.

146.01/61 Mhz. Mon. 8:00 P.M.

Black Hawk Valley

Ten Ten International

28.925 Mhz. Wed. 9:00 P.M.

21.130 Mhz. Thur. 9:00 P.M.