



N.E.W.S. LETTER



The Publication of the North East Weak Signal Group

JAN 2000

VOLUME EIGHT

ISSUE ONE

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NEXT MEETING

THE NEXT MEETING IS ON SATURDAY JANUARY 8TH, 1:00 PM AT THE HARLEY INN
ALL ARE WELCOME TO THE DIRECTORS MEETING AT 11:00 AM
FRED, N1DPM WILL GIVE A TALK ON THE NC1I PORTABLE LIMITED MULTI OP OPERATIONS

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BEST WISHES & GOOD DX FOR Y2K

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FROM THE VIRTUAL SHACK OF KB1VC

Winter is on its way. As I write this, most folks are out frantically attempting to complete their holiday shopping.

A few of us have started to put together all those parts we bought during the last hamfest season. I've started putting a DSP-10 from the QST articles. It looks like a pretty interesting design. The biggest hurdle seems to be finding a few of the more obscure parts. (No one stop shopping here.) Perhaps next summer I'll have a new IF for the microwave gear.

On the way back from the last meeting it occurred to me that there are about a dozen folks in the club who are "just a few weeks away" from having 24GHz equipment running. There are a few others who already have 24GHz systems up.

I've been looking for a definitive statement of the current DX record for 24GHz. As of January of 98 the world record was 396 km. The US record, as of 1998 was something like 270 km. (Odd, I couldn't find a definitive website with the current records...)

Interestingly, if we take fn31qx (enfield center) as our geographic center and fn20ka (Philadelphia) as the center of Packrats activity, a path from our center to theirs would easily break the US record at 302km. No, I'm not proposing that we stack all of them up in Philadelphia and all of us in Enfield.

Consider a neat summer project between the two groups. The idea would be to get as many stations from NEWS onto mountain tops in the CT/MA/VT/NH/ME area running 24GHz toward Packrats stations arranged in good locations in their area. We could do this on a weekend where that would be the prime focus for both groups. Members without 24GHz gear can accompany members with working systems. (Help with liaison, PR, company is more than welcome on these things -- group efforts are much more fun for most of us than solitary vigils on lonely mountain tops.) Alternatively, we could make it part of our activity during the 10GHz and up contest, though that is definitely not the preferred choice.

Records seem to be made by either of two mechanisms:

A) careful tracking of conditions over a period of years to identify the best opportunity at the right place, right time, and with the right equipment

B) Turning on the radio and pointing it at someone else when both operators have some free time.

Clearly I'm advocating B. The twist is that I propose to improve our chances by putting lots of stations on the air at the same time in many different locations with the hope that if there are five or ten stations in NE and about the same number in the PA area, we'd have between 25 and 100 different paths that might work out.

So, talk about it with your fellow microwavers. Think about it. Can we do this sort of thing? What kind of planning would we need to do first? I'll ask the packrats folks to see if they are interested.

And, I'll see you at the next meeting.

IF IT'S EME IT AIN'T OBVIOUS BY DEL SCHIER, K1UHF

I have had my 4 homebrew K1FO 12 element yagis up for about 4 years. I have been very pleased with the way they work terrestrially but EME is another story. I know I have a good location and probably any antenna would get out well. It was hard to tell if my array was working like that much aluminum should.

It has been like I am a QRP station on EME. In the 4 years I had the array up I heard my echoes twice, this was not normal for 4 FO12's. Sometimes I would run skeds with good stations four or five times before I would work them. I think I ran with N7EIJ 7 or 8 times with no luck. Some people said, I had preamp overload on my hilltop, some said the other antennas in the middle were in de-tuning the 2 meter array. Maybe I had water in the feedline, maybe I didn't phase things properly, maybe I built them wrong. The SWR is always good but that doesn't mean anything.

I was getting discouraged with the whole EME thing and was thinking of taking down the elevation rotor. My tower is a fold over and has weight limit that could be used for more microwave stuff.

So many maybe's with EME, everything just has to be perfect. I never made Sun noise measurements even though I should have, I never thought of it if I was around at mid-day when the Sun is up. I did notice that I seemed to do best when the Moon was high, that should have been a clue. It is impossible to peak up on an EME signal, the signal disappears! Another thing is my rotor moves at about the same speed as the libration fading. Nevertheless I got desperate spent a couple of hours using W5UN as a beacon and figured out, hey my elevation rotor is off. I knew my azimuth rotor was right on as it aims my 10 GHz dish. My elevation rotor should have been right. I calibrated it while the tower was folded over for precisely 0 to 90 degrees with the rotor cable I was going to use. I subsequently checked Sun noise and confirmed the error eventually recalibrating with a transit on the ground. I took awhile to figure out where the error came from. My theory is the array is aft heavy and the cross boom is torquing under load causing a non-linear error of almost 10 degrees. Made my four yagis work like one.

Since fixing it I am very pleased to be consistently hearing my echoes. I actually worked 23 new initials in the week before and during the second weekend of the ARRL EME contest. Even N7EIJ for a new state. I will have to say the improvement seemed to good to be true and I think we did have great conditions that week.

They say with an EME station **CHECK EVERYTHING!**

73, Del K1UHF

A SIMPLE DIGITAL ELEVATION INDICATOR PAUL WADE W1GHZ ©1999

I recently added an elevation indicator to my 10 GHz Periscope 1 antenna system, to display the tilt angle of the flyswatter reflector. The indicator a Winegard “Digital Magic” Elevation Sensing Unit, was simple to install and calibrate, and works well. The same unit could also work well for most EME and satellite antennas.

The elevation sensor is intended for pointing DSS TV dishes in RV applications. Don, WB1FKF, found them on the web at Stark Electronic in Worcester, MA (<http://www.starkelectronic.com/winde46.htm>). I ordered the Winegard Model DE-4600, and it arrived before the weather got too cold for installation. The sealed remote sensor unit, shown in Figure 1, included an aluminum mounting bracket with slotted mounting holes for adjustment — the holes fit the angle bracket on my flyswatter reflector perfectly. Since the sensor box appeared to be weather-proof, I did not attempt to open it.



The indicator unit, in Figure 2, is a simple two-digit readout with a pushbutton which turns it on for a minute or so. It may be powered by an internal 9-volt battery or an external 12 volt supply. A four-wire cable connects the two units together; the cable supplied might be long enough for an RV, but I added some cheap rotor cable to reach up the tower.

Alignment is simple and straightforward, since the unit reads angle directly with no adjustments. All that is re-quired is to measure the antenna elevation, then slide the sensor unit along the mounting slot until it reads the same angle, and tighten. Since the readout is small and operates from a 9-volt battery, it is easily carried up the tower for alignment.

The complete installation on the flyswatter is shown in Figure 3. (More color photos may be seen at <http://www.qsl.net/n1bwt>). Operation is really simple — push the button to turn on the readout, then move the elevation up or down to the desired angle.

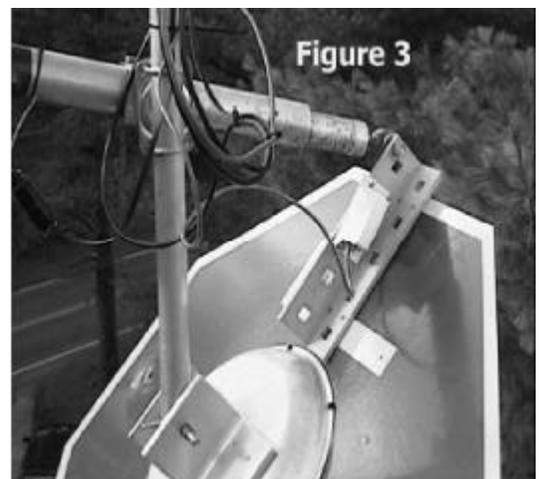
Why would a fixed station need elevation control? There are several good reasons:

1. Rain and snow scatter often peak above the horizon.
2. Long tropo paths often peak several degrees above the horizon.
3. My antenna is partially obstructed in some directions, so I can scatter off the obstructions.
4. I can compensate for imperfect alignment.

For EME, accurate elevation tracking and readout is an obvious requirement. I don't know how accurate these units are, but experience with DSS dishes on 10 GHz suggests that the antenna must be pointed within 2 or 3 degrees to find a weak station or to find the sun for noise measurements. A similar accuracy is probably required for the RV application, so we would expect good accuracy from the unit. This accuracy should be adequate for all but the largest EME arrays.

What about RFI? An indicator is useless if you can't hear while it is on, or if high RF fields upset the readout. I have not heard any noise to date, nor any change while transmitting 600 watts PEP at 144 MHz.

In summary, the Winegard “Digital Magic” is a simple, moderately priced, digital elevation indicator which could be useful for microwave, EME, and satellite antenna installations.



1. P. Wade, W1GHZ, “10 GHz without Feedline Loss,” *Proceedings of the 24 th Eastern VHF/UHF Conference*, ARRL, 1998, pp. 227-237.

PRODUCT REVIEW PRO.SIS.TEL. PST-61 BIG BOY ROTATOR BY FRED STEFANIK N1DPM

Since the spring of '98 I've been re-furbishing my VHF / UHF / Microwave antenna array. Like any good ham / contester bigger is always better! The other problem is being able to work on the system easily, but that's another topic. The end result was a change from a stack of single 18' size yagis per band with loopers on 903 to 3.4 all on a mast above the tower to, a long yagi on 6, 2 long yagis on 2 (34 feet long) and a pair of 18' yagis on 222 and 432. Now add super loopers on 903 and 1296, and blowtorches on 2304 and 3456, along with the transverter boxes too, all mounted to a framework. Well when you add it all up it's about 35 sq.ft. of stuff for my poor old HiGain T2X Tailtwister (rated at 20sq.ft.) to turn. Well it did great service in the January Sweepstakes. By June there was trouble! I found it quite strange that my array kept getting "stuck" to the west. After the contest I investigated this with the help of John, N1MUW and found that when the array got to facing west the gears in the trusty ol' Tailtwister would just click. This rotor was SHOT!!! I guess the antenna's big enough! With the recent acquisition of HiGain by MFJ, and the Rotor Doctor not able to service this rotor, and the fact that even if I repaired it the new array was sure to break it again it was time to search for a new rotator.

So what's out there for "BIG" rotators. Looks like there are three to consider. The Yaesu G-2800SDX, the M2 Orion OR-2800, or the PRO.SIS.TEL. Big Boy series.

First the Yaesu. This is an interesting rotator. My experience with this rotator comes from helping Frank, NCII repair one that he intended on using to turn a 5 element 24 foot boom HF tri-bander mounted above a M2 40M3L, 3 element 40 meter beam on his 130 foot tower. Now these antennas aren't the reason for the repair, yet. This repair was to get the "stops" straightened out as the original intended use of this rotator was as the polarization rotor on Steve, K1FO's 432 antenna. Steve had it apart I guess in an attempt to "customize" the stops and didn't get it back together quite right before Frank got it. Frank was fully aware of this issue before he made the purchase. Anyway, this rotator is rated for 34 sq.ft. of load with a breaking torque rating of 24,000 in.lbs., a rotating torque rating of 786 in.lbs., and a maximum vertical load rating of 661 lbs. That's pretty impressive for a rotator that only weighs in at 13 lbs!!!! Like I said before, the antennas were not the cause of the needed repair, YET!! We all under estimated this rotator guessing Frank would be replacing it in anywhere from a week to a month after installation but it's been up with those antennas on it for close to a year now and still works fine.

On to the M2 Orion. This looks like a nice unit too. For \$1100 it ought to be. After seeing the insides of the Yaesu and the cut-away of the Orion at Dayton this past year the Orion sure looks beefy by comparison. It is rated for 35 sq. ft. of load with a breaking torque rating of 17,000 in.lbs., a rotating torque rating of 2,800 in.lbs., and a maximum vertical load rating of 1,800 lbs. The only thing I don't like on the Orion is that they use a pulse system for the readout. RFI potential with this system scares me especially after I received a

couple of e-mails that warned me of this possibility over the W6YX VHF reflector. I have bad memories of trying to cure a RFI problem with a pulse readout system for KA1ZE on some TIC General 2nd generation ring rotators. If the choice were between these two rotors I'd choose the Orion and cross my fingers on RFI to the readout.

At Dayton this year there was a display of some "new" rotators being imported from Italy. Boy did these look impressive! These are the PRO.SIS.TEL Big Boy rotators. A company in New York was importing them and selling them to hams. These have been in commercial and military use for a few years turning some big stuff. There are 3 different models, PST51, PST61, PST71. These are rotators that are designed to turn and hold big stuff. The small one, PST51, is rated to hold and turn 23 FT2 of antenna with a breaking torque rating of 10,800 in.lbs., a rotating torque rating of 6,470 in.lbs., and a maximum vertical load rating of 1,841 lbs.. The PST61 is rated for 36.2 FT2 with a breaking torque rating of 26,100 in.lbs., a rotating torque rating of 16,426 in.lbs., and a maximum vertical load rating of 2,585 lbs., and the PST71 is rated at 81 FT2 with a breaking torque rating of 45,000 in.lbs., a rotating torque rating of 26,800 in.lbs., and a maximum vertical load rating of 3,190 lbs.!!! Looking at the construction of these and you could see why these are real brutes. They start with a 1/5 or 1/4 HP motor and run this through a double worm gear reduction system. This system is what gives the rotors a tremendous amount of starting, rotating and breaking torque. The other feature I liked was that it uses a pot for feedback of antenna position and not a pulse system. I gave these a serious look. At the time of Dayton my trustee old T2X was in fine shape. During the June contest it died and now I was in the market for a new device.

I had my concerns about ordering one with it being imported and all but let's face it...most of the stuff we buy is imported so why not this too? After checking out their website for dimensions to see which one I could fit into my Rohn 25G it looked like the PST61 would just fit. So I took the \$960 plunge and ordered one. It took about 6 weeks to get it as they were not in stock, but I did receive mine without any difficulty. There are a couple of options for the mast clamp and I chose the standard "sleeve" one as it looks like mast centering is critical, and this would easily accomplish it. I also ordered a new rotor plate as the mounting pattern would need to be drilled into it and I'd rather do that on the ground as centering would be easier. Glad I did that!! When I received the rotor I tested it on an extra piece of 25G to see if it would fit and it just does, but to do it the orientation is fairly critical. So once that was figured out I marked and pilot drilled the new rotor plate. Then using that as a template I decided to make a template from an aluminum plate just in case I had trouble replacing the plates I could drill mine on the tower and be sure it would fit OK. Next I checked the mast clamp to make sure the 2" OD aluminum main mast would fit in OK. Good thing I checked as it did not fit, but boy was it close! Apparently they didn't allow for paint clearance when they made and then painted these. This was pretty easily fixed by John, N1MUW. He owns an auto repair garage and with a few minutes with a cylinder hone on a electric drill, the paint was gone and the fit was a nice smooth sleeve fit. The next thing was to check out the rotor on the bench and add a pigtail of cable to the motor unit as I would need this anyway in my installation. I proceeded to connect the wire to the rotor to find out

that the entrance bushing used to weatherproof the connections would not clamp down on a piece of 9 conductor #18 wire cable. I strain relieved this in the connection box and sealed it with some RTV.

Just a word on RTV. This stuff works typically pretty well if you use the GE stuff from the local hardware store but I found some stuff that's great outdoors. A number (about 12) years ago I was building my new tower mounted preamp box and was looking for some RTV to seal some connectors up. My younger brother was here and said boy do I have just the stuff for you. At the time he worked as a mechanic at the new local Dodge dealer and he hands me a toothpaste tube size tube of MOPAR black RTV that the factory used for gasketing in engines and transmissions. He had used all the various colors of Permatex stuff and said that this stuff blows them all away. Nothing leaks through this stuff and it lasts. Boy he was right! My preamp box has always been dry as a bone and even with this stuff in direct sunlight its still fine today. FYI... Mopar P/N MS-GF41. Available at any Dodge / Chrysler dealer parts counter for about 4 bucks a tube. Thanks Ted!

Back to the rotor....When hooking up the cable you need to be careful of two things. First, being Italian, all of the hardware is metric. Not that this is tough to get but it's easier to deal with the small stuff on the ground and not on the tower. Second, and this is BAD, connections 1 through 6 on the rotor are not in the same order on the control box!!!! The manual give a very clear warning on this and a chart to allow proper connection, but this is just poor practice. I then pulled out the line cord for the control box to discover that the box end had the IEC connector on it and the other end was flying leads! Off to get a complete power cord. After getting things hooked up I made a fine pen mark on the output shaft and onto the rotor body with the rotor at 0 degrees. I then rotated the rotor to the 360 degree position and the mark lined up perfectly. This gives an indication that the readout is accurate to 1 degree as advertised.

That Saturday was planned for the installation. After using a come-a-long to raise the array out of the dead rotor, I was able to replace the rotor plate OK. My plate is mounted down in the tower and actually sits on the very top rungs of the section below the top section. On Rohn 25G where the sections mate there are rungs that end up about 6" apart. I cut 1 rung out of the 3 that are at the bottom of the top tower section. This allows me to "sneak" the rotor in through that side of the tower with the minimal amount of bracing removed. So the new plate is in and now it's time for the rotor. I place it in and it fits! All the holes line up with only 1 minor problem. Two of the four bolts have a slight interference with the rungs that the rotor plate sits on. This was cured with a humungous pair of channel lock pliers to pull the rung out of the way while the nut was started. This rotor mounts with 4, 1/2" size bolts. Unfortunately the manufacturer supplied M8 hardware (approx. 5/16) for this so I just bought my own 1/2 inch stuff. Next was to fit the mast clamp onto the main mast. This mounts with a bolt going through the mast and 6 more bolts that act as "set screws". I slid the clamp onto the mast, and marked the 6 holes for the set screws. I then drilled "dimples" into the mast for these to sit in with a drill just the same O.D. as the bolt. I then fit the clamp and evenly tightened the set screw bolts. Now I could drill the through bolt using the clamp as the guide insuring minimal clearance. This

worked fine. Now I could lower the array back onto the rotor and bolt the output flange to the mast clamp flange, and align the antennas. Once this was done it was now time to try it out!

With John, N1MUW at the controls and radio communication we were ready to roll. With the total array weight close to 400lbs and multiple antennas with 30 foot plus booms I felt this was going to be a real test. The old T2X used to groan at start up and then relax as the antenna momentum caught up and then groan again. John started rotating the array and the motor just started and the array turned smoothly! No groans grunts or otherwise funny noises. I was impressed! Since it's installation I've seen 50+ MPH wind gusts and this thing just sits still. There is the obvious wobbling of booms and an approximately 2 degree total torque in the mast / tower combination but the rotor handles it nicely.

There is a new control box available with lots of nifty features in it. I have one on order, and they will take the original back in trade. As I said before the position is run via a pot in the rotor. This feedback is also used in a neat way as this provides the end of rotation "stops" via 2 adjustable comparator circuits. This could be handy as they could be adjusted for less than 440 degrees for applications such as a 300 degree tower side mount or a EME polarity rotor. Another nice feature is via a 9 pin D connector on the back and 3 wires will provide remote rotation control. This could be handy for working on the tower either alone or with someone up there with you.

All in all this rotor so far has been quite the machine and a worthwhile purchase. I also realize as with a newly introduced product that some initial "bumps" are expected. A list of what I encountered is below. These are for the most part picky items.

- * Weatherproof cable entrance will not clamp tight on HD cable and needed RTV.
- * Connections 1-6 on motor are not the same as 1-6 on control.
- * No locknuts on "set screws" for pinning mast.
- * Funky multipin connector on control box with non replaceable pins. Should be a barrier strip.
- * Power cord sent with "flying leads" at plug end.
- * Rotation switch on first control box is a "cheap" miniature toggle switch.
- * Power switch is mounted in European fashion with ON being down.
- * Nice silk-screen graphics on the front of control box....rear marked with a "sharpie".
- * Bolts supplied for mounting the rotor are M8 when M12 is the correct size.
- * Lock washers and standard nuts are provided for hardware, I prefer Ny-lock self locking nuts.
- * Indicator shows from -40 degrees through 440 degrees. This could get confusing!

Product Review
PRO.SIS.TEL. PST-61 Big Boy Rotator
By: Fred Stefanik, N1DPM

WEAK SIGNAL SOFTWARE REVIEW,
VQLOG DE EA6VQ
BY DEL SCHIER, K1UHF

For years I have been logging with Paradox for DOS a basic database program. It was easy to use but didn't do much besides the basics. I could query it and look up old QSO's or check grids and QSL status but it was cumbersome and time consuming to extract data. It was also a major chore to bring in the logs from the CT contest logging software.

I tried just about every logging program I could find on the web but none of them would keep track of my weak signal operations properly or were any better than Paradox. I even had a next door neighbor who makes his living programming in Microsoft Access try and do what I wanted. His program would track my grids worked by band and lookup QSO's. The entry form was a nightmare as it required using the mouse too often. I tried to use it for about a year until I found EA6VQ's VQ Log.

EA6VQ, Gabriel Sampol Dura'n, is a active weak signal and EME operator and obviously a talented programmer. Gabriel must have spent years developing his VQ Log for his own weak signal operation and is now suppling it for us all. VQ Log is available off his web site as a fully functional demo. Go to his Web-Site: [HTTP://www.qsl.net/ea6vq](http://www.qsl.net/ea6vq) or direct to VQLog: [HTTP://www.qsl.net/ea6vq/vqlog.html](http://www.qsl.net/ea6vq/vqlog.html) .

I downloaded an tried VQ Log and it looked really good but I couldn't tell how good until I got my 20,000 QSO's in it. By the way, there is another decent logging program, VHF-DX by N8VEA but the registered version is limited to only about 2000 QSO's. I purchased VQ Log on-line with my charge card for \$15, that's right \$15. After becoming a registered user Gabriel wrote a custom import utility for my old log after sending him a couple of emails. Gabriel must have spent hours but in about 30 seconds my 20,000 QSO's were in his program. I don't know if Gabriel will do an import utility for everyone, but the standard program imports about 24 different file formats including CT contest logging.

Let me tell you what VQ Log does. The basic entry screen has all the fields you would ever need for serious weak signal work except for one, the US State. When you type in a call it looks up the call in a supplied database with most of the active VHF operators, it pops up the name and the grid square for that station. It displays bearing and distance to a station if the VHF database has grid or you type it in with 4 or 6 digits. It flashes and beeps and tells you if you need to work the grid or if you need it confirmed. If you have worked the station before it has a previous QSO information. The entry screen is configurable so you can enter the info in whatever order you like and makes sure you have all the required data entered correctly. You can toggle

automatic date and time on or off and it automatically fills information from previous QSO's or its built in database. It also can carry forward your choice of information from the previous QSO entered like the band and the propagation mode.

The Summaries or the reports are outrageous, it will do your VHF and microwave standings in a flash. You can get a report and which way; by band, by call, by grid, by propagation, for initial contacts, by mode, whether confirmed and on and on. It will even display your grids worked on a nice map of your choice of North America, Europe, Asia, Australia or the World. The other reports pop up in a Notepad window that you can edit and send to the ARRL for standings, or whatever.

The program will print anything including the maps. It generates and prints QSL QSO labels and address labels. The address label come from a "Personal Info" database which is linked to the main logging data. It does not yet read a QRZ or Buckmaster CD or look stations up on the web but maybe in the future. The US State tracking hopefully will be added some day too.

The program seems to be a Microsoft Access run-time application and the .MDB files can be read by Microsoft Access. This is handy for me but it is probably dangerous to modify the files outside VQ Log with Access. It runs on Windows 95/98 and NT and IS Y2K compatible. I am running it on a Pentium 90 in my shack and it runs quickly even when getting a report from my 20,000 plus QSO's. A little side feature I have discovered is that it runs across my network and I can use it in my office to work on QSL's or check something for an email. I have only been able to crash the program running one report of my initial 2 meter QSO's, I have not contacted Gabriel about this problem but I expect it is a corrupted record in my database. You do want to make regular backups of this or any logging program.

The program is not perfect for me, I have trouble seeing the small type on my 15" monitor especially because it shakes sitting next the transformer in my 2 meter amp. It is OK on my 17" monitor upstairs but that is mostly a problem with being over 40. The only problem I really have with the program is the Tab key. You have to move from field to field with the Tab key, like most Windows applications, and I forget and push the enter key. Once you have enter key the QSO is stored and gone off the screen. It is cumbersome to go back and fix it especially if the band is wide open. Part of the same problem it is impossible to see who you have just worked on a busy band and makes it useless for running the NEWS net. I still have to use pencil and paper and enter the QSO's later. I wish it showed a summary of the last 10 or 20 QSO's on screen.

I think it is far and away the best weak signal logging software out there and I know EA6VQ is not getting rich selling it for \$15. Give it a try I think it will make your operating more fun.

73, Del K1UHF

25 TO 2000 & STILL GOING STRONG

The year 1999 brought us the 25th annual Eastern VHF/UHF Conference sponsored by the Eastern VHF/UHF Society and the NEWS Group, held once again in Enfield, Ct. in August. We started out with a Hospitality suite on Friday night for early arrivals with plenty of snacks, beer and soda for all. Significant amounts of ragchewing was provided by those present, many eyeballs had, and lots of photographs were brought along for viewing some of our latest projects and mountaintop expeditions. An excellent attendance was had at Saturdays conference sessions and banquet dinner. Several original members were present and Joe Reisert, W1JR, one of the conference founders was there to give us a synopsis of the past 25 years. As a result of this year's room layouts we were able to have lectures, our famous band sessions, and lab sessions all contiguous to one another. No fireworks resulted from our equipment testing. This work well for all. Unfortunately, the hotel complex has new ownership and was still under renovation which made a few aspects of activities a little difficult. Sunday, provided us with our flea market and antenna measurements. Although a small flea market by some standards, the quality counts since all vendors presented items of 50 MHz and above.

The year 2000 brings us our next gala event and first Millennium celebration once again to be held in the month of August. The final date and location is still being finalized. If we can work out an acceptable agreement with the new hotel owners we will once again be in the same location. Plans are already underway for the publication of a Conference Proceedings and speaker lineup is being developed. If you are interested in preparing a paper, talk, show & tell, etc. please contact me. In the past we have had 1 hour speaker slots allocated. This year we may break from this routine and vary the times from 20 minutes to about an hour to allow for varying types of presentations. Suggestions are welcomed on areas of interests for speakers.

As with any organization, a small group of dedicated people usually carry on much of the work and we have been blessed with a repeated performance from many members. One area in which help is required for the upcoming conference is with the mailing list and registration. A computerized mailing list is available, but several people are needed to help prepare the mailings, mail out the announcement and registration materials and receive the registrations back. If you are interested in helping in this area or anywhere else please contact me as early as possible. A good group helps to make things easier for all and allows us to enjoy the conference more. As dates and further information is available it will be disseminated to all via local newsletters and the reflectors.

Bruce N2LIV, bdwood@erols.com

AN ALL MODE TRANSMITTER - RECEIVER BY BURT E. HART N2YYU

Sooner or later all microwave aspirants have to come to grips with the need for an all mode transmitter - receiver to support their aspirations. In almost all cases separate transmit and receive ports are required. Transceiver by definition have a multiplexed I/O port that is intended to attach to an antenna. The power required for the mixer in the Transverter is probably 10 Milliwatts or less and the receiver sensitivity requirement is usually about 1 Microvolt. A transceiver probably has a power output of 3 to 50 watts with no positive control and a receiver sensitivity of somewhere around 0.13 Microvolts. This necessitates: 1- Some form of de multiplexing circuitry. And 2- Some array of attenuators. The usual approach is to get an old transceiver and try to marry it to somebody's idea of an interface box with marginal success and poor reliability at best.

I have been looking for a better solution. Principally a transceiver that was so constructed that I could reasonably separate the two signal paths at a low power level and before they were multiplexed together. I was looking at an all mode VHF - UHF unit (ICOM 821H) which I wanted. I asked to look at the maintenance manual. The block diagram was encouraging. Some quizzing of the technician revealed some idea of the drive levels to typical output modules.

A read of the user's manual revealed a reference to use in conjunction with a Transverter. Careful examination of the physical structure revealed that the two power amplifiers were connected to their respective drivers and their respective receivers with RG174 size coax and TICO connectors.

Analysis of the circuitry and function revealed that power and other connections to the power amplifiers could remain connected without adverse effect.

Examination of the chassis work revealed two holes in the back of each driver chassis neatly covered with a metalized plastic stick on.

The next link in the chain was how to get hold of the TICO connectors (ICOM did oblige), some Teflon coax and some connectors that could be placed in the holes in the chassis. BNC connectors were too big. SMA connectors appeared to be too small.

Adapter plates would be required. Two small pieces of brass would do. There were two holes in the chassis for number 6 screws so adapter plates could be installed without defacing the chassis in any way.

SMA barrel connectors were too short to be supported by the adapter plate and mate with the SMA male connectors on both sides.

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BY BURT E. HART N2YYU

There is a crimp type SMA through panel connector available from DigiKey but they were on back order. They would be the first choice. The wait was too long. I opted for the clamp type which are larger on the inside of the panel, cost more but were immediately available.

It took a little work with a file to remove some metal from one of the clamp nuts to relieve a conflict with one of the TICO female connectors. And straitening the strut on that particular TICO connector to get it all to fit. The washers that come with the connectors fit snugly in the holes in the chassis and prevent the adapter plates from rotating around the retaining screw.

So, what have I got? A very nice VHF - UHF all mode transmitter - receiver with many features which puts out 160 MW on UHF and 800 MW VHF with the nominal receive sensitivity. (Each path is amenable to SMA in line attenuators with out boiling my coffee.) And I can convert back to the standard form in about 5 minutes by removing the top cover and connecting the coax cables from the power amplifiers to their respective drivers and receivers.

Further either power amplifier can be reconnected independent of the other. So I can use either the VHF or UHF as the Transverter IF and use the other as a liaison transceiver.

If this is implemented with a directional liaison antenna ganged to the microwave antenna I should be able to get a crude azimuth with the liaison unit and reduce the time to acquire the microwave contact.

Burt E. Hart N2YYU

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This space is for future and more timely contributions to the NEWSletter I need help!! de K1UHF

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Jeff Klein K1TEO at 203-452-7656 or WA2TEO@aol.com if interested.

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Bruce Wood N2LIV, bdwood@erols.com, (516) 265-1015.

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Del Schier, K1UHF, 126 Old West Mountain Road, Ridgefield, CT 06877, (203) 431-423 or K1UHF@amsat.org

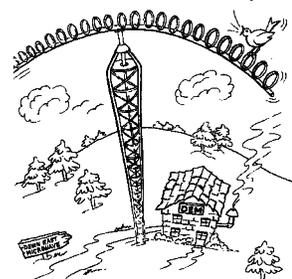
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**NEXT N.E.W.S. GROUP MEETING SATURDAY JAN 8TH 1:00 PM
AT THE HARLEY HOTEL**

**DON'T FORGET YOU NEED TO ATTEND MEETINGS
FOR THE CLUB ARRL COMPETITION!!**

**FRED, N1DPM WILL GIVE A TALK ON THE NC11 PORTABLE
LIMITED MULTI OP OPERATION**

**ALL ARE WELCOME TO THE DIRECTORS MEETING 11:00 AM
LUNCH BUFFET - AT NOON IN THE HOTEL RESTAURANT.**

**Harley Hotel of Enfield, CT (FN31qx) (15 miles north of Hartford, I-91 to exit 49,
if Southbound left off exit - 1st right / if Northbound right off exit - 1st right).**

North East Weak Signal Group



c/o N1DPM
Fred Stefanik
50 Witheridge St.
Feeding Hills, MA 01030

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