
WHITE



NOISE

Palm Beach Packet Group, Inc.
PO Box 16471
West Palm Beach, Fl. 33416-6471
<http://www.qsl.net/pbpg>
email: pbpg@qsl.net

President Doug Welcker WB4KGY
Secretary Burck Grosse KC4UEV
Director John Green WB4MOZ

Vice President Mike Michaels K2GPI
Treasurer Marvin Kasawits KD2CK
Editor Bill Manley KB4XE

Volume 11, Number 6

June 1999

RadioHead--Mobile Data Services for the Radio Amateur (or How to Browse the Web in Your Car)

By John Hansen, W2FS
May 3, 1999

I have heard some say that, with the exception of the APRS location services and DX cluster activity, packet radio is rapidly dying. And its promise of bringing in a generation of new, young, computer-savvy hams is dying along with it. This need not be so. The problem is less a failure of Amateur Radio technology than a failure of Amateur Radio imagination. And that's what makes it an ideal subject for RadioHead.

Packet radio has seen some very dramatic changes over the past five years. In the early 1980s--when the Internet was principally the domain of university and government labs and e-mail was great if the person you wanted to communicate with was also on CompuServe--packet radio seemed almost magical. By using digipeaters you could communicate in real time with people hundreds of miles away. By using Amateur Radio bulletin boards, you could have your e-mail relayed around the world in just a few days. Or you could post bulletins that would eventually be seen by a significant portion of the world's radio amateur population. Furthermore, this was all happening at the blistering speed of 1200 bits/second, which, believe it or not, seemed fast at the time.

Fifteen years later much of the magic is gone. Internet-based e-mail is substantially faster than packet radio-based e-mail. An e-mail message can reasonably be expected to reach its destination anywhere in the world in minutes, not days. Newsgroups and listservers have largely displaced packet radio bulletins as the most effective means of communicating with groups of people. Our standards for acceptable communication speeds have also risen dramatically. When I first started in packet radio, I owned a 300-baud telephone modem. In comparison, 1200-baud packet seemed fast. Now inexpensive 56-kb modems are available for telephone use, and the most common packet radio modem is . . . well, . . . um . . . yes, 1200 baud.

So, what advantages does amateur packet radio communication have over communication via modem over the Internet? Heaven knows it's not the speed. However, there are two clear advantages to packet. First, because the medium is radio, it is much better suited to mobile communication than are most Internet links. As the APRS crowd has discovered, one great place for packet radio is in your car.

Yes, I know, cellular telephone access to the Internet is now available in most places, so you could theoretically have the Internet in your car. But most of us won't be able to afford that for quite some time to come. Yes, I also know that it is extremely unsafe to type on your keyboard while you are driving, although I do know one APRS junkie who does just that. As any good CW operator will tell you, however, data transmission does not necessarily involve a keyboard. Nor does data reception necessarily involve a computer monitor. When driving we already obtain information from flashing lights, glancing at small displays (like the one on your 2-meter transceiver) and sounds. To this we could easily add synthesized speech and other innovative methods of receiving--and sending--data.

The second advantage that radio has is that it is essentially a point-to-multipoint communication medium. One station transmits and many other stations can receive the same data at the same time. This is the secret to data transmission efficiency using currently available amateur packet equipment. In contrast, almost all data transmission over the Internet involves communication between only two points at a time. This is horribly inefficient. It is only the relatively high speed of the Internet data links that makes it even tolerable.

Imagine what the world would be like if instead of broadcasting the news, radio and television stations had to reread it individually for each listener, one at a time. Yes, it sounds absurd, but, for the most part, this is the way the Internet works. Even when you are participating in a chat room, the data is retransmitted individually to each and every participant in the chat. This is also the way that amateur packet radio used to work. Packet radio was advertised as an error-free communication medium because each transmission was individually acknowledged by each and every receiving station. By doing this, we ensured error-free communications, but we also threw away the main advantage that radio-based communication has over wireline communication--the ability to communicate information to many different places at the same time.

Over the past decade certain packet applications (first amateur satellites, later other terrestrial services, like APRS) moved away from this "connected" mode of data communication and began transmitting data via unconnected (UI) packets. Data transmission efficiency increased tremendously. It can be demonstrated that a given amount of data can actually be communicated to large number of stations in a shorter period of time at 1200 baud than at 56,000 baud, if the slower transmission speed is coupled with a point-to-multipoint transmission method rather than retransmitting the data to each receiving station individually. For a more complete explanation of this concept, see my Web page at <http://www.tapr.org/~wa0ptv>. You can also find there some early client/server software I wrote to exploit these possibilities.

What I'm proposing is a general purpose packet radio server that will provide data to mobile hams. It would do so by transmitting UI packets so that all mobile units in a given area could receive the data transmissions at the same time. It would not be broadcasting as the FCC uses that term, because every data transmission would be the result of a request sent by some Amateur Radio station. While I see the principal advantage of this technology as an information source for mobile hams, hams at home could use it as well.

Where would the data come from? The clear answer is the Internet. With the Internet, we've got a (relatively) high-speed data pipe available most places in the world. The packet radio server would have a full-time connection to the Internet and be able to tap into databases all over the world. Any data that could be put on a Web page could be extracted and relayed to inexpensive mobile packet stations. Here are some preliminary examples, which have already been implemented:

Imagine you have a small terminal hooked to a packet TNC and you type in the following command: `qrz://w2fs`. The server recognizes the preamble "qrz" as a key that means you want to do a call sign lookup. It contacts www.qrz.com and requests a lookup on W2FS. It receives the entire resulting Web page over the Internet, but only forwards the following over the air via packet:

```
W2FS  
JOHN A HANSEN  
49 MAPLE AVE  
FREDONIA NY 14063 USA
```

Next, suppose you type in `dx://`. The server recognizes the preamble "dx" as a request for the latest DX information from the OH2AQ on-line DX Cluster. It sends a request to <http://oh2aq.kolumbus.com/dxs/oldlook.html?>, which returns a list of the latest DX spots. The information is then relayed to you (and, incidentally, everyone else who is monitoring).

Now suppose you want to retrieve an entire Web page. To get the ARRL's home page, for example, just enter `http://www.arrl.org`. The http preamble tells the server you want the information from this page, but not all the html formatting tags. The server checks its list of "allowed" and "banned" pages and, if www.arrl.org is allowed, it fetches the entire page, strips off the html tags and transmits it to you.

If you preferred, you could have instead obtained the page with all the html tags, simply by transmitting `html://www.arrl.org`.

As you can see, the intent of the server is to be a general-purpose interface between the amateur digital world and the Internet. Built into it are sysop control functions to keep illegal content from going over amateur frequencies. Also built in is the ability for the sysop to create "services" in the form of keywords like "qrz" and "dx" that are tied to obtaining and editing text from specific Web sites.

I've spent the last few weeks writing both the server software and a customized terminal program (see Figure 1) that can provide all of the functions discussed above. It's almost done and should be ready for beta testing within the next few weeks (anybody want to volunteer to help test it?). But this is really the beginning, not the end. The important work is in finding new applications that will be useful to mobile hams. Many, if not most, of these applications will not involve terminals or computers as we usually think of them. For example:



- * A \$6 PIC microprocessor, combined with a \$10 speech synthesis chip could be configured to listen for DX spots, filter out the ones you don't want and announce the ones you do want in synthesized speech. Along with your HT, you could carry the unit around on your belt like a pager.
- * Road emergencies, if posted on a Web page, could be transmitted using this server. You could have a cheap (\$10) 20-character by 4-line LCD display on your dashboard that would alert you to upcoming hazards.
- * One of the things I find most intriguing is the prospect of having a small display on your dashboard that would show the call signs of other mobile stations and which repeaters they were currently monitoring. In short, any information that can be put on a Web page can theoretically be accessed using this system.

So now it's your turn to exercise your imagination. What I've put together is really not an end product. Instead it is an "enabling technology", a building block that could be used to provide a completely new kind of mobile data service for radio amateurs. Folks anywhere in the world can establish Web pages that include content of interest to hams. It's up to the ham community to develop these Web pages; to imagine new mobile data applications that could help bring life back into packet radio.

One final note: The Dayton Hamvention is coming up this month (May 14-16). The Tucson Amateur Packet group (TAPR) has been kind enough to allow me a portion of their program time (Friday, May 14, 11 AM) to talk about PIC microprocessor development for hams. If you are in the area, please do drop by and say hello.

Editor's note: John Hansen, W2FS, of Fredonia, New York, is an ARRL member and a frequent contributor to QST (three articles in 1998 alone) and former editor of The AMSAT Journal. He has been writing regularly for his club newsletter for many years. His column, RadioHead, will appear every month in The ARRL Web Extra. Please address correspondence directly to the author at john@hansen.net.

This article was first published in the Members' Only section of the ARRL web site <http://www.arrl.org>. We requested Mr. Hansen's permission to publish the article in our White Noise and consequently on our web page. He deferred to the ARRL for their copyright interest. We then contacted Rick Lindquist N1RL, ARRL Senior News Editor. Mr. Lindquist responded that, although reprint privileges of their Members' Only section is generally reserved, in this instance the League defers to John Hansen as the copyright owner. Mr. Hansen then immediately permitted this reproduction by the Palm Beach Packet Group.

The exchange of messages resolving the copyright issue and permission to reprint was done in a two day period via email. The Palm Beach Packet Group is grateful to both Mr. Hansen and the ARRL for expeditiously clarifying the permission to publish this article.

DAYTON CHIRPS

By Terry J. Taylor, W5JFM

“This is Terry Taylor, your Dayton ‘White Noise’ reporter, coming to you live via transcribed broadcast. I’m presently located in the huge Dayton Flea market at the Hara Convention Center inside a very large trash can. My RF sensors detect tremendous amounts of electromagnetic waves at all Amateur Radio frequencies. Taking no chances, I’m donning my RF exposure suit, a portable RF Faraday cage. The air is overly saturated with Hams communicating their locations to other friends, and their latest finds of old and new treasures. So, while I’m donning my RF suit, I’ll get you up to date.

“I arrived Thursday morning at the north end of Dayton in the suburb of Englewood. There, I’ve had a room for the last several years at the Cross Country Inn. As you might surmise, rooms are at a premium. This motel allows its yearly trekkers to the mightiest shrine for Ham radio to place a reservation for their same room the next year. This alleviates the worry of trying to get into the 800 reservations line at the precise moment to save a room before they are all gone. It’s a nice touch. Although rooms are sold out a year in advance, I’ve experienced in previous years that there are always cancellations after the 6 PM guaranteed time. Plus, rooms are available a little farther away from the area. Having a rental car is a requirement to be able to get around. Gone are the days where a bus schedule was published that made rounds to the major hotels, malls, and airport. Now, buses only pickup from two area malls. Thursday afternoon I enjoyed the ‘other side’ of the Air Force Museum. There is a large hangar located across the closed runways of the now closed Wright Field that now houses former presidential aircraft and numerous aircraft that were used by the AF for research and development. Most interesting to me was the specially equipped Boeing 707 with tail number 26000. It is probably the most famous one so far as they have marked the location of where the casket of President Kennedy laid to rest, and also where V-P Johnson took the oath of office. The communications of that even very old aircraft was fascinating to look at. I would love to see the communications and other secret equipment on the new B-747 that has the callsign of ‘AF One’ (but only when the President is aboard). One particular note of interest for this aircraft and the other presidential aircraft on display is that you need to be fairly thin to get in them. I don’t mean to say anything to those of you a little (OK, a lot!) overweight, but there is a ‘width measurer’ that you must pass through before you can go up the steps of the aircraft. What they have done inside the aircraft is literally cover almost everything you can see with plexiglas from the floor to the ceiling. It is located on both sides of the aisle so that you must squeeze through the aircraft with about 17 inches from shoulder to shoulder. Believe me, there isn’t much room. Well, I guess if you exceed the 17 inches you could view the aircraft sideways. Maybe pick a side you want to see and walk through it sideways facing that direction, then re-enter the aircraft facing the other side and view the other half. (Now this assumes that you aren’t more than 17 inches thick. I realize I might be stepping on toes here, but, hey, if you’re going, I imagine you’d like to know if you can get through or not). Anyway, the aircraft are well worth the trouble to see. No wanting to slight the main hangars of the AF Museum, there is a huge number of aircraft and other displays to see and wonder about. That could take a whole day in itself and any visit to Dayton is well worth the trip to this museum, even it is the only reason for going to Dayton.

“My room is not ready. There is only one car left on the entire side of the motel where my reserved room is located, and that individual isn’t going to check out until Noon. Natch! So, I’ve decided it is time to take a little run. The sky is overcast with light rain as it relieves itself before the big weekend event. The rain is light – ‘spitting as the British say!’ The grass is beautifully green, and it has always amazed me how green it does get in the Springtime up in this area. The honeysuckle is in full bloom and smells great. I run my normal eight miles getting both wet from the outside, and from the inside.

“Friday is the beginning of the big dance. In years past, the flea market opened early in the morning at 8AM, as it still does, but the inside exhibitor area didn’t open until 12 Noon. This year it opened at 10AM. That gives the vendors more time to sell their items. Also, last year forums were scheduled before the Noon time hour, and this year followed more of the same. There are so many forums that there just wasn’t enough time. So, starting off the early forums on Friday morning was the PACTOR forum with Phil Sussman, N8PS. Dr. Thomas Rink, DL2FAK, spoke on the new PSK-31 narrowband digital mode and how it’s being incorporated into the PACTOR-2 controller.

“Much of the emphasis at this Dayton has been on increasing the Amateur Radio awareness to kids. Carole Perry, WB2MGP, holds a forum every year that teaches instructors how to motivate and teach young kids. Rosalie White, WA1STO, (Manager of Field and Education Services of the ARRL) brought out many interesting techniques. One in particular was the visual demonstration between series and parallel resistance using straws. Blow through one straw showing series resistance, then blow through several straws to show the comparison to parallel resistance.



Looking out over the Dayton HamVention
Flea Market

picture by Terry Taylor W5JFM

“I am now moving around the Flea Market taking in the various and sundry items that people think they will sell. Boy, have I got news for them for some of that junk. I’m getting all sorts of stares as people look at me in my portable Faraday shield. I’ve added one inch wide copper straps to my ankles that trail on the ground behind me trying to discharge as much of the RF as possible. This works pretty well. One problem is fluid intake, like drinking a Coke. I have to shoot it though the mesh shield over my face, so it all doesn’t hit the target, that being my mouth. But since it is Diet Coke, I don’t get that sticky sugar feeling over my face. Oh, well!

“The Flea Market sprawl continues in all directions from the Hara Arena. Year after year it spreads out a little farther and is about to reach one of the roads to the northeast of the arena. Also, out in that direction is a huge white tent. Ordinarily, Radio Shack has a huge display of all the junk, er, products that they haven’t been able to sell in their stores, but this year they weren’t there. They still had a very nice, large booth inside the convention center. The space allotted for the flea market is huge. It takes a lot of time just to cruise through the area once looking at everything from the backs of station wagons to tents that allow you to walk through. It is amazing.

“I am now inside the Hara Arena as the doors are just now opened up to the public. People are beelining straight to the DARA (Dayton Amateur Radio Association) booth to put in that stub for a possible prize. Ticket numbers this year reached upwards to 50,000. Now you know why there is so much RF in the air. Prizes were plentiful and expensive. They do a nice job here. I’ll continue my report on Sunday for the activities during the weekend.

“This is W5JFM reporting once again from the Dayton HamVention. Friday turned out to be an almost perfect day. No rain, overcast skies, and the temperature was in the mid 60’s. Not too hot, and not too cold. The skies cleared that evening making for slightly warmer days on both Saturday and Sunday with almost clear, beautiful skies.

Friday evening was the annual AMSAT dinner buffet located at the Amber Rose near downtown Dayton. The food here is really, really good. (I mean really!) The restaurant has become a yearly favorite with a unanimous vote for a return the following year. AMSAT President Keith Baker, KB1SF, made a few opening remarks including the possibility that a contract could be soon forthcoming for the launch of Phase 3D, the Mother of all Heathkits according to Keith. Of course this was met with thunderous applause, and rightfully so as it has been quite a long time that the satellite has been slated for launch. Keith had a book of gorgeous 8.5x11 color photos of the electronics on all sides. He pointed out to me what this was and that was, but since I’m not working with the satellite they all looked very much alike to me. Once circuit board almost looked like any other. It really is a marvel of achievement that all who participated can be rightfully proud. Lou McFadin, W5DID, arrived a few minutes later with Astronaut Owen Garriott, W5LFL, who had just flown into the Dayton Airport. I was fortunate to be able to visit with Owen at my table. Guess I was just lucky. (By the way, I didn’t have my Faraday shield on so no one thought I was off my rocker, at least I don’t think I give that impression normally.) I ran into Owen many more times during the HamVention. I remember seeing and holding the Motorola handheld radio that he had taken with him on the Shuttle mission. During one of his forums the next day, I remember him saying that at the time of his mission, NASA was leery of any external power for the radio he carried, so he had to carry a couple of batteries. No use of shuttle power. In contrast, the International Space Station that is being planned for the use of Amateur Equipment by the SAREX Working Group requires that equipment brought on board be operated by power off one of the Space Station electrical busses. No batteries. This is a turnaround in philosophy. I asked Owen how many batteries he took with him, and he said only two as far as he could remember. One was a large battery, and another was a smaller battery. He never did run the battery down during the mission. Interesting.

“Saturday morning was the two plus hour AMSAT forum. Lots of folks made presentations. Barry Baines, WD4ASW (Anti Submarine Warfare), made a presentation on getting started on the birds. It wasn’t as factual as it was where you need to go here for this, or go there and get that book, plus a handout of what you need and where to get it. Of course this topic can’t be fully covered in the 20 minutes allotted to him. Barry and I had a pretty good discussion at the banquet the preceding night concerning his job with CSX Railroads. I’ve learned more about locomotives and had a great time doing it. Last night was no different as I learned that the new locomotives are being purchased (at a huge sum) with AC motors now instead of DC motors. Betcha didn’t know that those big engines you see out there are really big electric motors being powered by diesel engines. Electricity runs the trains, but diesel

engines power the motors. Also, slack between cars of the train is what allows the engine(s) to break the inertia of the entire train and get it moving. Neat stuff here and all at a Ham Radio convention. Boy, let a person know you are a pilot and the 'war stories' crank up in that direction with no end in sight. There are lots of ham radio operators with pilot licenses'.

"I got tickled at Lou McFadin's presentation on how they got P3D to thermal and vacuum testing. They rented a huge Budget truck so that they wouldn't be bothered with cops and weigh stations. To support P3D in the truck, they bought about 20 huge inner tubes which were hard to find. With about half inflation in each tube, that provided the right amount of cushioning, so it was riding on air, so to speak.

"Roy Neal, K6DUE, is chairman of the SAREX Working Group consisting of NASA, ARRL, and AMSAT. These people work together for the school SAREX contacts and make it all worthwhile for the children who get to talk to the astronauts. Speaking of which, I think I heard someone mention that about 90% of the astronauts are now licensed amateurs. Roy is a retired NBC television commentator with a truly 'golden throat'. He MC'd the Rose Bowl parade last year, and the year before for the Armed Forces network and to other countries. He is a super gentleman. The SAREX Working Group is now actively involved in ARISS, Amateur Radio International Space Station. There will be over 500 transmitters on the ISS, and Amateur Radio will play a part. Initially, the licensed astronauts will be using a handheld Ericsson radio powered off the ISS by a power converter located in the service module. There will be four feed-throughs to the outside for antennas that will be shared with video transmissions. Since the video will be active during space walks, that prevents Amateur transmissions from taking place, but since that was to be the case anyway, meaning no Amateur activity during space walk, it turned out to work just as well.



SAREX Working Group (Left to Right): Roy Neal, K6DUE, Chairman, Owen Garriott, K5LFL, Guest Astronaut, Matt Bordelon, KC5BTL of NASA, Rosalie White, WA1STO of ARRL, Frank Bauer, KA3HDO of AMSAT, and Lou McFadin, W5DID of AMSAT.

Picture by Terry Taylor W5JFM

"Wow, walking through the vendor booths in one of the buildings, I am looking over there at one of the inside vendors with a huge display of Beenie Babies. OhhhhhK. I couldn't help but scan the various ones there for sale and the prices. I saw one that was now worth, according to them, \$300. Forgive me if I just couldn't bring myself to spring for the poor little fellow in need of a home. The next day I noticed that it was gone.

"Later Saturday afternoon, I listened to the Youth in Amateur Radio forum. Several of the kids that I had met last Fall at the convention in Boulder, CO, had decided to come to Dayton and actually made presentations to the audience concerning their experience and activity. It was very interesting and enlightening. I might have mentioned before in another article about Project Starshine that consisted of 900 mirrors being polished by students for a satellite that has been launched. Check out the website <http://spacekids.hq.nasa.gov/starshine> .

"Saturday night was the big banquet located at the Nutter Center on the campus of Wright State University. The food is surprisingly good and I had the fortune of sitting with Roy Neal, Owen Garriott, Frank Bauer, KA3HDO of AMSAT, Rosalie White, WA1STO, and Robin Haighten, VE3FRH and VP of AMSAT. Quite a group! Owen had a lot of Air Force T-38 time so we swapped several stories. The entertainment was Joe Walsh, WB6ACU (Never heard of him!) who is a rock star and sang with the Eagles. I had enough of him after about an hour and went out into the hallway to wait until it was over. I was about 50 feet in direct line with the bass speakers and my whole body was vibrating. I even stuffed chewing gum wrappers in my ears and held them there with my fingers. Enough was enough. Everyone seemed to be enjoying the music including university students and anyone else who wanted to buy a cheaper concert-only ticket. Joe was later seen the next day at the ARRL booth sporting several pieces of new equipment including a new handheld. You can hear an interview with Joe on the ARRL website. Joe performed for about an hour and a half

this year. Ronny Milsap performed last year for about 25 minutes, and that was it. I never did find out why his concert was so short. Maybe next year for the 2000 celebration they'll get the New York Philharmonic Symphonic Orchestra – a group more to my liking.

“Today is Sunday and the RF seems to be lessening, so methinks I'll remove my RF suite for the time being. Those last minute deals are being made, and the junk is slowly making its way out the gates under the arms of a new temporary happy owner. It all gets recycled in a year or two, anyway. All in all this was a very successful Dayton. The weather was great, and the crowds were thick. This is good for Amateur radio as it should be. A hobby worth caring about is one worth participating in. The enthusiasm was very high with interest in many, many different areas. The forums seem to be more attended this year with more people getting interested in what they have to offer. I know that I spent more time in the forums than I have in the past, and I've really enjoyed them. I get to meet friends from all over and see them year after year. Next year should be really something when DARA hosts the ARRL National Convention. I'm sure plans are already under way to make it the best Amateur Radio Convention in the world. Now is the time to plan that vacation time for next year's Dayton making those hotel reservations. Don't forget to include a day at the Air Force Museum if you like that sort of thing. If not, go anyway as you'll get a charge out of seeing all that is in there. It's free. (That ought to get a few more of you there!)”

“I'd like to close out this report as your Dayton 'White Noise' reporter saying that it has been a pleasure bringing you this special edition. You probably won't find better deals on new and used equipment, and you'll get to see new equipment released for the first time here. You'll receive the latest information via the numerous forums carrying the many different facets of Amateur Radio. I hope that you'll treat yourself to the Dayton Experience at least once. See you there next year – just look for the shiny, walking copper Faraday Shield with W5JFM on the back!”

TAMING THE BUTTERNUT (with Grandpa's New Toy)

Bill Manley KB4XE



Last Fall I acquired a Butternut HF9V nine band vertical antenna. With the expected improvement in HF propagation I needed an antenna to compliment the capability of my WARC ready transceiver. The antenna selection was the outcome of trading off the features of competitors regarding performance, reputation, and stealthiness. The latter requirement is dictated by neighborhood restrictions. At the time I didn't realize that the care and maintenance of a nine band antenna would become a hobby in itself. In afterthought I should have known that causing a vertical stick to resonate in nine bands selectively scattered from 3.5MHz to 54MHz is not a trivial engineering accomplishment.

The out-of-the-box instructions clearly described the assembly of 26 feet of aluminum tubing, 6 coils, 3 ceramic capacitors, and sundry bolts, nuts, washers, wire and a tuned coaxial stub. The assembly and positioning dimensions of all were clearly defined -- for an antenna tuned to the mid point of each band segment. But, I favored operations in the phone sections of each segment. Butternut provided guidelines for this too. I followed them and soon learned the difference between a guideline and a specification.

After many phone calls to the manufacturer and a week of tweaking, I had adjusted 8 of the 9 bands to perform reasonably as specified. The 17 meter band remained aloof, resonating with a 3:1 SWR. My built in transceiver tuner adjusted things to make that band useful as well.

Now, six months later, I'm noticing the tuner having more and more difficulty in bringing things into tune until finally 40 meters failed completely. Coincidentally with the occasion of my birthday and father's day, I received a MFJ259B HF/VHF SWR Analyzer.

Timing was right.

This is just the big gun needed to troubleshoot the Butternut

The SWR Analyzer quickly pinpointed the problems to be occurring near the 40 meter section of the antenna. 80 meters functioned well, 20 meters was erratic as was 40 meters. Resonance's at higher frequencies were considerably out of band. In addition to SWR readings, the MFJ259B can measure reactance's, capacitance in particular. This test mode revealed erratic behavior of the 65pf ceramic capacitor. Closer examination disclosed it to be loose in its mount. The screw was loose. That was an easy fix but, having tweaked the 80, 40, and 30 meter coils before arriving at this discovery, I had badly detuned the entire antenna.



Again the MFJ259B came to the rescue by providing the diagnostic measurement clues to restore the coil settings. I learned that the performance of the 80, 40, 30, 20, 17 and 12 meter bands were heavily intercoupled. It is an iterative process of adjusting for a band and finding another out of tune. Then adjusting that and finding a third out of tune and eventually returning to the first for yet a finer adjustment. Within two hours, I have arrived at the same tuning condition which had previously taken a week. The 17 meter band remains resonating improperly.

Now, the MFJ has become another new hobby. I'm looking forward to revisiting the Butternut and taming that #%\$&* 17 meter band.

PBPG APRS EXPANSION Continued

Doug Welcker (WB4KGY)

To follow up on April's PBPG APRS EXPANSION John (WB4MOZ) and yours truly along with Jim Johnson and his son Brian met at the tower site in early May. I mentioned the jungle of Florida Holly, well we attacked the culprit with a chain saw and for tanks of gas. Four hours later we had a 260 foot by 8 foot wide path from the equipment building to the tower. I kept the saw running while the trio hauled the limbs and logs to other area of the property. This was no walk in the park as it did a good job of exhausting the four of us. Jim was happy as this remove an extra load on the guy wires from the heavy branches leaning on them. To reduce the rate of re-growth, Jim had a professional herbicide applicator treat the area.

We spent the next couple of hours getting the coax installed. You should have seen my little pickup with an eight foot wide roll of hard line laying on top of the bed cover. John & Bryan unrolled the line and pulled it down the trail to the tower. The 1/2" line coming down the tower had several extra loops coiled at the base which were cut off and the connector removed and reinstalled. For a change Murphy was with us as the line up the tower had a "N" male and the line we installed was "N" female. This was also the point where the ground strap was attached between the tower and the line. The connection was sealed with a double layer of rubber tape and final wrap of vinyl tape. The mechanics of the radio equipment installation are about complete at this writing. John (WB4MOZ) found a rack mount equipment shelf which will mount the radio, TNC, change-over relays, barrier strip, and fuse block. We hope to have this on the air shortly.

Next I want to thank Burck Grosse (KC4UEV) for the donation of a UPS. This unit will be installed at the Stuart Switch to maintain computer power. The radio equipment is already supplied with emergency power from a battery backup. With the hurricane season starting the first of June this is just one more update to harden your packet system and keep it operational during emergency conditions. In closing I want to welcome Bill (N4XEO) and Andy (KF4ATC) to the world of technical frustration. They have volunteered to help in maintaining the packet radio systems. Bill has actually been working for many years but may not have been the recognition due and Andy wants to expand his horizons by diving head first into a responsibly complicated system. Let thank them both.

MINUTES OF PBPG BOARD MEETING

May 8, 1999

The meeting began at 1:30 p.m. at the home of Marvin Kaskawits. Present were Doug Welcker (president), Mike Michaels (vice president), Marvin Kaskawits (treasurer), Burck Grosse (secretary), John Green (director), Bill Manley (director), Ladd Sajor W2KGU (guest - secretary, Treasure Coast Packet Group).

1. Letter From the Treasure Coast Packet Group Regarding Stuart FPAC Switch. This item occupied extensive discussion. Ladd Sajor was invited to participate in this portion of our board meeting by President. Ladd represented The Treasure Coast Packet Group board and membership which owns and operates the Stuart FPAC Packet Switch (K1VAO). Participation in the TPCG has been very small except for an extremely small group. A survey of all reachable dues-paid TPCG was made. Over 90% of those polled were in favor of petitioning (attached letter) the Palm Beach Packet Group to consider taking over the Adelphia Switch Site along with the equipment and the treasury. The action of offering this existing packet equipment is based upon the very considerable assistance and help provided by PBPG to the TPCG over the years. The location of the tower and equipment is north of Stuart near US1 on Adelphia's Jensen Beach tower. Ladd encouraged our board to act affirmatively and hopefully promptly.

In general, it was the strong sentiment of the PBPG board members that we should avail ourselves of this offer for a number of reasons, including but not limited to, the significance of the switch site to ongoing packet work in this part of Florida. There was a considerable amount of discussion regarding the letter, discussions took place regarding any claims that might not have yet been brought to our attention. We do not want to do anything that would incite ill will among the players or the intended players in this action. At this point in the discussion President Doug had to depart to attend his wife's retirement party. While there were discussions indicating an interest by the Ft. Pierce Radio Club in operating the Stuart Switch, it was felt the a packet radio orientated radio club was better prepared to fulfill the roll of continuing packet radio in the Stuart area. Bill Manley also played an active role in this discussion and tried to help ascertain who had ownership of what, and therefore who could accept such a transfer from whom. As a result of this discussion, the TCPC agreed to provide and inventory of site equipment. An additional point of some significance was the considerable technical support Bill Sinbine (N4XEO) has provided to the Stuart packet switch over the years. It was strongly recommended an invitation be extended to Bill to join the PBPG technical committee. As an existing member in long standing with the PBPG an a member of the PBPG technical committee, Bill will provide continued assistance to the Stuart Switch and bring considerable expertise to the technical committee.

There were a number of efforts put forth to generate a viable motion, and it was finally concluded that Doug (president) should in the next few days contact Bill (N4XEO) on the above approach. Assuming acceptable responses, it was the concensis of the board that we proceed with adopting this proposal. Pending receipt of an equipment inventory list the PBPG will send the TPCG a letter of acceptance.

2. Hamfest Involvement?.

Yes, the PBPG wishes to be involved in the West Palm Beach Hamfest coming up in October of this year. It was the consensus of the group that we will participate. It was suggested that President Doug appoint a committee chairman to look after the considerable number of activities related to this event. For instance, it was strongly recommended that Billy Bob handle our raffle ticket sales. The group felt that a grand prize of the Earthmate software and components be a grand prize, and that another grand prize could be a used computer/monitor and radio/tnc for a packet station.

3. White Noise Articles.

Bill Manley discussed the handling of articles for White Noise regarding the need for articles. Articles submitted need to be in text mode (ascii) to make it easier for him to do the necessary work to include the articles in our publication White Noise. He has received support from Waller (owner of qsl.net) in setting up the PBPG web site and suggests that we sent him something in the range of \$25.00 to \$50.00 in appreciation for his efforts. The group agreed, and Bill Manley will ascertain which amount is appropriate.

4. Summer Vacation schedules.

Vacation schedules, especially as they regard continuity in any required work on packet equipment to keep communications flowing, need to be considered and upfront decisions made. John (WB4MOZ) will be away in August and September, and Doug will be away

a good portion of late June to September. Marvin will be away for June. These discussions clarify our need to have additional technically-trained and available club members. Both Marv and Burck indicated an interest in getting brought up to speed for the common "itis's", and several others indicated that they would be willing pitch in as well. It was agreed that there will be a "open house" at the PBPG site in the near future in order to provide technical training to those interested. additionally, those folks interested in visiting the site should attend. Date to be announced, probably early June.

5. Field Day involvement?

Lack of Field Day as an organized event at the WPBARC make other forms of Field Day involvement of greater interest to the PBPG. A brief discussion revolved around pitching in and helping the Jupiter Tequesta Repeater Group in their historical reenactments for Field Day. Some material was shown to President Doug on this subject and more will be provided.

6. Duplicating Ability

In as much as we are finding it increasingly difficult to obtain low-cost sources of list duplications, such as Switch list, node lists, etc., it was decided to post those lists on the website and see how well we can make that avenue of communication succeed. Bill Manley will be handling the point on this subject.

7. Web Site Report

Bill Manley is going to work on website links that will allow easy communications with TAPR, KB4VOL's bulletin board, etc.

PALM BEACH PACKET GROUP MINUTES

May 1999

BROUGHT TO ORDER

The meeting was brought to order at 19:30 by President Doug (WB4KGY). Introductions of guests and new members were made and members did self-introductions.

TECHNICAL COMMITTEE REPORT

Doug (WB4KGY) made the technical committee report presentation:

We have a new member of the technical committee, Bill (N4XEO) (President, FADCA), (Chief Engineer, Stuart switch).

West Palm Beach switch, again no problems this month.

Clewiston tower update:

Doug and John (MOZ) met tower owner Jim Johnson and son at site May 4th. They spent three and a half hours chain-sawing 250 feet through the jungle for tower access. They installed 7/8 inch hard line from tower to the transmitter building.

Replacement location of Belle Glade tower:

Property has been purchased, near Lake Harbor FCC FM license has been applied for. Palm Beach County permit has been submitted (anticipate 5 month wait).

Lake Placid site needs upgrading, specifically a new tower sight that raise the antenna elevation. With better elevation signal strengths will allow conversion to 9600 baud.

Key West tower (Mel - K3ML) will have to be shortened by 60 feet. Engineering computations at original tower erection were in error, necessitating the change. Tower will be modified to a "candle opera" arrangement at the top to include large torque arms to resist twist. This will help control storm winds effect on the tower.

FPAC System expansion:

Upgrade links Stu<>Okee to 9K6 Replace Stu<>Vero link 9K6 radio in Vero

OLD BUSINESS

We are still looking for interested parties to give computers. Only requirement is they are licensed and interested in some form of digital communications. The PBPG has available some ten operational computers, including monitors and printers.

Postal box change - was a Boca address; we have requested a change to West Palm Beach. This is a lengthy process and will cost some money. If there are questions, see John (MOZ) or Marvin (CK).

"White Noise" will be mailed at the post office 5/15. You can find that copy of "White Noise" along with past issues on our web site. The "White Noise" at the web site is in a PDF format. Picture quality seems much improved. Pictures are full size and in color at the web site. Web site address is <http://www.qsl.net/pbpg>.

PBPG has 6 books on packet for lending. See Burck (UEV).

NEW BUSINESS

Results of board meeting held May 8th at Marvin's home:

The primary area of discussion at this board meeting was inclusion of the Treasure Coast Packet Group into the Palm Beach Packet Group. The offer by TCPG, addressed exclusively to PBPG, includes all packet related site equipment and the club treasury. Bill (N4XEO) lives reasonably near the TCPG site and has done a good bit of the work that has needed to be done at that site. We offered Bill (N4XEO), and he accepted, a position on the PBPG technical committee. There will be a copy of the minutes of this board meeting in the June "White Noise".

If you would like to become more involved in the operation of our club, we could certainly use your help. Call any of the officers to volunteer.

Memberships or dues catch-up are accepted each club meeting by President Doug.

For those interested in GPS, visit the following address:

<http://gps.laafb.af.mil/y/2000index.html> This address provides a listing of GPS receivers that are Y2K compliant tested by the US Air Force.

Burck Grosse
KC4UEV