

---

# 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](mailto:pbpg@qsl.net)

President Doug Welcker WB4KGY  
Secretary Richard Schofield AF4OR  
Registered Agent John Green WB4MOZ

Vice President Burck Grosse KC4UEV  
Treasurer Marvin Kaskawits KD2CK  
Editor Bill Manley KB4XE

---

Volume 13, Number 1

January 2001

---

## PBPG & BARDS WHO ARE WE?

Bill KB4XE

The invention of the Packet Radio Terminal Node Controller (TNC) by the Vancouver Amateur Digital Communications Group in 1981 more or less marked the beginning of the evolution of digital amateur radio beyond CW and RTTY.

The first operational packet repeater in the US was noted by Peter O'Dell KB1N and Hank Magnuski KA6M in the April 1981 QST. The first transcontinental packet repeater is noted by Edward Karlin K1RT in April 1982 QST. The availability of the TNC kit by the Tucson Amateur Packet Radio (TAPR) spurred wide spread interest in this new mode of digital communications by 1983.

The Florida Amateur Digital Communication Association (FADCA), as a SIG of the Florida Repeater Council (FRC), led the way in Florida with the new operating mode as it swept across the country. In southeast Florida the Palm Beach Packet Group (PBPG) was formed in February 1987 with the underlying theme that packet radio is maturing and the days of true networking over long distances with minimal retries are not far off. By November Doug Welcker WB4KGY, Bill Piazza KB4QVY, Bill Wright W4NVC and Tony Correa HK3QB/W4 steered the new organization towards its goals of building the Florida packet network with new digipeaters, providing expertise and hardware for others engaged in the same objectives as well as training members in their operation.

Monthly meetings were established at the Palm Beach Emergency Operations Center. The original agenda of a short business meeting, technical report, followed by an educational session continues through this day. The group had been established as a Florida non-profit corporation by May 1988.

The Broward LAN Organizational meeting was held at Racal-Milgo February 1988. The name Broward Amateur Digital Society (BARDS) was suggested by Joe Loewy W4ERL (KB4FO) as temporary until a replacement could be decided. But, the name stuck. BARDS is somewhat of a different kind of organization than the PBPG. Organized by Joe and Tom Kneisel K4GFG, it set as its goal to become an unencumbered technical society with no officers, no business agenda, and no dues. BARDS objective is the advancement of all forms of digital communications by amateur radio. Its early agendas clearly were in support of FADCA and the growing packet network particularly in Broward County. However, true to its broader goals, Tom and Bill Manley KB4XE demonstrated amateur facsimile data exchange during one of its early meetings. Meetings host duties were shared by Motorola and Racal-Milgo on an alternate month basis.

At the Miami Hamboree in 1989 principals of both organizations agreed that, in exchange for PBPG publishing the BARDS minutes in its *White Noise*, the BARDS would recommend to its membership that they join the PBPG. There still remains an overlap of the membership of both organizations as well as a supportive atmosphere by both organizations.

Currently the PBPG meets at 19:30 on the second Thursday of each month at the Piccadilly Cafeteria, corner of Summit and Military Trail in West Palm Beach, Florida. Visitors are invited.

Officers and members actively support FADCA and serve on its Board of Directors. The PBPG continues with its charter to advance packet radio in Florida. We provide consultation and equipment to other packet groups as well as own, manage and operate stations:

TYPE	FREQ	CALLSIGN	LOCATION
APRS	144.390	K4PKT-3	WPB
APRS	144.390	K4PKT-1	CLEWISTON
APRS	144.390	K1VAO-3	STUART
APRS	144.390	KF4DXY-3	BOCA
PACKET LAN	145.030	K4PKT-8/9	WPB
PACKET LAN	145.530	K1VAO-8/9	STUART
PACKET LAN	145.630 9K6	K4PKT-8/9	WPB
PACKET BB	223.480	K4PKT-8/9	WPB to BOCA
PACKET BB	440.075 9K6	K4PKT-8/9	WPB to STUART
PACKET BB	445.075 9K6	K4PKT-8/9	WPB BBS FORWARDING
PACKET BB	445.975 9K6	K4PKT-8/9	WPB to BOCA
PACKET BB	223.400	K1VAO-8/9	STUART to OKEECHOBEE
PACKET BB	440.075 9K6	K1VAO-8/9	STUART to WPB
PACKET BB	445.900	K1VAO-8/9	STUART to VERO
PACKET BB	446.550 9K6	K1VAO-8/9	STUART BBS FORWARDING

The PBPG web site can be found at <http://www.qsl.net/pbpg>.

The BARDS now meet at 0900 on the third Saturday of each month and at Motorola at the corner of University Drive and Sunrise Blvd. Visitors are welcome. Talk in on 146.79. The meetings are chaired by Bob Walker N4CU and other members of the Motorola ARC. Recent discussions have addressed the broader aspects of amateur radio. Recent topics have included:

Randy K9BCT on PSK31,  
Bill KB4XE and Bob N4CU on contesting software,  
Art N2EPI on solar power,  
Bill on EZNEC simulation of a 6M Maxon antenna,  
Jesse KG4GEG on environmental risks and cures,  
Carl W9ZGU on capacitive equivalent series resistance and leakage,  
and Bob on a demonstration of the AEA SWR-121.  
Next Meeting: January 20, 2001 The Biological Effects of Electromagnetic Radiation, by Quirino Balzano.

The BARDS web site can be found at <http://www.geocities.com/ResearchTriangle/Lab/7781/>

## Whoops

Bill Manley - ed

We are regretfully mindful that the previous issue of the *White Noise* was projected to be offered no later than November 2000. Vacationing club officers would return by then. We certainly missed that goal.

The West Palm Beach Hamfest was targeted a the theme for the first post-vacation issue. But yours truly spent that hamfest weekend in the hospital. That, plus a number of related incidents, stood in the way of getting the *White Noise* issued.

We apologize for our tardiness.

**(With the Miami Tropical Hamboree scheduled for February 3-4, 2001 and the Orlando HamCation scheduled for February 9-11, 2001, this article is of timely importance to Florida hams. Our thanks to *Worldradio* for their permission to reprint. - ed)**

## **ARE HAMFESTS IN TROUBLE?**

Bill Pasternak WA6ITF, "Amateur Radio Conventions", *Worldradio*, pg 37, January 2001

As we enter the new millennium, we are going to shift gears a bit and take a hard look at where Ham radio conventions have been, where they are today and where shows seem to be headed. Actually, it is being done for us by an amateur well known and very respected in the Northeastern U.S. His name is Harold Smith, K2HC, and he is the General Chairman of the Rochester and Buffalo Hamfests.

While Rochester continues to be a successful show, Harold freely admits that Buffalo has not lived up to expectations. And right after the last Buffalo outing, Harold received the following from what he termed as a "dissatisfied attendee." The writer of this message requested to remain anonymous but wrote:

"I was first licensed in 1963 and have been going to local hamfests for many, many years. Over the last few years, I have attended both the Rochester and Buffalo hamfests and am appalled and disappointed at the trend. Both hamfests are mere shells of what they used to be.

"While I was unable to attend the Rochester Hamfest this year, I did attend Buffalo, and it was absolutely the worst. "While I was at the Buffalo hamfest this year, I had to keep checking what my ticket said, since I could have sworn I was in the Bazaar tent at the Erie County Fair.

"I go to hamfests for "Amateur Radio" related exhibits and booths, as well as computer related exhibits and booths, since computers are so integrated in today's Amateur Radio. Leather belts, ceramic doo-dads, and car windshield cracks booths have NO place at a hamfest. Major "Amateur Radio" dealers have steadily disappeared.

"Please put the "Amateur Radio" back in the hamfests. I have to say that after this year's hamfest, I will have to think twice about attending next year. I know that I am not the only local Ham who holds this opinion and I know many who have already stopped attending for the same reason."  
signed: A Concerned Amateur

(Note: The writer of this message requested to remain anonymous.)

It took a while, but after giving this note quite a bit of thought, Harold not only responded to this amateur's concerns. He also posted the original letter and his answer to the Rochester Hamfest website -[www.rochesterhamfest.org](http://www.rochesterhamfest.org). After reading what he had written, I asked for permission to reprint both items here in *Worldradio* because there is a lot to be learned from the words of both of these Hams. Harold Smith's response is as follows:

"Thank you. Your message says precisely what has been happening to hamfests, not only at Rochester and Buffalo, but nationwide - in Miami, Orlando, Baltimore, Dayton, Dallas, and Huntsville to name a few.

"I have been general chairman of the Rochester hamfest since 1963 and of the Buffalo hamfest since it was inaugurated in 1990. The Rochester event has grown steadily over the years.

The mid 90's were most successful at Rochester. With the excellent facilities at the Erie County Fairgrounds, I had hopes that the Buffalo event would grow and surpass Rochester. Like Rochester, the mid 90's were also the most successful at Buffalo.

"The Rochester and Buffalo hamfests are operated as a service to the Amateur Radio community - not as money raising events. We hope to cover expenses. There have been times at both events where we failed to meet the expenses. Fortunately, there has been an adequate reserve to cover such situations.

"We are able to bring in nationally known speakers and major manufacturers in the exhibit areas. Non-amateur merchants do order booths at the shows. We are not in a position to tell them to go away. We need their booth revenue to help pay the bills.

"Most people have no idea how much it costs to operate a major event such as Rochester. It starts at around \$25,000 just to rent the grounds and Dome Center in Rochester - bare bones. Everything else is extra - and there are lots of extras.

"Having said that, here is the problem -because of the advancing age of the Amateur Radio population, many active people are now inactive. They are not on the air, They are also not attending events such as hamfests. They have't been there and done that!

"And so, attendance declines. As attendance declines, dealers and other exhibitors tend to stay home as well. As that happens, attendance declines even more. It is a 'Catch 22' problem. It has been so bad, there have been failed and canceled hamfest throughout the nation.

"Unfortunately, most of the dealers and exhibitors are not astute business. They need to show attendance at a hamfest on their advertising budget, not their direct sales budget. An appearance at a hamfest is absolute advertising. If you see someone in person, you may consider buying his product.

"The major manufacturers and dealers have held formal meetings at the Dallas and Huntsville shows to discuss this very problem. I attended those meetings. While they all know what is happening, none of them would commit money or work to solve the problem. The meetings ended with no resolution.

"We cannot force any merchant to attend a hamfest. We cannot force any amateur to attend a hamfest. We (the hamfest committee staff), work our butts off trying to make our event world class. We do not set out to create a failure.

"The amateur population is facing an emergency situation. When the lights go out or there is a disaster of some sort, amateurs are on the spot to make things better. Hamfests are an amateur disaster at this time. Amateurs themselves are the only ones who can fix the situation.

"Next spring at Rochester, 1-3 June, the amateur population of upstate New York and southern Ontario should send a message to the Amateur Radio industry (the people who make their living from Amateur Radio). The amateur population should turn out in record numbers. If that happens, the merchants working the event will go home very happy. Those people talk to their contemporaries at other shows. You can bet the number of merchants at Rochester in the year 2002 will exceed all existing records.

"The problem can be fixed. You, and all those who find fault with the hamfest decline, must be willing to contribute one day - attending a hamfest. I have contributed nearly every day for decades. I cannot fix the problem alone. I need your help."

Regards,  
Harold Smith, K2HC  
General Chairman

Do you think Harold has evaluated the problem in a way that all of us can understand? Do you have any other ideas that can help to revitalize hamfests, Ham radio conventions and even radio clubs? If yes, please address any comments directly to Harold Smith, K2HC, by e-mail to [harold@rochesterhamfest.org](mailto:harold@rochesterhamfest.org) and copy them to me at [billwa6itf@aol.com](mailto:billwa6itf@aol.com).

Well that's it for the first column of the new millenium. See you in March with our plans for the 2001 Dayton Hamvention in May and other nifty tid-bits. Till then -73.

## **PALM BEACH PACKET GROUP MINUTES OCTOBER 12, 2000**

### **OPENING AND REPORTS**

The meeting was called to order by President, Doug Welcker WB4KGY, at 19:30 Hrs. All present introduced themselves using their names and call signs. There was at least one new face in the crowd.

Treasurer, Marvin Kaskawits KD2CK , gave the treasurer's report. The report itself will be made available on the pages of *White Noise*.

Doug gave the technical committee report. The Clewiston AP RS is temporarily off the air. Jim Johnson W4JBZ , the site owner, checked the radio and found it wasn't receiving or transmitting. He removed the radio and brought it back to West Palm Beach for repair. The West Palm Beach switch has had its one major antenna problem corrected Wednesday, October 11. When the new antenna and transmission line that we share with the Palm Beach Sheriff Office was installed the transmission line to the trio-band antenna was accidentally cut during the removal of the old line. Andy KF4ATC was instrumental in sorting out this problem and getting the problem resolved. The new Southbay tower, where our western Palm Beach County Switch will be located, is nearing construction phase.

### **OLD BUSINESS**

Due to summer vacations no old business was on the agenda. For those who would like more information on Packet Radio, APRS, or other digital modes, the PBPG has six Packet Books for lending. Please contact Burck KC4UEV if you would like to borrow one. Also information on the SWITCHES & NODES is available on the WEB site [www.qsl.net/pbpg](http://www.qsl.net/pbpg) .

### **NEW BUSINESS**

There was discussion of the upcoming Hamfest to be held Saturday, October 21st. The PBPG will have a booth and all members are invited to stop by to participate in booth operations. We could really use your help if you would like to get involved. Marvin has the tickets for the drawing - since the ticket stubs are not serrated the tab will need to be cut off before putting them in the Drum. The main prize is the EARTHMATE & Software package. Ticket prices are \$1.00 each or 6 for \$5.00. Jamey will do APRS and provide most of the equipment needed. The handouts will be an APRS guide from Rich K4GPS , various packet flyers from the club, and PacComm catalogues and more. Doug will provide the PBPG banner. There will be 8 1/2 x 11 signs for raffle and memberships. Digital radio information will be available from PBPG library. Finally, Marvin is accepting Memberships this evening and at the Hamfest.

### **ADJOURN/BREAK/WORKSHOP**

There was no workshop due to the length of the Agenda. The next meeting will be Thursday, November 9, 2000. The meeting was adjourned at 20:25 hrs.

## **PALM BEACH PACKET GROUP MINUTES November 9, 2000**

### **OPENING AND REPORTS**

The meeting was called to order by President Doug Welcker (WB4KGY) at 19:30 hrs. All present were known to each other so they did not introduce themselves.

In the absence of Marv Kaskawits (KD2CK) the treasurer's report was given by Mike Michaels (K2GPI). The balance in the savings account is \$1,195.31, the CD that will mature in 1/22/01 is \$4,000.00 and the checking account balance is \$262.00. The report itself will be made available on the pages of "White Noise". In a brief discussion that will affect reporting, it was determined that future financial reports of the club will be provided from the treasurer to the editor of "White Noise".

Doug gave the technical committee report.

1. WPB Switch problems: There was a high SWR between LAN Tx (145.030) and the PBSO splitter. PBSO changed the unit on November 7th, and it is working much better. The 9K6 link to Boca was not running - reset TNC on November 1st. The 9K6 link to Stuart inoperative as of November 7th at 14:00 hrs. Is PBSO responsible?
2. The Clewiston APRS radio was returned to service. The antenna relay was destroyed by a possible lightning strike. Jim Johnson (W4JBZ), the site owner, reinstalled the radio for the club.
3. Boca has a problem forwarding traffic south to Robin (N4HHP). It is currently unresolved.
4. Almost two gallons of water were added to station batteries at WPB.

### **OLD BUSINESS**

The next "White Noise" is in production. More articles are needed.

Hamfest Report: We set up the booth Friday afternoon with Dick and Marvin's help. Jamie brought his computer and demo'd APRS. There was lots of interest. The prize winner was Pete Amar (KD4SPW) from Ft. Pierce.

PBPG has six Packet Books for lending. See Burck (KC4UEV) if you are interested.

The Southbay Switch site is still up in the air due to excessive costs to construct the site.

The handout for SWITCHES and NODES are now on the WEB site.

### **NEWS and INFO**

Bill (KB4VOL) has relocated his Web Page to [www.gate.net/~kb4vol](http://www.gate.net/~kb4vol). He has improved the layout and selection

SWL Frequency/Station Information - [www.anarc.org/naswa](http://www.anarc.org/naswa)

PBC Thrift Store is open November 18th from 8:00 a.m. to 2:00 p.m. - good buys.

Hamfest Information: November 11th - Port St. Lucie, St. Andrew Lutheran Church, 295 N. Primavista Blvd. Talk in -146.955/146.520  
November 18th - UMACR Coral Gables  
December 2nd - Tampa Bay Hamfest  
December 2nd - Okeechobee Hamfest

### **NEW BUSINESS**

Next month is time for nominations for officers.

We need suggestions on Educational Talks.

We are looking for input on topics for "White Noise" articles and writers.

Memberships are being accepted this evening by Burck.

### **ADJOURN/BREAK/WORKSHOP**

The meeting was adjourned at 20:25 hrs. There was no workshop due to the length of the Agenda

The next meeting will be Thursday, December 14, 2000.

Burck Grosse (KC4UEV)

## **PALM BEACH PACKET GROUP MINUTES December 14, 2000**

### **OPENING AND REPORTS**

The meeting was called to order by President Doug Welcker (WB4KGY) at 19:30 Hrs. Members introduced themselves.

The Treasurer's report was provided by Marvin Kaskawits (KD2CK) and the report was accepted for audit. The report itself will be made available on the pages of "White Noise".

Doug gave the technical committee report.

1. He discussed problems that we have had with the Stuart Switch & APRS.
2. There are still some problems with the BOCA Switch.
3. The new Southbay tower is nearer to construction. The contractor has been chosen.
4. The Clewiston equipment relocation should happen within the next few weeks.

### **OLD BUSINESS**

Doug received a thank you from Pete Amar (KD4SPW). Pete was the winner of the GPS and Delorme software raffled at the GPS Hamfest.

Articles are needed to provide material for "White Noise".

Bill Manley (KB4XE) is working on "White Noise" and hopes to have copy soon.

PBPG has 6 packet books for lending (see Burck - KC4UEV).

Replacement tower site for Belle Glade has created some problems, which were discussed.

Handout for SWITCHES & NODES are now available on the WEB site.

### **NEWS and INFO**

Give PSK-31 a try. There are lots of stations available during this peak in the sun spot cycle especially on 10 meters. Doug reports that the other morning he had 11 European stations on the waterfall in the 2.5 kHz bandwidth of his receiver. The set-up is easy, and it is very good for keyboard to keyboard conversation. DX stations are much more engaging in long QSO's than they are on phone or CW.

Doug reports that Bob Pasquale (WD9ATM) is back on the active list after bypass surgery. You will find him active on the 145.030 LAN daily.

There is a hamfest on January 12th and 13th at Ft. Myers.

Collins Radio has been separated from its parent Rockwell.

Dick Schofield (AF4OR) reports that the VEC testing schedule has changed. Locally testing has been reduced to quarterly with the next test the 2nd Saturday in March.

The IRIDIUM SATELLITE LLC has bought the Iridium satellite system, which was in chapter 11 bankruptcy for \$25 M and started business with a DOD contract for \$72 M for 24 months

In December TSR Wireless (a national paging company) without warning filed for chapter 7 leaving 2.5 million customers without service and 1,700 employees without a job.

More Spectrum auctions are scheduled for this week, for broadband PCS. Next Wave Licenses were reactioned as they were unable to pay the bid price from a previous auction.

What is next on the automotive front? - 42 volt systems. The potential Impact on new and in-service vehicles was discussed. On the technical side, radios we will have to learn how to handle this new voltage. Burck has volunteered to head up this particular subject, and requests that articles and technical tidbits be forwarded to him.

### **NEW BUSINESS**

President Doug Welcker asked for nominations from the floor for officers for the coming year. Nominations were made, candidates accepted nomination, and the election was held. The results are as follows:

President	Doug Welcker
Vice Pres.	Burck Grosse
Treasurer	Marvin Kaskawits
Secretary	Dick Schofield

Marvin is accepting memberships this evening.

If you would like to get involved, we could use your help.

### **ADJOURN/BREAK/WORKSHOP**

The program was a video tape made by Andy Czermann (KF4ATC) showing the Work being done on the ADELPHIA tower when our new antenna and line were installed.

The meeting was adjourned at 20:30 hrs.

The next meeting will be Thursday, January 11, 2001.

Burck Grosse (KC4UEV)

## **Broward Amateur Radio Digital Society August 19, 2000**

Jesse, KG4GEG, gave us an in depth presentation on keeping a healthy atmosphere in our mobile, home base, and home. He described a lot of symptoms, causes and cures for environmental problems in our home. He also covered the ergonomics of a good hamshack.

Seems a lot of subtle symptoms like drowsiness in the hamshack may be cured by better ventilation or new air conditioner filters. Do you clean your car's AC often or have you never cleaned it? Also Jesse's rule of thumb for your hamshack chair is that it cost half as much as you have spent on equipment. There are a lot of chair contours that we ignore. The next program hasn't been decided yet. If anyone has a good subject let me know.

## **Broward Amateur Radio Digital Society October 29, 2000**

Carl, W9ZGU, brought us a lot of test equipment and information on capacitors. Carl recent built a kit from Australia that test Equivalent Series Resistance, ESR. Other than this \$45 kit, the minimum price for a piece of equipment that will do this test is about \$500 from B&K. Carl also brought in a Sprague capacitor tester, which will test leakage. He showed us the difference between leakage and ESR. He "formed" a capacitor and told us about capacitor aging, wear, and drying out.

Dave, KB0NNZ, and Bob, N4CU, described the TAPER/ARRL Digital Communications Conference last month in Orlando.

We brought in the "GOTCHA" from the May 13 meeting described in the May/June 2000 White Noise. This was where we told Carl he missed the greatest meeting of the year...which really did not happen.

There were several announcements scattered through the meeting. One was about the conflict for the November 18 meeting. We will combine this meeting with the December meeting which will be set earlier. There are a couple of functions happening that weekend. One is the ARRL November Sweepstakes and we will send out information on participating in this contest.

The White Noise web site is [www.qsl.net/pbpg](http://www.qsl.net/pbpg). The BARDS web site is <http://www.geocities.com/ResearchTriangle/Lab/7781/73>, Bob

## **Broward Amateur Radio Digital Society December 16, 2000**

Bob, N4CU, brought an AEA SWR-121 graphical HF antenna analyser to the meeting along with the software application that runs and displays the antenna plots. A 200-ohm resistor through a tuner was plotted to how the device worked. Once again we had problems with the LCD display panel but Bill, KI4US, Dave, KB0NNZ, and Chuck, KE4NNF, got the panel running to show the plots Bob had run on his dipole. The plots were from 3.474 MHz to 3.564, centered on 3.524 MHz. They were by the SWR-121, the MFJ256B, and a TenTec wattmeter. It was pretty obvious the SWR-121 readings were noisy and inaccurate. The MFJ-259B was better but still read 1.3 to one on a 1:1 load. The root cause of the reading problem is pick up of extraneous RF that is not the reflected power. The 0-dBm signal source of the SWR-121 and the 8-dBm signal source of the SWR-121 limit the return power expected by the meter. Any extraneous RF is interpreted as a higher SWR reading. This is not a limit for the 10-watt radio driven SWR indication read by the TenTec. In fact, Jim, WA4CSQ, using a Hewlett Packard Vector Impedance meter, saw the same problem. Plots run by Bob on his mobile antenna and later by John, KN4HX, on his vertical showed no extraneous signal problems. The problem is location and/or antenna dependent. This is not the only problem with this type of measurement. Bill, KB4XE, said there was a Usenet, [rec.radio.amateur.antenna](http://rec.radio.amateur.antenna), thread on using the MFJ-256B (MFJ-259B - ed). The conclusion from this thread is that common mode currents, i.e. RF on the co-ax, is a major cause of inaccurate reading with this category of test instruments. The summary of all this is that the graphical SWR analyzer works and provides a more understandable presentation of an antenna's SWR but one has to be careful interpreting the results.

Jim, KD4GR, presented Bob a pocket knife for his work planning and providing equipment for the ARRL November Sweepstakes Contest project at Markem Park

Al, K4BVL, brought us the latest information on P3D, now AO-40. Seems the satellite is not doing very well at this time. The January 20th meeting will be a presentation on the Biological Effects of Electromagnetic Radiation by Quirino Balzano, Q. is Motorola's chief scientist on this subject. Q. is about to retire and this will be our last chance to hear him.

The White Noise web site is [www.qsl.net/pbpg](http://www.qsl.net/pbpg). The BARDS web site is <http://www.geocities.com/ResearchTriangle/Lab/7781/>.

73, Bob, N4CU

---

# 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](mailto:pbpg@qsl.net)

President Doug Welcker WB4KGY  
Secretary Richard Schofield AF4OR  
Registered Agent John Green WB4MOZ

Vice President Burck Grosse KC4UEV  
Treasurer Marvin Kaskawits KD2CK

---

Volume 13, Number 2

March, 2001

---

## A Brief History of NIST Radio Broadcasts of Time and Frequency Signals

(Abstracted from <http://www.boulder.nist.gov/timefreq/general/museum/wwwtran.htm>)

(The National Institute of Standards and Technology)



Transmitting building of WWV used for the broadcasting of standard frequencies from December 1932 until destroyed by fire on November 6, 1940. This and other buildings of the NBS Radio Section were located on the Experimental Farm of the Department of Agriculture, Beltsville, Maryland, northeast of Washington. Antennas and transmission-line feeders can be seen in the photograph. Picture taken from Achievement in Radio, W.F. Snyder and C.L. Bragaw (US Gov. Printing Office, 1986).

December 1922, preliminary transmissions of standard frequencies in the shortwave band were made from the NBS Washington site to about 30 observers within 1000 miles of Washington. The WWV call letters were assigned in 1919.

March 1923, WWV began transmitting signals on a regular schedule from Washington.

January 1931, standard WWV frequency transmissions were begun from a new location at College Park, Maryland.

December 1932, the College Park WWV transmitter was moved to a 25 acre site at the Experimental Farm of the Department of Agriculture at Beltsville, Md.

November 1940, station WWV was almost entirely destroyed by fire of an undetermined origin. With salvaged and additional equipment, the station was back on the air in five days and continued operation from that site for several years.

January 1943, WWV was moved to a new site in Greenbelt, Maryland about three miles south of the Beltsville Research Station.

November 1948, NBS initiated standard frequency broadcasts in the shortwave band from WWVH located at Kihei on the island of Maui, Territory of Hawaii.

July 1956, experimental station KK2XEI (later WWVB) began standard frequency broadcasts in the LF region (60 kHz) from the NBS Boulder site.

April 1960, scheduled operation began on the 20 kHz standard frequency station WWVL at an interim site at Sunset in Four Mile Canyon near Boulder.

July 1963, station WWVB was moved to a site just north of Fort Collins, Colorado.

August 1963, station WWVL moved from Sunset to the site near Fort Collins.

December 1966, station WWV ceased operation at its Maryland site and began broadcasting from the site near Fort Collins.

July 1971, WWVH was relocated from the island of Maui to the island of Kauai (also in Hawaii). The station had been severely damaged by a hurricane in 1970.

July 1972, broadcasts from station WWVL were discontinued.

Broadcasts continue today from Colorado and Kauai. Shortwave broadcasts are at 2.5, 5, 10, and 15 MHz for both WWV and WWVH and at 20 MHz for WWV only. Aside from standard frequencies, WWV and WWVH broadcasts now include time of day (both voice and digital code), astronomical time corrections, marine weather alerts, geophysical alerts, and status information for GPS and Omega systems. The low frequency broadcasts of WWVB at 60 kHz involve only a digital time code, but the carrier frequency is referenced to the NIST frequency standard.

## **A PIONEER PASSES**

By Doug Welcker (WB4KGY)

This is about a fellow amateur you probably have never heard of but use some of his innovations every day. He is credited with inventing mobile radio, pagers, and cell phones. And you thought all the accolades went to Fred Link or Motorola or? Al Gross got into amateur radio at the ripe old age of twelve when he turned his parents' basement into an amateur radio station prior to WWII. He was one of the pioneers before the war concentrating on frequencies above 100 MHz. His specialty was the development of miniaturized components and built a number of hand-held transceivers some operating up to 300 MHz with ranges to 30 miles.

During WWII the office of Strategic Services (OSS) invited him to work with them. His assignment was to develop communications with the OSS agents working in occupied Europe without them being detected. Al developed a two way radio system that was code named "Joan and Eleanor" that allowed agents to transmit a signal up to high-flying aircraft in a narrow beam. Since this signal had no ground wave the Nazis were not able to triangulate to locate the agents location. Interestingly enough this system was kept secret till 1976 when the documents were declassified.

In 1949 he developed the pager and in 1950 the wireless mobile telephone but was told the world was not ready for such devices. That didn't stop his ideas from becoming popular. And who remembers Chester Could – that's right – he was the cartoonist of Dick Tracey. He asked Al for permission to use the concept of a wristwatch transmitter in his long running cartoon series and the rest is history.

Again this shows just how important it is to get the youth involved in Amateur Radio which could light some future spark and create the next new idea that we can't even imagine. Al passed on December 21, 2000 at the age of 82.

## From the Internet

Ray Ortgiesen, WF1B, has changed the way his RTTY contest software is distributed. From now on, RTTY by WF1B will be available free via the Internet. Users will pay a fee for support, however. WF1B is making the program's source code available and is soliciting suggested changes from programmers. For details, visit the RTTY by WF1B Web page, <http://www.wf1b.com/>.

## BOARD OF DIRECTORS MEETING MINUTES

PALM BEACH PACKET GROUP

JANUARY 6, 2001

The meeting was called to order by President Doug Welcker (WB4KGY) at the home of Marvin Kaskawitz (KD2CK) at 1:30 P.M. Present were Doug Welcker (WB4KGY), Marvin Kaskawitz (KD2CK), Burke Grosse (KC4UEV), Dick Schofield, (AF4OR), Andy Czermann (KF4ATC), Bill Manley (KB4XE), Joe Kuntz (WB4TEM), and John Green (WB4MOZ).

- 1) Yearly Treasurer's Report for year 2000  
Marvin's report indicated that treasury was effectively unchanged from 1999 meaning memberships and expensed were nearly even.
  - 2) ARRL Equipment Insurance  
After discussion it was decided that it would not benefit the club to purchase insurance. We have not incurred a lot of replacement costs.
  - 3) Disposal of Old Documents  
Marvin indicated a need to purge club records and destroy unnecessary paperwork. Doug will go through paperwork with Marvin and accomplish this task.
  - 4) How to Collect Dues  
After discussion it was decided that Doug & John will purge member lists for delinquent members and people who receive the White Noise without joining/ rejoining the club. John will supply Dick a list of delinquent dues paying members. Dick has volunteered to call these people.
  - 5) Future of the White Noise  
Much discussion was spent on this subject. Joe Kuntz suggested a web page for all members to access the White Noise. Bill Manley suggested a password for members only to access the White Noise website. Further discussion led to approaching other clubs for to see if they would be willing to combine their news letters with the White Noise and /or exchange articles with other clubs newsletters as a lot of good articles don't get a chance circulate outside of their respective clubs. It was voted that Dick and Marvin will approach the WPBARC Board for their input. John will approach the WRC and Joe Kuntz will approach BRARC.
  - 6) Level of Support from the PBPG  
It was voted and approved that the PBPG would continue to support Switches, APRS, and Backbones outside of the direct PBPG control.
  - 7) How Can We Interface Better With Other Amateur Radio Clubs  
This was discussed under number 5.
  - 8) Purchase of Equipment/Antennas
-

After a short discussion the technical committee has been authorized to continue purchases as necessary.

- 9) Club Vision for the Future  
Several items were presented including expanding dissemination of information on digital modes that use computer sound cards.
- 10) Expansion of the Web Site  
Joe Kuntz has volunteered to work on expanding the web site.
- 11) The FADCA Connection  
Doug will investigate the status of FADCA.
- 12) Contribution to QRZ.Net?  
Bill indicated that the operator of QRZ.Net has not requested donations since last year. No contribution will be considered at this time.
- 13) Non Profit Corporation Annual Report  
Marvin will be forwarding this report to the State with the appropriate fee.
- 14) Disposal of Old Assets  
Bill Manley will forward a copy of the current inventory to Doug and Doug will dispose of old assets and update the inventory accordingly.

The meeting was adjourned at 4:10 P.M.

Respectfully

Secretary Dick Schofield (AF4OR)

## **P.B.P.G. MEETING**

JAN. 11, 2001

### Directors Present:

President	Doug Welcker (WB4KGY)
V President	Burck Grosse (KC4UEV)
Secretary	Dick Schofield (AF4OR)
Treasurer	Marvin Kaskawits (KD2CK)
Registered Agent	John Green (WB4MOZ)

President Doug Welcker convened the meeting at 7:30 P.M.

The treasurer's report was given by Marvin and presented later in this report.

Dick gave PBPG board meeting results. This report is listed in this issue.

Doug thanked Mike Michaels for his past assistance as vice president and as a board member for the past year.

Under technical items: Doug reported that the SWITCH developed a problem. John stopped by the SWITCH and found the computer dead. He took the computer home and found the power supply dead and replaced it with one donated previously from BillyBob (KE4GUM). The SWITCH was returned to operation the following day. Doug also reported that there is a problem with the BOCA SWITCH. This problem does not allow for forwarding to the Ft. Lauderdale BBS (W4HHP) or connection to the HWD node. This problem is being investigated.

Construction of our future site in western Palm Beach County has not yet begun. The official site will be known as Lake Harbor. In regard to the upgrading of the Clewiston APRS site, moving into the new building is expected to take place in the next few weeks.

Marvin reported he would talk to Bob Pasquale (WD9ATM) about writing an obituary for Larry Lazar (W4BKX).

Doug reports he has been scheduled to give a talk and demonstration on PSK31 at the WPBARA meeting on Jan 23<sup>rd</sup>.

Information on PSK31 was handed out which was followed with a short discussion on the operation of this new mode.

The meeting was closed at 8:30 PM.

Respectfully Submitted  
Richard Schofield Secretary

## **PALM BEACH PACKET GROUP MINUTES**

February 2001

The meeting was called to order by President Doug Welcker (WB4KGY) at 1930 Hrs. President Doug welcomed all and Jaha Tnomela (KF4HJT) was introduced as a new guest. Secretary Dick Schofield (AF4OR) was absent as he was in transit to a wedding.

Marvin (KD2CK) presented the treasurer's report and mentioned that several people had paid their dues since the last issue of White Noise was published. A copy of the treasurer's report is published in the issue. (Please look at your mailing label for your dues renewal date)

The Technical Report was given by Doug (WB4KGY). Conditions at the WPB SWITCH are back to normal as there were no problems nor was the site visited. The continuing problem with the BOCA SWITCH were resolved by Joe Kuntz (WB4TEM) during the middle of January when he visited the site and found the squelch adjustment on the 440 MHz radio that links to HWD was misadjusted. As reported last month the construction of the South Bay tower site is nearer to construction. This site has gone by various names in the past. In the future we will refer to it as the Lake Harbor Switch site. Lake Harbor is located in far west Palm Beach County on highway 27. If you are driving between South Bay and Clewiston you are passing through Lake Harbor when you drive over the Miami Canal, see a large water tank on the south side of the road, and a large pumping station on the north built into the dyke. The last item is the upgrade of the Clewiston APRS site. The new building has been installed including a generator. It is expected that within the next few weeks the move will be made and possibly leaving the digipeater off the air for some days.

Under News & Info it was noted that the FCC had completed the auction & reauction of "F Block" of frequencies for PCS providers. With final bidding was complete the government will receive \$17 Billion that goes to the general fund. Also noted the next auction for the 700 MHz band (TV channels 60 to 69) has been delayed as increased lobbying by the cellular/mobile data industry who wants to displace the TV stations sooner than previously agreed. The other LEO (Low Earth Orbit) company, Globalstar, has lost its primary backer, Loral, and is expected to file for bankruptcy. Also noted, Doug gave a talk to the West Palm Beach Radio Club on January 23<sup>rd</sup> on PSK-31 and wants to thank Larry Lazar (President of the Wellington ARC) for providing a large monitor so all could view the demonstration.

Under New Business it was announced that the CD the club has was moved to Sterling Trust in January when it was time for renewal due to the ½ point higher interest rate. This interest rate gives us the equivalent of approximately seventeen one-year members. The PBPG in conjunction with the Wellington ARC has purchased PC Boards for constructing the interface between your computer soundboard and your radio for operating the many digital modes. These boards are available on a first come first serve basis. Bare boards are \$5.00 and kits will be under \$25.00. If you would like to participate call Doug at (561) 686-3747. If you would like to be involved in any of the functions of the PBPG please feel free to contact any of the board members.

Doug presented the Workshop this evening. He discussed the interface board noted in the above paragraph. Next month Workshop will be on dealing with the FCC since the many changes in the licensing procedures. The next meeting will be March 8, 2001. The meeting was adjourned at 2025 Hrs.

Respectfully submitted by Doug Welcker for Dick Schofield (AF4OR)

## **Broward Amateur Radio Digital Society**

February 17, 2000

It is common knowledge that a 40-meter dipole can be successfully use as a 15-meter dipole. The 15 meter pattern has lobes that are not the familiar donut dipole pattern but work well on an antenna parallel to the horizon. John, KN4HX, started the meeting with a EZ-NEC antenna simulation which showed that a two meter vertical has a good SWR on 440 MHz but the pattern is not longer optimized. In fact, using a simulation over perfect ground the horizontal pattern is 7 dB below the equivalent 1/4 wavelength vertical. The pattern shows a main lobe off at 60 degrees above horizontal.

Seymour demonstrated a Single Board Computer called FIRECARD [no connection with the name FIREWIRE ]. The board is a computer on a chip with FIREBASIC and an operating System. The device has on board peripherals like A/D, D/A, PWM, two com ports. It comes with a 1 Meg Flash Disk and room for removable flash cards of up to 1 Meg in Memory. Anyone interested in experimenting with Microcontrollers that wants a lot of features at a very low cost should consider starting with FIRECARD. Additional Information: [www.firewindandrain.com](http://www.firewindandrain.com)

The LCD display panel we have been using over the years for presentation now requires a 2-hour warm up before it will work with a VGA computer input. It will accept composite video without the long warm up. John used the VGA input and Seymour used the Composite input. It looks like we have solved our computer presentation problems. Presentations will be better we can use the much brighter Proxima ceiling mounted projector. Bob, N4CU, got that going after the meeting. We will use it in the future but have the LCD panel for back up.

Some of the usual BARDS group meets for breakfast on Sunday. The new breakfast location is the 84 Diner

Jim, WA4CSQ, will make our March 17 presentation on transmission line matching.

The White Noise web site is [www.qsl.net/pbpg](http://www.qsl.net/pbpg). The BARDS web site is <http://www.geocities.com/ResearchTriangle/Lab/7781/73>, Bob, N4CU

---

# 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 Richard Schofield AF4OR  
Registered Agent John Green WB4MOZ

Vice President Burck Grosse KC4UEV  
Treasurer Marvin Kaskawits KD2CK

---

Volume 13, Number 3

June, 2001

---

## HOW NOT TO SEAL A CONNECTOR

By Doug Welcker (WB4KGY)

That may sound like an unusual title but the importance of proper connector weather proofing can't be understated if you want to keep the antenna system operating like it is still new. What most recently brought this the attention of the Palm Beach Technical Committee is a persistent lack of signal from the Boca Raton Switch on the backup 223 MHz link. Some weeks ago John (WB4MOZ), Andy (KF4ATC), and myself meet Joe (WB4TEM) at the Boca Raton Hospital Switch site. (The worst part about this place is the parking) After carting our stuff up to the sixth floor to the equipment room we set out to find the problem. Installing an SWR meter inline we found the reflected power was nearly the same as the forward power – definitely a big problem. Andy and I climbed to the roof pulling up a box of tools using Andy's long extension cord. After locating the 223 MHz beam our best guess was the jumper between the ½" HELIAX and the antenna.



This is where the problem really begins. The connection was poorly rapped with electrical tape. After removing the tape and separating the connectors we opened the brass HELIAX connector only to find that corrosion from years of moisture and dissimilar metals had completely separated the center pin from center conductor. While attempting to install a new connector we found the closed foam filled HELIAX was contaminated with water. Cutting off four inches didn't make any difference so we cut off two feet before reinstalling the connector. Terminating the transmission line with a fifty-ohm load the SWR was checked again and none was observed.

To prevent the return of water into the cable junction never uses just electrical tape. The idea is to create an air tight seal and to do that the connection must first be wrapped with a moldable rubber tape in such a manner as to leave no voids or sharp edges. Start in the center and end in the center overlapping each wrap 50% and filling voids with extra rubber tape. This should leave a smooth tapered junction ready for wrapping with a good quality electrical tape. Wrap the joint with the electrical tape just as you had wrapped the sealing tape by starting in the center and extending past the sealing tape before wrapping back to the center. Keep good tension on the tape to avoid air pockets but be sure to wrap without tension for the last two turns. This helps keep the tape from unraveling and canceling all your hard work. To make this a really long lasting job paint the tape with "Scotch Kote", a liquid plastic (this has lots of handy home uses as well). I will also recommend using Scotch, 33 or 88 which is a thicker tape that will stand more abuse. All these products are available at Home Depot including the rubber sealing tape in the electrical supply section.

It was also interesting that a new vinyl roof had been installed and the roofing people hung the extra coax lying on the roof on the various antennas from other installations. We secured the excess coax from the Switch installations to prevent wind damage. In the end it turns out the 223 MHz radio has only 3.6 watts out due to a weak power amplifier but the signal is now full scale back in West

Palm Beach. We have restored the link to a usable condition and hopefully to a long life and got off the roof and out of the building in-time to beat the lunch rush at a local home style restaurant.

## CLEWISTON ARPS RELOCATION

By Doug Welcker (WB4KGY)

This is a review of just what it takes to keep a site on the air and hopefully improve its performance for years to come. First lets set some background. A couple of years ago in September the Palm Beach Packet Group was invited to share the antenna at a commercial AM radio station in Clewiston. The word share is the operative word here. The antenna is located at the top of 320-foot shunt-fed AM broadcast tower and intended for reception of remote programming. As remote pickups happen only a few times a month for only a few hours at a time this antenna was certainly underutilized. I think all of us can appreciate how exciting it would be to have our VHF antenna at that height.

The site owner, Jim Johnson (W4JBZ) invited us to install in one of his equipment cabinets the necessary equipment to go on the air with APRS. The only stipulation was it had to be designed so he could switch the antenna to his equipment when he did a remote broadcast. This turned out to be easily accomplished by using a good quality T/R relay to switch the antenna transmission line between the two pieces of equipment. The T/R relay has auxiliary contacts that are used to remove power from the TNC which disables the APRS radio from transmitting into an unterminated transmission line. The relay is controlled through the site controller which is controlled over the phone line with the DTMF keyboard of the phone.

As with everything in life and ham radio everything is subject to change and in this case for the better. Jim needed to up grade the transmitter site as more equipment was being and he wanted to improve the lightning protection and add emergency power. As was originally configured the transmitter building was about 360 feet from the base of the tower which is a pretty long run when you include another 320 feet to get up the tower. Since the site is built in a swamp fill was brought in to extend the road closer to the tower and a concrete pad was poured for the new portable building and the generator. Turns out the building is big "Ted's Sheds" type that Jim's son Brian built into a first class equipment shelter. It takes lots of conduit, insulation, paneling, central air, and a good ground system before you can even think about installing equipment.

Finally on Friday February 16th the move is scheduled and our hardest working technician Andy (KF4ATC) is dispatched to the site arriving about 10:45 A.M. It was one of those days where everyone shows up at once since there is a lot to do in a short time. Remember that this move needs to be done without taking the AM Transmitter off the air. Fortunately there are two transmitters in the building and the second one is a backup unit. The easiest part was actual moving the APRS equipment from the rack in the old building into the new rack. Jim had arranged the rack such that there was one space left which the APRS equipment fit perfectly. At the same time as this was going on the tower climber was installing a commercial FM band antenna and 1 5/8" air line, increasing the number of shunts feed wires around the tower to lower the Q and repairing the VHF antenna on top of the tower. Turns out several years ago this site was shared with another tower which due to poor maintenance blew over in a wind storm subsequently landed on the AM station tower and pulled the transmission line out of the antenna. Previous repairs had deteriorated and water had leaked into the antenna harness creating a mismatch and deteriorating the coverage. With the repairs normal range has been restored but only time will tell if the antenna will need replacement.

On the ground, work continued with the removal of the standby 1KW transmitter out of the old building. These puppies are full size, about 6' high 4' wide and 3' deep. As it was a tight fit and heavy and it took four people to muscle it out of the building. In the process of removing it from the building they accidentally tripped off the online AM transmitter twice creating a minor crisis. Since this was a golden opportunity for cleaning Andy and Brian vacuumed and polished the transmitter inside and out before moving it eighty feet and into the new building. During a break in the action Andy noticed the air-conditioning in the new building wasn't working. The problem was traced to the electrical contactor for the compressor that had become home to a nest of ants. With a little cleaning the air was restored to normal operation.

Previously installed at the new building were two 10 foot ROHN 25 tower sections. On this tower Andy helped Brian install an UHF yagi aimed to the studio in town and a two-foot dish aimed where the new Lake Port tower will be installed. After the antennas were installed transmission lines were run down the tower and into the building. This pretty much rapped up the first day but as the

---

transmission line for the APRS had not been relocated our equipment was off the air. After a hard days work Andy headed home about 4:30 P.M.

The next workday, Friday February 23rd, turned out to be comedy of errors. Andy arrived early at 8:45 A.M. to help the electricians with getting the transmission lines buried. The problems started with the Ditch Witch. It just wouldn't start. When you have three hundred feet of trench to dig through shell rock you want a power trencher. After working on the engine for three hours the wiring harness was replaced and the digger finally started. The ditch was dug from the tower to within 20 feet of the building when it was time to knock off for lunch. After lunch guess what - It wouldn't start again. Now it is time for manual labor for the last 20 feet.

Installing the lines in the ditch was more involved than one would think. The 1 5/8" line needed to be in a 3" plastic electrical conduit but with a line this big you don't pull the line through the conduit, you put the conduit over the line. With the line laid out alongside the ditch the conduit has to be slipped over the length of line one piece at a time then glued. This was aggravated by the fact the plastic conduit sections were only eight feet in length! Next the 7/8" transmission line for the APRS equipment was removed from the old building and relocated into the ditch. Other lines previously run in two inch PVC include the 1/2" transmission line for the AM Transmitter and AC power for the tower lights.

With all the lines in the ditch Andy was finally able to turn his attentions to connecting the transmission line to our equipment. To get our line out of the ditch he used a ten-foot length of 1 1/2" PVC bent into a "S" shape to bring the line up out of the ditch and underneath the building. With this done a new "N" male connector was installed on the 7/8" line and connected to a 1/2" SuperFlex jumper which was brought through the floor. Andy terminated this line on the PolyPhaser lightning protector that he had previously installed and connected to the building ground system.

Now it was time some testing. I was home listening to the 147.135 repeater when Andy called me from his mobile. He was quite weak to unreadable. After a few minutes he called me again with a full quieting signal. He had run a forty-foot piece of coax from his van to the PolyPhaser antenna connection. On low power he was still full quieting so next he took his hand held into the building and connected it to the antenna. At 1 1/2 watts it was still perfect copy and nearly full quieting simplex. These simple tests confirmed that the system was performing as expected. To complete the job another SuperFlex jumper was run from the PolyPhaser to the change over relay, the power supply mounted on our equipment shelf and plugged into the station UPS and turned on. Within a very few minutes the site beacon was received and stations from the West Coast of Florida began appearing on the monitor. Another job well done Andy.

## **ARRL Seeks to Expand Amateur Access to 216-220 MHz**

ARRL Bulletin 008

The ARRL has suggested that the FCC expand the secondary amateur allocation at 219-220 MHz to provide access to the entire 216-220 MHz band. The League commented this month in response to a Notice of Proposed Rule Making, ET Docket 00-221, that proposes to reallocate 27 MHz of spectrum in various bands, including 216-220 MHz, from government to non-government use.

In general, the FCC seeks to allocate the entire 216-220 MHz band to the Fixed and Mobile services on a primary basis. At 219-220 MHz, Amateur Radio now is secondary to the Automated Maritime Telecommunications System (AMTS). Within the 1-MHz of spectrum, Amateurs may install and operate point-to-point digital message forwarding systems, including intercity packet backbones, but only under strict limitations.

While the FCC has promised to protect AMTS and other operations from new interference, it extended no such assurances to amateur operations at 219-220 MHz. In its comments, the ARRL expressed fears that additional co-primary users "will essentially foreclose what limited opportunities there are now for amateurs to make use of the 219-220 MHz segment."

The League suggested that permitting amateur access to the entire 216-220 MHz band on a non-interference basis would be one means to accommodate Amateur Radio operations in that portion of the spectrum. Such a move would, the ARRL said, "provide at least some opportunity for amateurs to engineer fixed links into the band, which would not be possible in the 219-220 MHz segment alone."

---

"The Amateur Service is well-known for being able to make use of bands used by other services, which increases the efficiency of spectrum use," the League said. The allocation could be made "without any adverse impact on AMTS operations, television broadcast reception, or other, new co-primary operations in the 216-220 MHz band, Fixed or Mobile," the ARRL concluded.

**PALM BEACH PACKET GROUP**  
MEETING MINUTES  
March 8, 2001

Board Members Present:

President - Doug Welcker (WB4KGY)  
Secretary – Dick Schofield (AF4OR)  
Treasurer – Marvin Kaskawits (KD2CK)  
Registered Agent – John Green (WB4MOZ)

The meeting was called to order at 7:30PM by President Doug Welcker.  
As all nine members present knew one-another no introductions were necessary.  
There was no Treasures report given, as the credit union statement had not arrived.

Doug gave the **Technical Committee Report** and again all is well with the West Palm Beach SWITCH. John, Andy and Doug met Joe (WB4TEM) at the BOCA SWITCH to investigate problems with the 220 backup link. A bad connector was located on the roof end of the ½” HELIAX to the 220 MHz beam and replaced. Radio power is down to 3.6 watts but the link has full-scale signal at the West Palm Beach end. John (WB4MOZ) has been in discussion with John (KN4HX) to help with the conversion from ROSE to a FPAC SWITCH in Hollywood. Andy (KF4ATC) has completed the relocation of the APRS Digi to the new building in Clewiston. Jim Johnson (W4JBZ) is most appreciative to Andy for his two days of hard work not only working on the Digi but with getting Jim’s equipment installed in the new building.

Under **Old Business** it was announced that the Wellington Radio Club has decided to publish it’s own newsletter and not merge with the White Noise. They will also be developing a Web Site. A call for articles or subject for articles was made. If you have suggestions for same please contact a board member and make you’re thoughts known. The March issue of “White Noise” was mailed on Friday March 2<sup>nd</sup>. PBPG has six books on packet and digital radio. Dick (AF4OR) is the librarian for these books.

In our **New and Info** section we have been invited by Jim Johnson (W4JBZ) to install APRS Digi sites at locations on Marathon Key and Sebring. In the same vain, John, Andy and Doug will investigate relocating the Lake Placid Switch to a new and much higher location. (More next month). If you have run out of thing to buy Motorola has introduced a new “Software Defined Radio” which covers 30 MHz to 2.5 GHz. By just loading software into this radio it will work on all know modes and modes not yet defined when software programs are written. All were reminded of the Hamfest in Stuart on March17th.

In the category of **New Business**, BOCA ARC in interested in publishing with the Palm Beach Packet Group “White Noise”. Further information will be presented on this possibility next month. Several interface boards have been spoken for but boards are still available. These boards allow you to connect your computer sound card to your hf/vhf radio enabling you to operate many of the new digital modes.

Dick (AF4OR) gave the Workshop on the news CORES registration. All amateurs must register in order to deal with the FCC. This ended the meeting that was adjourned at 8:30 P.M.

Respectfully submitted by Secretary

Dick Schofield AF4OR

**PALM BEACH PACKET GROUP**

## MEETING MINUTES

April 8, 2001

## Board Members Present:

President - Doug Welcker (WB4KGY)  
Secretary – Dick Schofield (AF4OR)  
Treasurer – Marvin Kaskawits (KD2CK)  
Registered Agent – John Green (WB4MOZ)

The meeting was called to order at 7:30PM by President Doug Welcker.  
As all eleven members present knew one-another no introductions were necessary.

The **Treasures Report** given and accepted. (see last page)

Doug gave the **Technical Committee Report** and again all is well with the West Palm Beach and Stuart SWITCH and no maintenance was necessary. The APRS Digi equipment for Marathon Key is under assembly and expected to be completed by May.

Under **Old Business** there has been no communications between the Palm Beach Packet Group and the Boca ARC concerning include their membership in our mailing list and include their club articles in the White Noise. Several interface boards have been spoken for but parts kits have not been completed. These boards allow you to connect your computer sound card to your hf/vhf radio enabling you to operate many of the new digital modes. Another call for articles or subjects for articles was made. If you have suggestions please contact a board member and make you're thoughts known. PBPG has six books on packet and digital radio for lending. Dick (AF4OR) is the librarian for these books.

In our **New and Info** section a UPS was purchased at the Stuart Hamfest for the Back Bone network and will be installed by PBPG technician Bill Sinbine (N4XEO) at the Okeechobee Switch. It was also mentioned that there would be a Hamfest in Gainesville at the fairgrounds on Saturday April 28<sup>th</sup>.

Under the category of **New Business**; while at the Stuart Hamfest Marvin (KD2CK) engaged Adam (N2PNO) in conversation and found he just happens to work at the Bell Glade Hospital and is an avid packter. He has offered the PBPG space for equipment and antennas after the hospital completes a State inspection on the 1<sup>st</sup> of May. The PBPG has been looking for some years for a suitable location in Belle Glade and has equipment ready to install.

Bill (KB4XE) has suggested we take pictures of each site and post them on the web site along with and explanation. In this vein we are in need of a web page designer and looking for someone to help. Please contact a club officer.

The **WorkShop** was presented by Doug who presented information on how to work packet using the International Space Station (ISS). His handout included information on the proper settings for your TNC, frequency and antenna setups and satellite tracking software.

The next meeting will be May 10, 2001  
This ended the meeting that was adjourned at 8:30 P.M.

Respectfully submitted by Secretary

Dick Schofield AF4OR

**Broward Amateur Radio Digital Society**

May 12, 2001

John, KN4HX, created a EX-NEC presentation based on modeling the Skeleton-Sleeve-Fed Monopole. The SSFM construction program given by Paul, KF4FSM, at the Broward Amateur Radio Club last March, inspired the modeling challenge. Paul built his SSFM from the October 2000 CQ magazine article. The SWR plots from the magazine article did not match those obtained using the given construction dimensions. The SSFM is a derivation of the J-Pole and is in many ways similar. John did an excellent job of showing the options and capabilities of the graphical capabilities of EX-NEC. He also was using his new Compaq laptop, which was very fast, doing calculations and displays in what seemed like real time. The model's SWR plots were compared with SWR plots the SSFM made Bob, N4CU, on the AEA HF Analyst. We learned a lot about antennas, patterns, SWR, and modeling from John's program. If a conclusion can be drawn it is that modeling is fun and comparing your model with test results may result in a surprise. An accurate model will match results exactly but getting the model right can be tough.

The June 16th presentation will be by Tom, K4GFG, on Amateur Reception of Radar Echoes from Venus. This promises to be an excellent program. Think about how difficult it is to send a signal from earth, spinning and rotating about the sun, and hitting another planet which is following a different path about the sun. Then receive that signal bouncing off the other planet. The White Noise web site is [www.qsl.net/pbpg](http://www.qsl.net/pbpg). The BARDS web site is <http://www.geocities.com/ResearchTriangle/Lab/7781/>

73, Bob, N4CU

---

# 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](mailto:pbpg@qsl.net)

President Doug Welcker WB4KGY  
Secretary Richard Schofield AF4OR  
Registered Agent John Green WB4MOZ

Vice President Burck Grosse KC4UEV  
Treasurer Marvin Kaskawits KD2CK

---

Volume 13, Number 2

March, 2001

---

## **Reach Out and Touch Someone: How Bob and His Binoculars Found More Bandwidth and Learned to Stop Worrying and Love the Bond**

By Robert X. Cringely

*Bob Cringely is a columnist whose weekly internet articles cover the behind-the-scenes happenings in the computer industry. They enjoy a high priority on my must read agenda while surfing the internet. This article was published on his web site <http://www.pbs.org/Cringely> June 23, 2001. It specially caught my attention because of its content covering broadband, computers, and digital radio. And, for the later reason, I'm sharing it with White Noise readers who also have that interest. As soon as I read it, I emailed Bob requesting his permission to reprint it. Within hours I received a reply indicating that the proper permission must be sought from the Public Broadcasting System and he forwarded my request to them for consideration. Within a week I received their email approval.*

*We are grateful for the endorsement from Bob Cringely and the permission of PBS - Online <http://www.pbs.org>. to reprint it here.*

My house sits on a hill in rural Sonoma County, 36,000 feet from the telephone company central office and 22,300 miles from the GE satellite that provides my Starband Internet service. I have written two previous columns about Starband, but this isn't a third one. Rather, it is a column about my feeble attempts to move beyond Starband and gain better service. Starband is nice, but the latency is real, the upload speeds are a joke, and some protocols can't be carried at all. Internet telephony, for example, works great, but only in one direction. So while I am not ready to dump Starband, I'm certainly looking for alternatives. And now I think I've found one -- an 802.11b wireless link from Hell. Remember, I am a professional. Don't try this at home.

The whole idea was to piggyback off some other person's DSL connection. There had to be someone I could find who was close enough to the phone company central office for dependable DSL service, yet still within line-of-site from me. So I bought binoculars, then a telescope, then a larger telescope. In the early morning and late at night, I would sit on my deck scanning for neighbors with DSL potential. That's when the light was best and the haze was least. My immediate neighbors would be no help because they were all just as far from the phone company as I was. Most DSL needs to be no more than 18,000 feet from the C.O., so anyone else in Bennett Valley was off-limits. That left me peering through two little gaps on the shoulders of the mountain between my house and Santa Rosa. Through one gap I could see what looked like street lights, and through the other I could see what I was sure was a traffic signal, both between five and 10 miles away. To a man with slow bandwidth, such things are exciting. Enter telescope number three, finally big enough to actually see what was there -- evidence of habitation!

It sounded easy. I'd find a house through one of those two gaps, knock on their door, then ask if I could buy them DSL service in exchange for mooching some bandwidth over a bootleg wireless link. It SOUNDED easy, but wasn't. People don't like to hear that others have found them by squinting through a telescope. They are suspicious of free offers. Or maybe they were just suspicious of

me. But finally I had my co-conspirator, a guy who never would have bought DSL, but was certainly willing to enjoy it for free. We ordered Pacific Bell DSL because the phone company sometimes forgets to throttle the bandwidth, something a Covad or Rhythms would never do.

Now for the wireless link. I had done my research on the Net and knew exactly whom to copy, in this case a guy from New Zealand. The connection would be using 802.11b, which normally has a range of 100 feet or so. But that range is using an omnidirectional antenna. Using a 21 dB Yagi directional antenna, other people had built links as long as 14 kilometers while mine would be about 10. Interestingly, this sort of hacking doesn't appear to break any laws because the Effective Radiated Power of the Yagi is still under the maximum set by the FCC.

The set-up is simple. I had to buy a new Apple Airport hub for each end of the link. So I'm already \$600 into it. Then I needed a pair of Apple G-4 internal antenna cables that matched the custom Airport coax connector. These cables are \$30 each. Finally I needed a pair of \$249 Yagi antennas and various cables, clamps, and poles, for a total of just under \$1,400. Then came a little mounting, a lot of aiming, and the darned thing actually worked! Now for \$49.95 per month I have close to a megabit of PacBell DSL to go with my Starband, all arbitrated by a multi-homed Linux Router Project homebuilt BGP-4 router built from an old 486/66 PC. At the other end of the link, no computer needs to be on for me to connect, just the Airport and the DSL modem.

What all this effort gets me is the ability to run a server. It gets me two-way Internet telephony, though at a cost where it would probably have been cheaper for me just to use my regular phone. It gets me AOL and several streaming protocols that just don't work very well over the satellite. But mainly it gets me two things I really value -- reduced latency and a useable Internet time signal. I'll never have to set my computer clock again.

This use of 802.11b or WiFi is not all that unusual and probably indicates one direction where we will see commercial products headed soon. What I cobbled together for \$1,400 could probably be put together in volume for half that price. I wish someone had done it and saved me the trouble.

This experiment is also a testament to the versatility of 802.11 -- a protocol that was never intended to do anything even remotely like this. But 802.11 isn't what it used to be. There were a number of technical problems to be overcome along the way.

For one thing, the 802.11 protocol had some significant problems scaling up from LAN to WAN. First, there is the problem that, as the standard is written, every node on the network is supposed to be able to hear every other node so they can detect collisions much as CDMA Ethernet does. This "hidden node" problem -- the node that is active on the network but can't be seen by the other clients -- can lead to significantly reduced throughput if hidden nodes account for more than 10 percent of the total hosts.

Then there is the polling problem. 802.11 uses standard 802.3 polling, which means that a host first listens for traffic on the line, then transmits if none is heard. If a collision is detected, both colliding nodes wait a random time interval then try again. This works fine for Ethernet, but not for 802.11 because the signal strength can vary so much from one radio to another depending on where it is in the building, etc. So the 802.11 standard is very conservative with the result that it can take a lot of time for each computer to finally get a chance to talk. This is fine when the average LAN size is a few nodes, but when there are hundreds of nodes it's horrible -- or was.

Finally, there is the packet size problem. Most of the 802.11 overhead goes into creating, then shutting down communication events. The actual data transfer is trivial. This suggests that the bigger the packets the more efficient the communication. Alas, 802.11 ramps up packet size in such a way that short packets are much more the rule than longer packets. And the spec even mandates that the first packets be as small as possible. This means another hit on throughput.

All of these problems were solved by Doug Karl, a guy who until recently helped to run the network at Ohio State University where all these wireless tricks were perfected. His company, Karlnet Communications solves these problems with its Turbocell technology, which uses the hub almost as a wireless switch, controlling for hidden nodes, maintaining polling priorities, and aggregating smaller packets into larger ones. Turbocell makes 802.11 far more useful than it really deserved to be, which is exactly the way Internet standards should evolve. Apple, Lucent, and other companies license Turbocell code for their products. So if you are reading this over a wireless connection at Starbuck's, be grateful to Doug Karl. I know I am.

But now what do I do with three telescopes?

*(More .... Bob Cringely wrote a follow-up article for his web site of July 14: "I Network Therefore I Am - Further Adventures in the World of Bootleg 802.11b". Cringely elaborates on alternative hardware selections and notes that the idea of piggy-backing broadband connections is spreading. If this first article whet your appetite, his second (and perhaps more?) is a must to read. - Bill Manley KB4XE)*

## **THE MOXON ANTENNA A Compact 2-element Beam**

Bill Manley KB4XE

As you may have presumed, I do spend more time surfing the internet than I do hamming (or just about any other single activity). Here is another article, gleaned from the internet, having extraordinary interest to hams.

The Moxon Antenna, first suggested by Les Moxon G6XN, has been the topic of much description and analyses on the internet and other media. It is a fascinating antenna having about 70% the size of a 2 element yagi but very close to the same gain and superior front-to-back ratio.

Check out <http://www.cebik.com/moxgen.html> . L. B. Cebik W4RNL presents analyses, charts, tables, and descriptions of the Moxon configuration. He defines optimum dimensions for each of the antenna segments based upon frequency and wire size. His article includes the basic language source code to determine the optimum configuration for any size Moxon using your home computer.

Unfortunately many modern PCs no longer have the capability of running basic code. Using Cebik's data, I coded his analysis in Visual Basic and have placed an installable application on our web site. It can be downloaded and installed on any Windows ready computer. Connect to <http://www.qsl.net/pbpg/downloads> and click on OPTIMIZED MOXON DESIGN PARAMETERS APPLICATION. This will download moxon.zip. Unzip the file, and run the setup.exe . The resulting application will install on your computer and become available from START/PROGRAMS/MOXON ANTENNA DIMENSIONS.

Run the application. The Moxon form will appear on your desktop. Enter the frequency of operation and wire size for the antenna to be configured in the form. The wire size can optionally be specified in inches or as a ratio to the wavelength. Press CALCULATE and the six element dimensions will be presented. Exit by pressing QUIT.

Oh yes, don't forget to read the readme.txt file which is included in the package.

And also, when you visit the Cebik [moxgen.html](http://www.cebik.com/moxgen.html), check out his other pages as well. You can spend a week surfing Cebik's site!

**MEETING MINUTES**

May 10, 2001

## Board Members Present:

President - Doug Welcker (WB4KGY)  
Secretary – Dick Schofield (AF4OR)  
Treasurer – Marvin Kaskawitz (KD2CK)  
Registered Agent – John Green (WB4MOZ)

The meeting was called to order at 7:30PM by President Doug Welcker.

The Treasurers Report was read by Marvin (KD2KD) and accepted. (see last page)

The Secretaries report was read by Dick (AF4OR) and accepted

Doug gave the Technical Committee Report and again all is well with the West Palm Beach and Stuart SWITCH sites. The APRS Digi equipment for Marathon Key is under assembly and expected to be completed by May. Andy installed the crystal channel elements and tuned the radio. Several 486 computers were donated to the club including monitors. Contact Doug if you need a spare monitor as he has several to give away.

Under Old Business there is not much to report. If you have an interest in a particular digital subject and would like more information contact a club member or officer. Due to Bill Manley's situation White Noise mailing will be delayed. A new SWITCH/NODE list for Florida was handed out.

In our New and Info section Bill Manley (KB4XE our WN editor) is in the hospital with possible heart problems. For this reason there will be a delay of WN publication. All our prayers are with you Bill. Doug thanked Jamie (KD4LXB) for his generous contribution of a APRS weather station. It is planned to install this equipment in the Belle Glade area to show conditions in western Palm Beach County. In regard to the Radio/Sound Card interface, it has been difficult locating some of the parts. John (WB4MOZ) will continue he search while at the Dayton Hamfest this month. The South Florida S.E.T. is now underway. This is a state wide simulated hurricane drill (South Florida ARES Net frequency is 3940 kHz. New purchases for the PBPG library include books on cubical quads and wire antennas. If you would like to help either technically or otherwise even if you can't attend the meetings please contact one of the club officers.

Under the category of New Business; as reported last month Adam (N2PNO) has advised the PBPG that there is site availability to install a SWITCH and APRS weather station at his place of employment, the Belle Glade Hospital. Currently the hospital is preparing for a State inspection on the 1<sup>st</sup> of May and after that is complete we can proceed with equipment installation.. The PBPG has been looking for some years for a suitable location in Belle Glade and has equipment ready to install.

The workshop was presented by Doug who showed a video of a possible new Lake Placid Switch site. The video included the current Lake Placid Switch site and the Okeechobee site including the tower and antennas. The next meeting will be June 14, 2001. This ended the meeting that was adjourned at 8:30 P.M.

Respectfully submitted by Secretary

Dick Schofield AF4OR

**MEETING MINUTES**

June 14, 2001

Board Members Present:

President - Doug Welcker (WB4KGY)

Secretary – Dick Schofield (AF4OR)

Treasurer – Marvin Kaskawitz (KD2CK)

The meeting was called to order at 7:30PM by President Doug Welcker.

There is no Treasurers Report as Marvin is on vacation.

The Secretaries report was read by Dick (AF4OR) and accepted.

Doug gave the Technical Committee Report and again all is well with the West Palm Beach and Stuart SWITCH sites. The APRS Digi equipment for Marathon Key is under operational test in Doug's garage. Instead of using a TR relay on the shared antenna, the commercial service and the APRS Digipeater will be diplexed onto the same antenna, which allows both to operate simultaneously. The long awaited western Palm Beach County Switch site has come back to the front burner. Jim Johnson (W4JBZ) informed Doug that the building, the anchor points and tower base are all completed. Work will begin in a few weeks on the tower construction. Final tower height will be 493 feet and it is designed primarily for FM broadcast. Our thanks to Jim for inviting us to install a Switch at this Lake Port location. Four six-volt deep cycle 125 AH batteries have been donated to the PBPG. Preliminary testing reveals these batteries to be in excellent condition. Two of these batteries will be used for backup power at the Lake Port Switch.

Under Old Business the best news is Bill Manley (KB4XE ), our WN editor, is home and doing well. As reported last month Adam (N2PNO) had advised the PBPG that there is site availability to install a SWITCH and APRS weather station at his place of employment, the Belle Glade Hospital. After several efforts to make good on this situation we have been unable to move this effort forward. Jamie (KD4LXB) suggested contacting Allen Kessler (WB2BQK) as he has been instrumental in getting amateur radio stations installed in other county hospitals.

In our New and Info section Gary Arnold (WB2WHA) from the Naples area passed in late may. Gary was one of the original packeteers and was instrumental in installation of systems in the Naples area. The Radio/Sound Card interface has been slowed by difficulty of locating some of the parts. John (WB4MOZ) was able to locate some of the parts at the Dayton Hamfest but we are still looking for a few that are still missing. If you would like to help either technically or otherwise, even if you can't attend the meetings, please contact one of the club officers. As Jamie (KD4LXB) found you could hear the ISS with a hand held in the house and get S-9 signals. There is an active conference bridge in the Stuart LAN. Connect to W4HYK and type //info for information.

Under the category of New Business Dick reports changes in the 5 wpm code test have deleted the ten questions multiple choice. There will be a shelter test drill on Saturday June 10<sup>th</sup>. With Field Day coming on June 23<sup>rd</sup> the Wellington Radio Club has invited members of the Palm Beach Packet Group to participate.

The workshop was presented by Doug who distributed PACKCOM software and demonstrated its operation. The next meeting will be July 12, 2001. This ended the meeting that was adjourned at 8:30 P.M.

Respectfully submitted by Secretary

Dick Schofield AF4OR