

Some Notes on our Repeaters

By Ben Fisher, K9BF

Hello everyone, I do most of the maintenance on the club's VHF repeater, the 444.525 and assist Al Wolfe as needed with the 444.100 repeater. I thought I would use some space in this month's newsletter to explain the configuration of the club's repeater.

We are currently using a Motorola Micor that was once owned by the Al-Tel phone company in Rantoul. It is located at the WLRW tower on West Bradley Ave. Champaign. It consist of a Micor unified chassis, which contains the receiver and transmitter, a 100 watt RF power amplifier, an Astron RM-60 power supply and a TX-RX duplexer. Within the unified chassis are a NHRC 2 controller and Com-spec TS-64 PL encoder/decoder. The antenna is a DB Products model DB-224-E up 300 feet with a gain of 9 dbd and feed by Andrews 7/8 hard line. The antenna is side mounted on the south east side of the tower. As a result, we have a considerable amount of attenuation for both transmit and receive in the direction of Bloomington and Peoria. The decision to mount the antenna this way was based on the presents of a 76 repeater in Peoria.

In order for our repeater to function, it must be able to transmit and receive at the same time. This is why we transmit and receive on two different frequencies, to keep the repeater's transmitter from overloading its receiver. Antenna wise, this can be accomplished in several ways, one is by having two antennas, one for receive and one for transmit. The draw back to this method is the expense of having two antennas and two feed lines. Our system uses a device called a duplexer. The duplexer is a three port tuned device which allows for the use of one antenna. The ports are connected to the receiver, the transmitter and the antenna. The transmitter's energy is routed though the duplexer to the antenna while at the same time the received signal is routed from the antenna through the duplexer to the receiver. The duplexer keeps the repeater's transmitter energy out of the receiver while passing our transmitted signals to the receiver. There is a price to be paid for this

configuration; there is a loss of about 2 db through the duplexer. In other words, we are putting in 100 watts and only getting 60 out.

The effective radiated power of our repeater is 320.7 watts. This can easily be calculated by playing with dbm levels. The amount of power delivered to the feed line is 60 watts or 47.78 dbm. At 146 MHz, 7/8 hard line has a loss of .491 db per 100 feet, we have a total of 350 feet. So at the antenna we are delivering 47.78 dbm minus 1.7185 or 46.0615 dbm. Our antenna has a gain of 9 db for a total of 55.0615 dbm being radiated as ERP, which converts to 320.7 watts. This is old school for many of you, but not all, I hope I have enlightened a few.

Ohm on the Range

A reward of 500 Microfarads is offered for information leading to the arrest of Hop-A-Long Capacity. This un-rectified criminal escaped from a western primary cell where he had been clamped in ions awaiting the gauss chamber.

He is charged with the induction of an 18-turn coil named Milly Henry who was found choked and robbed of valuable joules. He is armed with a carbon rod and is a potential killer. Capacity is also charged with driving a D.C. Motor over the Wheatstone Bridge and refusing to let the band pass.

If encountered, he may offer series of resistance. The Electromotive Force spent the night searching for him in a magnetic field, where he had gone to earth.

They had no success and believed he had returned ohm via a short circuit. He was last seen riding a kilocycle with his friend Eddy Current who was playing a harmonic.

New VE Question Pool

The new Technician Pool effective July 1, 2006 was released January 18. It looks good with more relevant questions.

www.ncvec.org/downloads/techpool.doc

Hamfest Updates

The big news is that Chicago's Radio Expo found a new date to avoid the conflict with the Peoria Hamfest. The weekend of August 26-27, 2006 is the date. The location remains the same, at the fairgrounds at Grayslake, at least for this year. The fairgrounds were sold, and will be demolished, but not before the hamfest. Next year will find the hamfest at a new location. The date for that one has not been set. Now we can attend both Peoria and Radio Expo again! The only conflict with Expo for us is the Urbana Sweet Corn Festival.

There is a new hamfest coming to the Peoria area. After an announcement and flyers were mailed advertising it for February 2006, it was cancelled due to internal conflicts. However, it is now scheduled for February 2007. It will be called Radio Expo, but it is not the Radio Expo in Chicago. Unfortunately, the same name was chosen for the new one. If you have information advertising this for 2006, ignore it.

There were a few good hamfests around the Midwest recently. Waukesha, Wisconsin was early January, St Charles, Illinois and Collinsville, Illinois later in the month. All were worth the trip and welcomed as indoor winter hamfests. Coming up Feb 5-6 is Miami, Florida. Reports last year were that it was much smaller than in past years. The following weekend, Feb 11-13, is the Orlando Hamcation at the Orlando Fairgrounds. This is a large hamfest with lots of indoor and outdoor vendors. It runs from Noon on Friday to Sunday afternoon. If you are looking for a break from the Illinois weather, Orlando Hamcation is the solution. KB9LCJ and K9QZI will represent TCARC at the Hamcation. Others are welcome.

Dayton Outside Vendor applications are now available on the website www.hamvention.org. No one has yet received forms in the mail, and we don't know if they will be sent this year. The cutoff for applications to hold your last year's spaces is March 1. The space fees and tickets remain at the same prices as last year. The Dayton Hamvention is May 19-21, 2006.

Decatur moved their hamfest date to October 21, well away from the previous first weekend in May. We understand it will be at the same location, the junior college in Decatur.

Guest Commentaries

Would you like to provide an article for our newsletter? Ben Fisher has done this in the last 3 newsletters. I am sure you enjoy reading his comments and explanations, and it is good to read different points of view other than those of the editor. If you would like to submit something for the newsletter, please email it to Milt, K9QZI, at miltf@uiuc.edu. We welcome articles of opinion, operating, or of a technical nature. Please remember that not all TCARC readers have an extensive electronics background, so please keep technical articles at a level that most of us can understand. The newsletter is normally created around the first of each month, so please submit early. We greatly appreciate Ben's recent contributions.

WHAT: Twin City Amateur Radio Club Chili Supper

When: Thursday, Feb 9th

**Where: Masonic Temple
14 Bel-Air Court
Champaign**

Time: 6:30 PM

This social is in place of our December meeting. Bring your XYL/OM and the Harmonics. The Club will provide Chili and table service, as well as Coffee, Tea and pop.

Please bring a side dish and/or dessert.

Pass the word around.

Tall tales and some old tales