

## From the (New) Coordinator's Desk

### Background

As many of you already know, Dan Bolander has decided that Florida was his new permanent home, and at the December 11<sup>th</sup> WAR meeting I accepted the role of Frequency coordinator.

I've been involved with repeater design and construction since about 1982. While still in high school, I put a relatively wide area 2 meter system on the air. I designed the controller for that system from scratch back when single chip DTMF decoders were \$50/each and only available in ceramic packages and 7400 series TTL parts were still in favor. Since that time I have been designing custom microprocessor based controllers over the years for various systems. I'm an embedded systems engineer with a background in both hardware and software design, so this naturally remains an aspect of repeater operation that I've remained interested and involved in.

My involvement with WAR started back in 1996 when I worked briefly with Dave Barrow and Nels to help with the database aspects of this job. At the time, the software that I wrote simply didn't work well on their respective Windows 3.1 systems yet worked fine under NT. The just project faded away when Dan took the helm in 1997.

Now that I'm sitting at the helm, I've blow the dust off my software project and have spent the last couple of months making improvements and completing the areas that had been left uncompleted back in 1997. At this point I have validated that I am able to import and export data in the various native formats that our neighboring states use, as well as having confidence that the core coordination logic is working properly. The results have been compared to the software written by Nels, as well as the MACC software written by Tom Hammond, NOSS, that many other states including Illinois use.

### **Re•new (rinú:, rinjú:) v.t. to complete the yearly paperwork we all hate**

I have been busy processing renewal paperwork. In a few instances I have contacted the trustee's and asking them to supply a more accurate location and/or system information such as antenna height, ERP worksheets, etc. As you might remember, starting in 1998 WAR has been requesting location information accurate to the nearest arc second as well as an accurate picture of the antenna system and actual ERP.

While many system owners have taken the time to provide this information already, many have not. I realize that this may represent a lot of work for some that may not have access to topographic maps, a good GPS receiver, or access to some of the mapping resources available on the internet.

Being faced with trying to complete the HAAT form by hand is an understandably daunting task. When it came time to fill out my own HAAT form, I sat down and wrote a program that computes this in a matter of a few keystrokes. By using 3 arc second data available from the USGS a quick and accurate determination of site elevation and HAAT can be quickly computed.

So for the HAAT calculations, PLEASE just provide me with accurate location data, the height of the antenna above ground, and the assurance that the antenna structure is

sitting on natural terrain (i.e. not sitting on a man made skill hill). I will calculate the HAAT programmatically. If you already have accurate HAAT information because of being located at a commercial site, feel free to include that with a notation to that effect.

For those that need assistance in determining any of this additional information PLEASE contact me and I will do my best to help you.

For those that have already provided this information, Thank You. However, please do not feel compelled to continue to send me that information if you have done so in the past. Every scrap of paper ever associated with your systems is kept in a file, and there is no need to burden either of us with redundant information.

For those that have not provided this information, or have not replied to my request for this information, your renewal will not be processed until I have that information. I do not wish to de-coordinate anyone over a dispute about paperwork.

***“What’s All This Paperwork Stuff, Anyhow?... I’m Already Coordinated!”***

In the past, the supplied coordinates could only place your system within about a half-mile. While a half-mile isn’t real significant when we only look at fixed mileage spacing requirements, it is significant when it comes to looking at your predicted coverage area. Moving forward, we, like many states, are looking at predicted system coverage areas using software tools that model coverage based on accurate terrain data coupled with the system information that you have provided us. A half-mile may easily be the difference between the top and bottom of a hill.

Therefore, having accurate information on hand about each existing system allows me to consider which frequency might work best for a new repeater owner after we have narrowed the selections down to a short list. The end results are better frequency utilization.

So to answer that question, I can only protect you properly if you provide an accurate depiction of your existing systems.

**New in this month’s repeater listing**

The repeater listing included with this month’s newsletter is in a bit different format than you have seen in the past. You will note a new field off to the far right. This reflects each repeater’s database status of information that is still needed and has the following meanings:

- <- Indicates your status is not current effective 5/1/2000
- E Indicates that no ERP (effective radiated power) information is on file
- H Indicates that no HAAT (height above average terrain) information is on file
- L Indicates that Latitude/Longitude information for your station does not contain precision to the nearest arc second

60% of the systems lack complete information, but of those only 10% have renewed within the last year. Currently 55% of the systems have not renewed in the last year.

On a positive note, next year WAR will mail a printout to each system's applicant reflecting the information currently on file. You will be asked to mark only the changes rather than re-completing a form. This should make the process much easier on both of us.

### **Auxiliary Link Frequencies**

In the past, WAR has automatically issued 70cm auxiliary frequencies as pairs whether or not both were going to be used. In some instances only half the frequencies of multiple pairs were used due to frequency separation issues on site. Additionally, WAR hasn't requested a complete picture of how these frequencies are being used.

Many system owners have taken the time to construct an accurate description of their systems that include all the answers. However after reviewing the files of many systems, it's just not clear what is in use and where it is being used.

So, moving forward, I am requiring the same level of detail that you would provide for a repeater, to be supplied for all instances of auxiliary frequencies in use.

For example if you have a typical remote receiver site, I would need:

- Accurate Latitude and Longitude
- A list of the frequencies of any receivers or transmitters associated with the aux. station
- Antenna types/gain along with pattern and polarization information
- Transmitter parameters like ERP

It is equally important is to supply this type of information for any auxiliary receivers. 99% of the time these are co-located with the main repeater.

Here again, if I don't know what you have and where it is located, I can't properly protect it.

### **Bandplan**

Upon entering the coordinators role, I found that there was not a concise picture of how frequencies were to be allocated. While its pretty cut and dry where the repeaters go, the auxiliary frequencies are another story.

With the emergence of packet radio, WAR and WAPR worked together to allocate 70cm frequencies pretty much on an as needed basis. Most allocations were in the 446.000 to 446.600 region. Some were in the 441.000 to 441.600 region.

Not to malign packet radio operators, but with the relative ease in which a packet station can be constructed there might be a tendency to just go ahead and use a frequency that sounds clear without any realization that they can potentially cause interference to an adjacent channel. Just last week I received a note from a repeater owner complaining of interference from a packet station that has setup shop on no less than a recognized repeater input frequency.

So to help get a better picture for what existed today and how best to move forward, I created a band plan document. That document is still in a draft form and will be discussed at the upcoming WAR meeting in March. The plan as drafted creates a window on 70cm which is set aside for packet use. For those that are interested, the document can be found at <http://www.qsl.net/ka9fur/war.html> and comments are more than welcome. It is in draft form and it will be revised before any adoption takes place.

A handful of auxiliary links are currently coordinated on frequencies that will show in the band plan as being recognized for packet use. WAPR is aware of these allocations and will avoid them as they exist. For the few repeater operators that are using synthesized radios and can change frequencies relatively easily, you might consider contacting me for a new allocation. This is not something that I am mandating, its simply your choice. We are not proposing to displace any existing coordinated systems, but once a frequency is abandoned within these regions, no new allocations will take place.

### **Auxiliary Link Frequency Recovery and New allocations**

In situations where only one frequency of a pair that has been issued is actually in use, I will be recovering those unused frequencies and returning them to the pool of available channels. For new allocations, I will not automatically be issuing the 70cm frequencies as pairs. This does not preclude the issuance of pairs if that is what is desired, I just won't be doing it automatically anymore.

Of particular interest to 70cm repeater owners that utilize auxiliary frequencies, please be aware that I have no issues with coordinating such links below 440MHz. The added frequency separation makes it easier to deal with on site issues that can result when using auxiliary frequencies only a few Megahertz away from your repeater transmitter.

Commercial radios are widely available that do not have a problem operating in this frequency range. Contact me if you need help finding equipment best suited for that.

222 MHz also is very underutilized. Allocations are available here for both auxiliary links and repeaters throughout the state. Typically the entry barrier here has been the lack of commercial equipment. However, over the last few years, some amateurs have taken the time to make public their conversion articles of both GE and Motorola commercial radios to operate on this wonderful band. Please contact me if you are interested in this and need help finding conversion information.

### **Happenings across the state**

The only new system to report on this quarter is the KB9LUK 443.475 system in Eau Galle. Welcome James.

De-coordinated systems this quarter are N9PAO 147.195 Appleton, N9BKJ 146.925 Waupaca, WA9BDX 444.950 Racine, KF9RU 146.715 Wausau, and KA9JVH 146.685 Pound.

I had a report that the W9BWK 146.76 Superior machine was changing hands and was potentially moving, but have not heard back from the parties involved with this move.

I have two independent reports that the WB0OND 146.685 Baldwin system is off the air. A letter of inquiry has been sent to the owner as to the current status of the machine with intent to de-coordinate.

The KA9JVH 146.685 Pound machine has been acquired by Al , KA9UOP, now of Prentice, and we are working on a new coordination for that system with a possibility of retaining the 146.685 for his location.

The KF9RU 146.715 Wausau machine has been acquired by Paul Leland, KB9QVB, of Nokomis, the proposed frequency for this machine is 147.015 and we are currently in the 30 day waiting period where adjacent states can object to new coordination's.

We are also nearing final frequency selection for a new 2 meter system to be located on Timm's hill. This looks like it will add a nice wide area coverage system to the North Central part of the state.

I had an erroneous report that the N9DKH 147.075 Green Bay system was off the air, and after contacting the last known contact for that machine, I found that it was still operational but had moved to a new site. In this particular case it had been over 2 years since a renewal had been processed and the move, though not overly significant, was not coordinated with WAR.

**If you read nothing else, please read this.....**

As a general reminder, when systems need to move, change hands, or system changes are made that significantly affect its coverage area, I need to be notified before or as these changes are being made. In some instances a small move might result in interference for another system. WAR is also obligated to work with the surrounding states as we mutually keep each other up to date not only on new systems, but on existing systems as well.

This process only works if we all work together. So thanks in advance for your help in getting your systems information up to date as requested.

18% of the repeater coordination's are have last renewal dates over 2 years old. After I process this years renewals and if I still haven't heard from these repeater owners, I will be forced to start looking at the de-coordination of these systems. Please help save us both time and get your renewals in on a timely basis.

As always, please do not hesitate to contact me if you have questions, need help, are experiencing interference, or know of any systems that are no longer on the air.

You can always find up to date forms, documents, and links to related resources on my web site at <http://www.qsl.net/ka9fur/war.html>

73 and thanks for reading,

Dave / KA9FUR

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