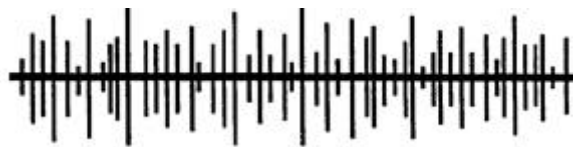


# WHITE NOISE



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Volume 9, Number 3

March/April 1997

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## We're Making Changes

Your *White Noise* has been the result of the dedicated efforts of a few members. Terry Taylor, W5JFM, is the Editor and primary writing contributor. Carolyn Yates, XYL of Joel Yates, N4JOA, formats the newsletter, then proofreads it. The 200 plus copies are printed and then Doug Welcker, WB4KGY, and John Green, WB4MOZ, complete the folding, stapling, and bulk mailing.

Regretfully, the pressure of other responsibilities has compelled Carolyn and Joel to resign, and we are grateful to them for their many expert hours they have provided.

As we move on, our image may evolve. Bill Manley, KB4XE, has joined the *White Noise* staff to lend support in the publication, and the addition of new photographic features.

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## UPFRONT

### Transmit Deviation and Packet

by Bill Slack, NX2P

The importance of properly setting your transmit audio level, which directly affects your transmit deviation, cannot be understated. The graph at the end of this article shows the relationship between the signal level required for 99% copy and the transmit deviation. On the right side, this relationship is shown in relative terms: performance in decibels, and power required at

the transmit end. It is easily seen that a transmit audio level, even slightly higher than ideal, affects the path quality tremendously. Note that lower deviations have a less severe effect.

Two factors cause the degradation in performance at deviations above 3.5 kHz: First, some of the transmitted signal's energy falls outside of the receiver's passband, resulting in a lower overall signal and waveform distortion. Second, the squelch circuit response time becomes slower and is more likely to "false", or operate improperly. With an excessive

deviation, the squelch circuit will close for a few milliseconds in the middle of receiving data, causing a total loss of that packet. While both of these factors occur in voice communications, small amounts of distortion and signal loss are hardly noticeable.

Nearly all TNCs have the transmit audio set too high when new. While the deviation limiter circuit in your radio will take care of most of the problem, this circuit usually permits about 5 kHz of deviation. Some radios do not have a limiter circuit, or it doesn't work very well, or is mis-adjusted. Signals with 7 kHz deviation have been monitored.

It is recommended that the transmit deviation be set to 3.0 kHz using a deviation meter or service monitor. If you don't have this test equipment, first try sending out a packet message in your local area, or asking your local network SYSOP. Chances are someone will be happy to help. If not, the following procedure will get you close.

The transmit deviation adjustment is made by varying the audio output level of the TNC. Most TNCs have an adjustment potentiometer accessible without opening the case, but you may have to go inside. To find out for sure, read the manual. It is not recommended that you adjust the deviation limiter on the radio, since distortion will result. The deviation limiters on older rigs also don't work very well, either.

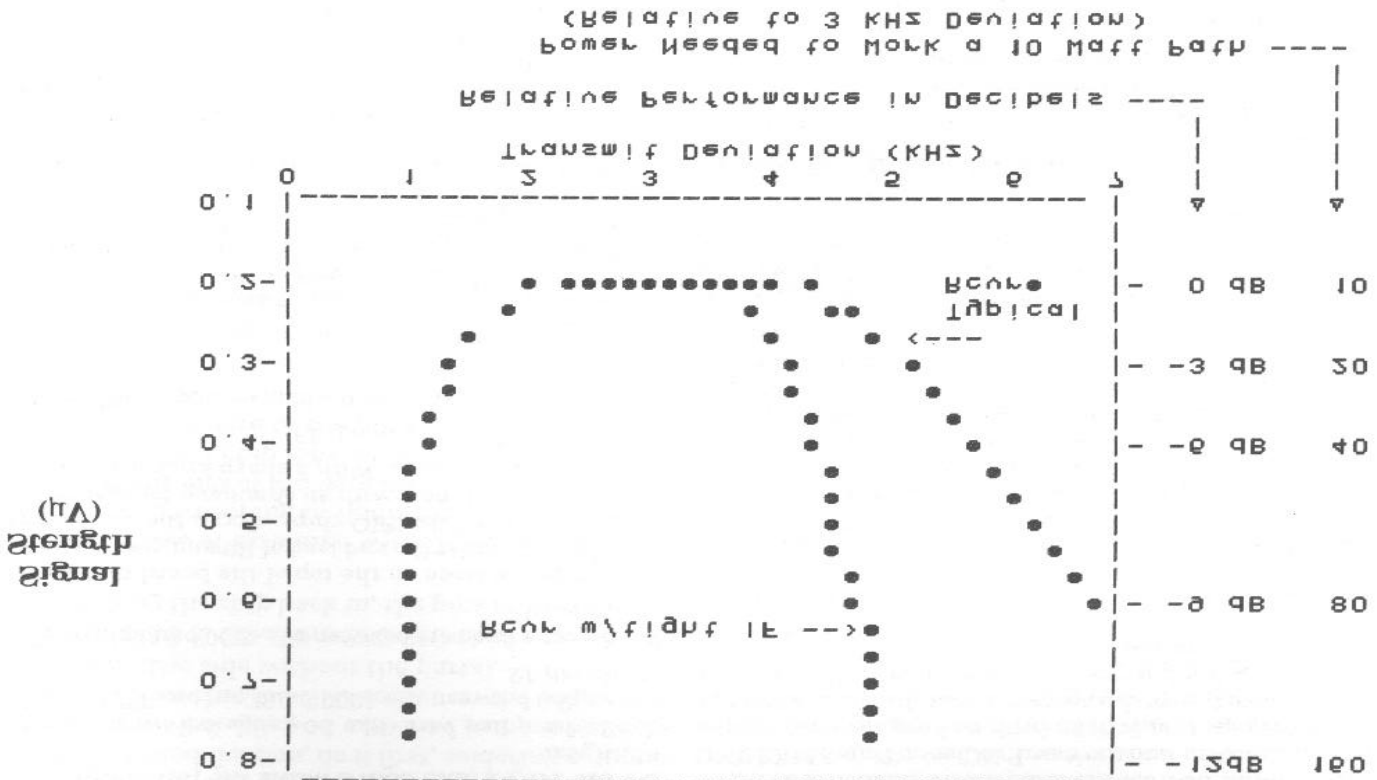
1. Obtain another receiver to listen to your transmitted signal.
2. Locate the audio output adjustment potentiometer on your TNC. (Consult the manual).

3. Put your TNC into "CALibrate" mode. (Check your manual on how to do this. With most TNCs you can type CAL at the "cmd:" prompt and then press the letter K to key the radio (transmit). Pressing D makes it "dither" (oscillate) between transmit tones rapidly, which is a better way of setting deviation than with a single tone. If necessary, use only the lower tone to set deviation. Pressing Q shuts off the transmitter and returns you to the "cmd:" prompt.)
4. While listening on the receiver, adjust the TNC's audio output upwards until the audio on the receiver does not get any louder. Find this point carefully by repeating the adjustment a few times. This is where the radio's limiter begins limiting the deviation, usually 5 to 7 kHz.
5. Now adjust the TNC's audio output level downwards until the audio on the receiver is about one-half as loud as it was. (Note: most TNC manuals say to leave the audio level at maximum - but this is often 5 kHz deviation, much too high). The audio on the receiver should sound soft but not faint.

At this point the transmit deviation should be between 2 and 4 kHz, which is much better than 5 to 7 kHz.

Some combinations of TNC and radio are very difficult to adjust, because the adjustment is very sensitive, giving you either too much audio or not enough audio. The fix for this is to add a resistor in series with the transmit audio line to the radio. Something in the range of 10K or 20K Ohms should work fine.

# White Noise



Received Signal Strength for 10 Watt Copy vs Transmit Deviation

## CHIRPS by Terry J. Taylor, W5JFM

New News! New technology is about to be released that will revolutionize Amateur Radio RF communications. Both digital and analog communication will be affected by what will take place in the new design of circuits that will very rapidly obsolete present day radios and related equipment.

This new technology is called Colesic Orsimanet Transemory, or COT. Apparently, research has been conducted using the element Actinium, Ac, which has an atomic number of 89 from the Periodic Chart of the Elements. Discovered just about 100 years ago by a Frenchman, Ac research recently has changed the way scientists think about electrical circuits, and it has moved ideas into a new dimension for taking voice communication (and/or data) and having it reach



weather stations such as those made by Davis and Peet Brothers. The data include wind speed and direction, temperature, hourly and daily rainfall amounts, and sometimes barometric pressure. If the data from enough weather stations is included on an APRS map, a good picture can be made of an area's weather conditions. Obviously, this could come in very handy when the weather turns nasty.

APRS has shown that it can be very useful to participants in the SKYWARN program. By using weather data obtained from APRS, they can provide much more information on storm development, evolution, and movement than they would be able to provide by using the equipment they have on hand at their individual QTH. Better still is the potential ability to track a storm. By sending mobile APRS/GPS stations out to the periphery of a storm where visual observations can be safely made, the location and movement of many kinds of weather disturbances, including hurricanes, tornadoes, and large thunderstorms, can be monitored. Once the direction of a storm has been determined, an estimate of its path can be made, and warnings issued to those on its projected path to prepare for its arrival. Since LORAN also uses the NMEA-0183 protocol, APRS can be used to aid in navigation by using the long-established LORAN system. Boaters and pilots are the obvious beneficiaries, as are those adventurers that are equipped for LORAN, but lack GPS capability.

### THE TOY BOX

So what do you need to get started in APRS? All you need is your packet station and

the APRS software, which is freely available as shareware. If you can access the Internet, the address is:

<ftp://ftp.tapr.org/tapr/SIG/aprssidig/files/upload>

On the World Wide Web, the address is:

<http://www.tapr.org/sigs/aprssidig/files/upload>

A recent version for DOS is APRS77D.ZIP. For Windows users, there is Winaprs 1.10. These programs are rather large because of the maps that they provide, so be sure you have enough storage space on your disk before you start. Another source is one of the many ham-related BBSs that have a version of the APRS software freely available for downloading from the hard drive. Your APRS station can have virtually any level of complexity you can afford, from an IBM compatible 8086 computer to the latest Pentium-powered full-size and laptop machines. You should have a hard drive in your machine, and a color monitor, but a monochrome monitor will work. Some hams go a step farther, and use the GATE function to crossband digipeat APRS data on HF with a complete packet system dedicated for that purpose alone. Others set up mobile APRS stations, so they can respond to changing events.

73

de Larry

KC7LVZ@WB7VMS.#MURPH.OR.USA.NOAM

*(Editor: Current file versions are aprs787.zip and wapr140.zip.)*

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(130mV RMS on the Fluke, good to 10KHz), I measured the tones with the default digital filtering of the M1 engaged. The 2200Hz tone showed as 2272+-1, the 1200 Hz tone showed as 1278+-9 (14 samples each, standard deviation reported).

--- high frequency ---

My RF test goal was simple. How reliable is measurement of my 757GX VFO? Working at 15 MHZ, the Lo-Z input (only one suitable for this measurement) has an advertised sensitivity of 5 mV. I used a scanner antenna supported about an inch away from a resistor I used as a load. The counter's bargraph was about 3/4 scale deflection from the ambient noise. The transmitter's VFO was allowed to stabilize or about half an hour and then brought to within 5 Hz of WWV's 15 MHZ carrier. Transmitting 25 watts into the dummy load resistor, the counter hit full scale bargraph and displayed a frequency of 15.012 MHZ. At 100 watts, the M1 displayed 15.001 MHZ. Accuracy doesn't look so good under reasonable ham shack conditions, but the M1's 50 ohm input is at least usable whereas the 3000A's was not under similar circumstances.

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## **AEA INKS DEALS TO SELL PRODUCT LINES**

**from the ARRL Letter**

Advanced Electronic Applications (AEA) has closed deals to sell its product lines to two other companies, but the AEA name will live on. Former AEA Chairman Mike Lamb, N7ML, says AEA's line of antennas, antenna analyzers and cable-testing equipment was sold, effective

March 7, to Tempo Research of Vista, California. Tempo will handle all technical support, warranty and after-warranty service and plans to produce the products in the antenna, antenna analyzer and cable-testing line that AEA had been producing before it ceased operation late last year. Tempo will continue the AEA name under a separate division. Lamb says he will assume a primary marketing position with the new division.

Lamb said he's excited about the prospect of continuing a role with a portion of the AEA product line that he had a particular interest in. He said he hopes to work on new product development as well.

Timewave Technology of St Paul, Minnesota -already a major name in ham radio gear- is buying the rights to all other AEA products, including its digital line. But Timewave president Randy Gawtry, K0CBH, asked the amateur community to give the company a few --weeks to set up the new product line before calling. "Watch our Web page," he said (it's at <http://www.timewave.com>). Gawtry says a purchase agreement is in place, and Timewave is in the process of making the product line transition from AEA to Timewave and hopes to be manufacturing products soon. Timewave will have the right to use the AEA name for one year (AEA model numbers will be continued, however). Gawtry said Timewave also will handle technical support and warranty and after-warranty service for the new product line, which will include AEA's DSP-232 multimode TNC, introduced last year.

Callers to the former AEA number are now

being directed to either Tempo or Timewave, as appropriate. Tempo Research is at 619-598-9677. Timewave's number is 612-452-5939.

**TO CONTACT AN OFFICER OF THE GROUP:**

President: Doug Welker WB4KGY@WB4MOZ  
561/686-3747

Vice-President: Mike Michaels K2GPI@WB4MOZ  
561/976-0478

Secretary: Bill Rabun KE4GUM@N4JOA 561/688-2088

Treasurer: Joel Yates N4JOA@N4JOA 561/737-6229

(All numbers shown above are home phone numbers.)

1. No problems with the switch.
2. Received replacement TNC's for the Belle Glade site.
3. Arcade antenna replacement, weekend of 21 February.
4. APRS talk @ MIA and Orlando. Balloon tracks AMSAT to provide high altitude balloon support via WEB page. TAPR WEB site now has real audio clips on various subjects.
5. Heard Island using PAKSAT to forward logs, pictures, and general information.

**OLD BUSINESS:**

1. Welcome new Board of Directors.
2. "White Noise" mailed on Tuesday, 11 February.
3. Handout: ROSE Switch list, and Node's list.

**NEW BUSINESS:**

1. BOD meeting scheduled for February.
2. FADCA meeting this Sat at the Orlando Hamfest.
3. Hamfest coming soon. See List.
4. Club registration renewal form completed. (\$61.50).
5. Renewal of coordinators for all BBS's, nodes, and switches due this month.
6. PBPG encourages members to volunteer their services.
7. BARDS meeting scheduled for 16 February @ Motorola.

**PBPG MEETING MINUTES FOR FEBRUARY 1997**

The meeting was called to order by President Doug, WB4KGY @ 19:30 hrs.

18 members/guest were present.

TREASURER'S REPORT: Given by Joel N4JOA. Accepted as read.

**TECHNICAL REPORT:**

By Doug, WB4KGY

## BREAK/WORKSHOP/ ADJOURN

Doug, WB4KGY, presented a video and excellent talk about our packet stack, K4PKT, and how it works.



WPB switch K4PKT  
*KE4GUM photo*

Today's thought, "If called by a panther, don't anther". Ogden Nash

HAPPY TRAILS  
BILL KE4GUM  
BILLYBOB

## PBPG MEETING MINUTES FOR MARCH 1997

The meeting was called to order by President Doug, WB4KGY @ 19:34 hrs. 18 members/guest were present.

TREASURER'S REPORT: Given by Joel N4JOA. Accepted as read.

### TECHNICAL REPORT:

1. No problems with the switch. Pres, VP, and Sec visited the switch last month.
2. At Arcadia, installed 440 Yagi antenna toward Sarasota to complete the 9K6 link on

Saturday, 21 Feb. This completes the first cross state dedicated backbone. Had problems connecting past Sarasota due to problems merging the network routing code from the East and West coasts. This is being resolved by John (WB4MOZ).

### OLD BUSINESS:

1. Re-registration of PBPG frequencies was completed with submission at the Orlando Hamcation FADCA meeting.
2. Pres, and VP are updating the PBPG inventory & Bill (KB4XE) will enter it into a database program.
3. "White Noise" publication was mailed Monday, 3 March. One member has not received their copy as of this date. Delivery to Broward county is taking ten days.
4. Sold 50 ft. of the 7/8 hard line - much more available.
5. Handout of: Rose switch and NODE'S lists.

### NEW BUSINESS:

1. BOD meeting set for 24 March 1997.
2. BUTTON BOYS PBPG pins will be ordered by KE4GUM, for club members.
3. Stuart HAMFEST event in 2 weeks. Watch BBS for dates.
4. Memberships are being taken by Joel (N4JOA).

### BREAK/WORKSHOP/ ADJOURN:

1. An excellent presentation was given by Terry (W6LMJ [Lost My Job]).

SUBJECT: Spark Gap To Space.

Meeting adjourned @ 21:00 hrs.

HAPPY TRAILS  
BILL KE4GUM



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## White Noise

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(K2GPI) was formed conduct an audit of the books to establish a "fire wall" between the old and new Treasurer.

### WORKSHOP

1. Doug, WB4GKY, gave a CRACKER JACK program on RUNNING THE ROSE. Many members helped with the presentation, most notably BOB, WD9ATM. A really good time was had by all.

### ADJOURN

=====

Meeting was adjourned at 21:04 hrs.

### THOUGHT OF THE DAY!

Bookie: A pickpocket who lets you use your own hand.

Respectfully submitted;

HAPPY TRAILS

BILLYBOB 73



Officers Bill KE4GUM, Doug WB4KGY, and Mike K3GPI visit the WBP switch

*KE4GUM photo*

# WHITE NOISE



Volume 9, Number 4

May, 97

## UPFRONT

Florida License Plate W/ Amateur Call  
or "To Be, or Not to B"

by Terry J. Taylor, W5JFM

The State of Florida, Department of Highway Safety and Motor Vehicles (DHSMV), has provided the ability to order an Amateur Radio License plate. This plate is available to duly licensed Amateurs. Having been through this exercise years ago with an older callsign, I recently made the plunge through the bureaucratic red tape for my new callsign. I thought that I would give you the procedure to follow if you are interested.

Basically, you will need to send four forms with your check to Tallahassee. The first is Form HSMV 83041, APPLICATION FOR AMATEUR RADIO LICENSE PLATE, which I have scanned and provided a copy along with this article. I will be glad to provide anyone else a copy with a SASE. The form is easy and can be filled out quickly. Instructions are included on the bottom of the form. The Amateur License Plate is only available for automobiles for private use, trucks weighing 5,000 lbs or less, or motor homes or truck campers not used for hire or commercial use.

The other three forms that you must include are copies of your FCC Amateur Radio License, a copy of your vehicle registration, and proof of insurance. These last two forms should be readily available in your vehicle glove compartment - for accident purposes, and for those unwanted flashing lights in the rearview mirror.

Now you are wondering how much extra is it going

to cost! Well, that is a little known fact that probably only a few folks in Tallahassee can tell you. My saga goes like this: I went to my local DHSMV office on Hillsborough Road in Deerfield Beach. The HSMV Form 83041 was relatively easy to find from the person at the information desk, only after about 4 or 5 minutes of tearing the place up. With form in hand, I was given a seat to wait until my name was called by one of the ladies behind bars. I always wondered whether the bars were for our protection, or theirs. The last time I worked (not lived!) behind bars was in the Air Force, and I had a gun on my hip. I just wonder if these nice ladies carried one as well. Hmmmmm!

After my name was called, it became quite apparent that no one in the facility knew what to do with "one of those Ham guys" wanting their own brand of vanity plate. My expert at the window disappeared for over 15 minutes, reappearing occasionally asking for information about my present vehicle and FCC

**PBPG Meeting**  
**Thursday June 12, 1997**  
**7:30 PM EDT**  
**at**  
Palm Beach Emergency Operation Center  
Belvedere Rd.  
West Palm Beach, Fl.

Guest Speaker: Tom Kneisel K4GFG

*Detecting Radio Signals from the  
Mars Global Surveyor Spacecraft*

more info on page 5

license that I had already given her. Finally, she returned to give me my instructions which began, "I think you need to...blah, blah, blah...and if you have any questions call: 1-904-488-3881." Really, I thought she must have been on that same number figuring out from Tallahassee what to tell me, I guess, so that I could just call it back again. Jeez! She gave me a list of additional fees that she thought that I would have to pay, but she wasn't sure.

I called the number myself in order to know exactly how much to write a check for. After climbing through the telephone answering tree, I sat out on one of the last branches - on hold - waiting for the next available clerk. I am now talking to Betty, and I am trying to 'spin her up' to speed as to what I'm trying to accomplish. She is the specialist, but, again, I spend about half of the time with her on hold. Basically, what we do is find the total dollar amount on your vehicle registration form, then add to it several additional fees. To that amount, Betty says to add \$10 for the plate, \$2.50 for a service charge, and \$1.50 for mailing, which for me comes to \$47.60. I drive a Jeep. I thank Betty, hang up, write my check out, add all the other documents, then head for the Post Office. (All this to just drop a "B" out of my call!)

As all this occurs in early November, I receive a letter from DHSMV around the middle of December that I am \$3.50 short. RATS! What good does it do to call them?!? So back goes another check for the now corrected correct amount. I waited for my new license plate until early February, then I gave them another call. A lady said she would do the research as to why I hadn't received the plate, meanwhile, I checked with my bank to see if the check had been cashed, and it had. A week later, the license plate finally arrived. I've been de-B'd!

Is the letter 'B' worth all that? I guess so, but many of you do have new and different call signs that might make the effort for a new call seem to be a little more worthy. Whether you have a new call, or you are satisfied with your present call, you do have

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N4JOA@WB4MOZ  
(561) 737-5841

the option for an Amateur plate. After the initial fee of about \$20, depending on who you talk to up there, the yearly renewal fee is much smaller, I think in the area of about \$5.00. That is quite reasonable. Remembering your license plate number will be a lot easier, too.

The assistance phone number is already listed above, but if you need to write, then write to: Special License Plate Section, Bureau of Titles and Registrations, Division of Motor Vehicles, Neil Kirkman Building, Tallahassee, FL, 32399-0500. Happy License Plating!

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## CHIRPS

by Terry J. Taylor, W5JFM

“Come on, Come on!! Hurry up! Why does this thing take so long?” Do you ever hear yourself saying that, all the time wondering why packets aren’t just flying back and forth between your TNC and the PBBS or another station? Part of the reason for some of the delays we encounter with packet operation has to do with the AX.25 protocol. Basically, AX.25 uses timers that run during specific parts of the packet connected process that help manage when frames are sent, and/or re-sent. These timers are very important, as we’ll discuss, and this can provide an insight into when and how certain frames might be sent back and forth.

Taken from the AX.25 Link-Layer Protocol manual itself, there are three timers. The first is called T1, and is known as the Acknowledgment Timer. The second timer is T2, and is the Response Delay Timer. The third timer is T3, and is the Inactive Link Timer. We will look at all three timers, and try to make some sense as to when each is running, and what control you might have as an operator over each of them.

T1 keeps the progress of packets flowing between two connected stations going with as much efficiency as possible. Imagine these two extremes. The first station sends a packet frame, gets no immediate response, then retransmits the frame again. It takes a finite amount of time that varies

with many different factors for the receiving packet station to receive a valid packet frame, and generate an acknowledgment frame. If the first station is too quick on the retransmit trigger, then it will not receive an acknowledgment frame, and then either proceed to begin polling the second station to see if it is still there, or RETRY the same frame all over. Now, the other extreme is that the first station sends a packet frame, and then waits forever for an acknowledgment. As you can see, there needs to be some middle ground between these two extremes where a station transmits a frame, and then waits a reasonable time before resending the same frame if no acknowledgment is received.

Your control over T1 is known as the packet parameter called FRACK. The parameter is set, according to my AEA PK-96 manual, between 1 and 15 seconds, and defaults to 5 seconds. If the packet address has in it one or more digipeaters, then the period of time is automatically increased by the formula:  $\text{Retry interval (seconds)} = n \times (2m + 1)$ , where ‘m’ is the number of digipeaters. For example, if we had a FRACK of 5 seconds, and 2 digipeaters, the formula would be  $5 \times (2 \times 2 + 1)$ , which is  $5 \times 5$ , or 25 seconds. The digi takes time to hear a packet frame, then more time to wait for a clear frequency, and then transmit the frame to the next station. The end station in this example has to receive the frame correctly, then generate an acknowledgment frame back the same path through the same digipeaters. We call this “end to end” acknowledgment between the originating station, and the end station. If the original packet and/or acknowledgment doesn’t make it for whatever reason, collisions or other malfunctions, then T1 will run out on the original station, and the frame will be transmitted again under Version 1.0 of the AX.25 Level 2, or a polling frame will be sent under Version 2.0 of AX.25 Level 2. It is interesting to note that ROSE addresses use the VIA syntax, just like the digipeaters, which triggers the above formula for increased T1, so using ROSE will increase FRACK timing. Also notice in the formula

that is there are no digipeaters, then 'm' becomes zero, and 2 times zero plus one, becomes just one. Then 'n', in seconds, becomes (n x 1), which is just 'n', or the original FRACK parameter without any increase in time due to no digipeaters.

To continue this one step further, with no response from the receiving station after T1 (FRACK) runs out, then either the original frame or a polling frame is sent as mentioned above. How many times does this happen? It all depends on another parameter called RETRY, which is normally set to 10. Once the original station retries 10 times, we say "we retried out" meaning that the original station tried 10 times to get a response for a packet that had been transmitted. After that, normally the link between the two stations is dropped. What can cause this?

Usually the link between the two stations is very weak, meaning that either station is having a hard time receiving the other station. A packet or two might make it through, like a very short Connect frame, but the longer "T" frames are not being received in their entirety such that the receiving station does not send out an acknowledgment frame.

Next month, we'll continue with the other two timers.

...CHIRP, CHIRP!!

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## Optoelectronics 3000A Product Review

Brian Mork, KA9SNF

### Part 4 of 5

#### OPTIONS

You can buy a precision (0.2ppm Vs 1.0ppm) timebase for an extra \$100. Again, I stayed away from the 0.2 ppm precision timebase because specified aging would quickly degrade me back to the standard 1.0 ppm time-base. Additionally, I don't often need to know the last 2 Hz on a

10000000 Hz signal. As with the 3000A, the electroluminescent backlight is no longer an option-- the standard price is just higher.

#### >>> GOTCHAS

The serial interface is unidirectional. You send it a CR and it sends back 10 digits and a decimal point, in ASCII, 4800bps, 8 bits, no parity, 1 stop bit. It provides only the most recent number, with no indication of whether this is another sample or the same number it just sent you after your last request. The interface can sink 1.6mA and source 0.06 mA.

Excellent amplifier sensitivity isn't everything. For decent counting, the signal you're monitoring must exceed the noise (combination of \*all\* other RF signals in the bandpass of the selected amp) floor by a claimed 10-15 dB. Specified sensitivity ranges from -57dBm to -13dBm. The input amp is limited to +15dBm. Ambient noise, including FM stations hovers about 3/4 scale on the bargraph when using an AR100XLT scanner antenna. Since the scale goes from -56 to -26 dBm, that's roughly a -33 dBm noise floor. Adding in the 15 dB overhead for a good measurement gives -18 dBm required signal. That would be 8 dBm above full scale, roughly 3 bar segments. This matches real life experience of the Yaesu 757GX related above.

The Hi-Z M1 input handles square waves better than sinusoids, whereas the 3000A showed terrible susceptibility to harmonic lock-on with non-sinusoidal waveforms -- both for me and the other friend spoken of above. He was trying to measure a frequency multiplying class C VFO and confusion as to which stage was being measured made the meter unusable. On another project, anywhere near a 50 KHz switching power supply, measurements were dominated by it. He asks "would I have this problem with a TEK or HP counter?" I don't know. I know my extensive experience with a 7226B counter in the 1 to 10 MHz range showed none of the bizarre behavior seen with this (and the 3000A) high sensitivity counter.

Triggering of these counters is just erratic. Perhaps a DC trigger with variable threshold adjustment would be better. OE's digital filtering DOES help, but often the filter is fooled or else specified sensitivity is unattainable.

In Damien's review, he emphasizes the importance of a limited bandwidth antenna. Take this recommendation seriously. The M1's bargraph covers the range of real-life, on-the-air signals much better; it actually moves around rather than being saturated most of the time. The required 10-15 dB spread between noise and desired signal appears as 3 to 4 bargraph segments on the 16-segment display. The 3000A and the M1 appear to be optimized to do off-the-air measurements. In this role, using the M1,

I've had fun snagging frequencies used by all sorts of Air Force base agencies in a manner just as Damien described. In the lab, using hard-wire connections, the Hi-Z inputs of the M1 don't measure up to specs and the 3000A inputs seem downright unusable.

#### >>> SUMMARY

Paying \$100 less for a M1 balances against having only one input and losing the extra modes of operation. Because these extra modes relied on the unreliable Hi-Z inputs, I don't miss them. I am extremely interested in hearing reports from others in the field that have success or failure with the M1 and 3000A Hi-Z inputs.

All models are available only direct from the manufacturer in Florida. Contact Optoelectronics: 5821 NE 14th Avenue, Ft Lauderdale, FL 33334. 800-327-5912 or 305-771-2050. FAX 305-771-2052. Makes you want to dial ..2051 and see who you get, doesn't it? :) You can read manufacturer's product info over the internet web at URL <http://www.optoelectronics.com/m1.htm>.

73, Brian Mork (Opus-OVH/InCrea)  
ARO ka9snf@kb0kqh.#seco.co.usa.noam  
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Web <http://www.pcisys.net/~mork/>  
4504-C W. Juniper, USAFA, CO 80840

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## Coming at the Next PBPG Meeting June 12, 1997

### Presentation by Tom Kneisel K4GFG

The Mars Global Surveyor spacecraft was launched toward the Red Planet on Nov. 7, 1996. As part of the on board systems checkout, a 1 watt beacon on 437 Mhz was to be activated when the spacecraft was about 5 million Km from earth. January 1996 QST had said the signal would be only -177 dBm out of a 432 Mhz moonbounce array, far below the audible threshold. Randy Terrell K9BCT, and Tom Kneisel K4GFG, decided to try to detect the signal using Randy's moonbounce array. In his presentation, Tom will describe the spacecraft, the receiving system they used, and the DSP techniques employed to successfully detect this weakest of dx signals.

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## An Intro to APRS, Part 4 of 5 THE SKY'S THE LIMIT

As mentioned above, some SKYWARN participants use APRS to track the movement of storms. But you can have fun with it, too. Some enterprising hams have used their APRS/GPS systems for foxhunts, and cross country bicycle races. Some like to use it in combination with their local DX cluster. When a new DX station appears on the cluster, it can be plotted on the map along with the callsign. APRS packeteers have taken their portable packet systems with them on camping trips, and cross-country

tours. Others have used their mobile systems to locate jammers, and then put his location on the map. You could conceivably put a GPS transmitter in your car the next time you have to park it at the airport for long time. If it turns up missing when you return, you just might be able to find it with APRS. The possibilities are almost limited only by your imagination. Who knows? You might even find a way to use APRS/GPS for an Easter egg hunt! Anybody want to know when Santa will arrive in the neighborhood? Try using APRS. You never know...

Clause...

- End of Part 4 -

73 de Larry KC7LVZ @  
WB7VMS.#MURPH.OR.USA.NOAM

PALM BEACH PACKET GROUP Board  
of Directors meeting

MARCH 24, 1997

The Board Of Directors and one guest met at the residence of Bill Manley,(KB4XE)Present were President DOUG, (WB4KGY), Vice Pres MIKE, (K2GPI), Treasurer, JOEL (N4JOA), Secretary BILL, (KE4GUM), TERRY (W5JFM), BILL (KB4XE), JOE (WB4TEM) FADCA vice President.

The meeting was called to order @ 10:04 hrs.



Bob Bruninga, APRS software originator, addresses forum at Miami Hamboree February 1997.  
*Photo by KB4XE*



At the BOD meeting: Bill KB4XE, Terry W5JFM, Doug WB4KGY, Bill KE4GUM, Joel N4JOA, Joe WB4TEM Missing Mike K2GPI.  
*Grabbed video frame by KB4X*

WHAT'S NEXT?

Obviously, there's a lot more that can be said about APRS, and many more uses than have been mentioned here. There are document files that come along with the software, and many more on the TAPR web site and ham-related BBSs that can doubtless address aspects that have not been covered here. The capabilities of APRS are always being improved, and the latest upgrades are soon made available. So, if you're really interested in seeing a fascinating use for packet radio, get into APRS. Who knows what it may lead to?

Here comes Santa Clause, here comes Santa

**1. White Noise:**

A) Discussion centered around expanding the membership of the PBPG. Recommendations include purging old guests and adding new names from the BBS users of N4JOA, KB4VOL, WB4TEM, and WB4MOZ to the mailing list of "White Noise" (This is an action item for Joel, Doug, & John).

B) Investigate the feasibility of advertising in "White Noise". (This is an action item for Bill)

C) Jazz up the format of "White Noise" with graphics and pictures. (This is an action item for Bill and Terry)

**2. PBPG Future Agenda:**

A) Contact the EOC administration and get their input on what PBPG can do to assist. (This is an action item for Doug)

B) Continue to expand the High Speed Network

C) Complete the Internet connection at Boca. (This is an action item for Joe)

D) Give more emphasis to APRS.

**3. FADA Mission Statement:** Joe was asked what is the mission of FADCA. "The major function of FADCA is frequency coordination" As Vice President of FADCA, Joe is going to work with the directors to formulate a Mission Statement to reflect the future direction of FADCA.

**4. Technical Improvements:**

A) BOD suggested that 3 books be ordered for PBPG education library. Bill (KE4GUM) will research the items and present options to the BOD.

B) PBPG will continue to assist individuals and groups in establishing and improving network capability through technical assistance, equipment loans, and education.

C) Encourage more participation in 9600 operation. (This is an action item for Doug)

**5. Treasurer's Report:**

A) Joel, N4JOA Presented treasures report. Discussion followed, report was accepted for review. MIKE (K2PGI) will review the financial statement and report at the next meeting.

B) Joel will refund \$15.00 to Joe (K1VAO) for NSF charged to him due to the excessive delay of the Treasurer in making deposits.

C) The BOD strongly recommends the Treasure make timely deposits in the future.

**6. Post Office Box:**

JOE (WB4TEM) accepted the task of picking up mail, sorting out the trash and mailing the remainder to the appropriate PBPG officer.

**7. Inventory Data Base:**

Bill Manley will set up a data base in MICROSOFT ACCESS. President Doug (WB4KGY) and Vice President Michael (K2GPI) will continue to inventory equipment and forward the information to Bill.

Michael (K2GPI) left the meeting due to appointment @ 11:37 hrs.

**8. Button Boys Buttons:**

Secretary. Bill KE4GUM advised that the buttons had been ordered. [Buttons were received on 27 March 1997]

Meeting was adjourned @ 12:00 hrs.

Respectively submitted;

BILL KE4GUM  
HAPPY TRAILS !

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**PBPG Minutes, APRIL**

The meeting was called to order by President Doug, WB4GKY, at 19:34 hrs.

16 members/guests were in attendance.

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**OPENING AND REPORTS**

1. Treasurer's report was read by VP. Mike, (K2GPI). Report was accepted as read.
2. Technical Committee report-- Doug WB4KGY.
  - A. No problems occurred with SWITCH this past month.
  - B. Problems with new routing table were resolved by John, WB4MOZ.
  - C. Investigating ways to speed cross state data rate.

**OLD BUSINESS**

1. PBPG buttons were distributed by Bill, KE4GUM.
2. BOD meeting was held on March 24th at Bill Manleys, KB4XE, home. Topics Covered: "WHITE NOISE", PBPG future Agenda, FADCA, Technical improvements, Treasure year end reports. Post Office Box, Inventory Data Base, Button Boys Buttons. Minutes from BOD meeting will be published in next month's "WHITE NOISE".
3. Updating of the PBPG inventory by Doug and Mike & Bill continues.
4. Handout of: ROSE Switch list  
NODE'S list

**NEW BUSINESS**

1. Loss of Treasurer: Joel, N4JOA, due to pressing work and personal commitments has resigned as PBPG Treasurer.

The Board of Directors and membership of PBPG wish to thank Joel for his many years of service as Treasurer. Not only did Joel provide timely financial records but he kept the membership and mailing rosters. Thanks is also extended to his wife Carolyn for her word processor skills developing print ready copy of the "WHITE NOISE". They have served in the best traditions of "HAMS & XYLs". THANKS !!!!

2. Members were asked for their input on programs topics and suggested:
  - A. Parameters on TNC commands

- B. Packet satellites
- C. MIR
- D. HF Packet

It was also suggested a packet "Elmer" be established by the PBPG.

3. Hamfests coming:
  - Gainesville, FL April 26,27
  - Dayton, OH May 16/17/18
4. If you can help the PBPG no matter what your skills, Please step forward.!!!
5. BARDS meeting----MOTOROLA Sat. April 19th.
6. Join FADCA
7. Memberships are being accepted by KE4GUM.
8. Due to the resignation of N4JOA. Nominations were taken from the floor to replace the Treasurer. HENRY (W4UJ) thrust the name of MARVIN (KD2CK) into the breach. Stunned and dumbfounded by the rapid 2nd of the nomination, MARVIN willingly accepted the position.
9. At the suggestion of Bill (KB4XE) a committee of Henry (W4UJ) & V.P. Mike (K2GPI) was formed conduct an audit of the books to establish a "fire wall" between the old and new Treasurer.

**WORKSHOP**

1. Doug, WB4GKY, gave a CRACKER JACK program on RUNNING THE ROSE. Many members helped with the presentation, most notably BOB, WD9ATM. A really good time was had by all.

**ADJOURN**

Meeting was adjourned at 21:04 hrs.

**THOUGHT OF THE DAY!**

Bookie: A pickpocket who lets you use your own hand.

Respectfully submitted;

HAPPY TRAILS  
BILLYBOB 73

---

**PALM BEACH PACKET GROUP  
MEETING MAY 1997****MINUTES OF MEETING****OPENING AND REPORTS**

The meeting was called to order @ 15:30 hrs. by Vice Pres. Mike K2GPI, who was presiding in the place of President Doug Welcker WB4KGY, who was absent having escaped to the GURU protection program. (Vacation). Ten members/guests present.

## 1. Welcome/Introductions

## 2. Treasurer's Report.

Not available due to change over to new Treasurer, Marvin, KD2CK, not having received the audited report. Will appear in later addition of *White Noise* !

## 3. Technical Committee report, given by John, WB4MOZ.

A. Attempted ROSE upgrade to V3.9-Removed.

B. Network Meeting with Arcadia & Sarasota.

Discussed: Future upgrades to cross state backbone link.

Better BBS forwarding paths.

Modified Okeechobee, Lake Placid, Avon Park, Arcadia to stand alone Freq.

**OLD BUSINESS**

1. PBPG buttons have been received and distributed. Still have two to be picked up. W5JFM & WA4DBA.

2. *WHITE NOISE* mailed on April 28th. Did you get yours ?

3. Doug & Mike completed inventory- Sent to Bill, KB4XE, to update database

4. Handout of: ROSE Switch list and NODE'S list

**NEW BUSINESS**

1. Report by Treasury Review Chairman.

Unable to give report due to lack of information.

Will appear next meeting.

2. With regret it was noted that Jamie's, KD4LXB, Mother had recently passed away. Members present signed sympathy card.

3. Dayton Hamfest this month.

4. PBPG would like for members to volunteer to help in club activities.

5. BARDS meeting at Motorola Sat. 19th. April

6. Join FADCA

7. Memberships are being accepted by Secretary.

**WORKSHOP**

Bob, WD9ATM, & Mike, K2GPI, gave an excellent demonstration of packet connection to N8PCE-7 Mt. Vernon OH. keyboard to keyboard. Just the thing to get members into the swing of things. We THANK them for a fine program.

**ADJOURN**

Meeting was adjourned @ 21:10 hrs.

Today's thought:

Never play leapfrog with a unicorn.

**HAPPY TRAILS**

**BILLYBOB !!!**

---

**Broward Amateur Radio Digital Society  
March 15, 1997**

There is a noise problem with the Hollywood node. John Wilson, KN4HX, thinks that the power supply may be feeding 60Hz through when a transmitter loads it, so he bought a large capacitor to filter out the power supply line. If this eliminates the problem

it will confirm that the power supply is the source of the noise and he will dig into the power supply to further diagnose it at that point. Currently, all maintenance expenses come out of John's pocket. Someone suggested that we approach PBPG with a request for maintenance funding on an as-needed basis to keep the Hollywood node going.

Seymour, KC4NMY, reported that Memorial Hospital is forming a club in order to keep Dr. Ed Webb's station on the air. The club will be supported by the hospital. Mrs. Webb is donating Dr. Webb's equipment to the club. One of the conditions of the donation was that Mrs. Webb's call sign be removed from the station and Dr. Webb's call be added to it. To do this John needs memory chips - 2pcs. 512K and 3pcs. 256K. Several club members said they might be able to supply the chips.

Seymour, KC4NMY, reported that thanks to Dr. Kirschman we have a new station K4TCV-2 at Mercy Hospital (Bayshore). There was some discussion as to whether the station should be -2. The station will have weather equipment.

Jim KD4GR mentioned that he needs to install weather equipment on the Motorola station before hurricane season.

Jim, KD4GR, and Tom Kneisel, K4GFG, gave an update on Satgate. The new chips arrived yesterday, and the computer itself should be functional again soon. The Satgate should be functional again within the next month. Jim mentioned that there are plans to use the Satgate as a ground station for space shuttle linkups, and as a result Tom is helping get the phone link working and Harold Sanderson is helping with the antennas. The plan is to connect to Satgate via Jim's station. Station operation is intended to be fully automatic, including aiming of the directional antennas.

Steve McCandless, KK4GM, is a silent key, caused by a heart attack followed by complications, shortly

after the January BARDS meeting. He was cremated and his remains were scattered at sea by the Neptune club as he requested. His ham equipment was donated to the Hollywood club by his family when they disposed of his house and personal effects.

Jim, KD4GR, gave a brief explanation of the PBPG and its relationship to BARDS.

The presentation was by Tom Kneisel, K4GFG, who described his project with Randy Terell, K9BCT, to receive a 1.3 watt UHF signal from a NASA Mars probe at a distance of about 5 million kilometers. Using Randy's 25dB EME Yagi array and advanced signal processing which compensated for receiver drift and Doppler shift, Tom and Randy were able to recover a -174dBm signal, only about 2dB above the noise floor! The signal was detected despite the fact that the probe was transmitting in a modulated mode rather than continuous CW as expected. Details of the experiment can be found at Tom's home page at <http://www.gate.net/~tomk>.

Minutes by Dave, KN0NNZ

April 19

The meeting was opened by Bob, N4CU, at Motorola. For the rest of this year the meetings will be at Motorola. We had the usual reports and discussions, after which we broke for coffee.

Carl, W9ZGU, gave us an excellent April presentation on a 48 element, 2M, Phased Array antenna system made by stacking 8 full wave elements in 6 collinear arrays. He used the time division reflectometer he demonstrated at a previous meeting to do final tuning. He had a final beam width of 3 degrees and a gain of approximately 24 dBd.

The next meeting will be at Motorola May 17.

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**TREASURE COAST PACKET GROUP  
MINUTES**

APR 12, 1997

With the President and the Vice President absent, the Secretary, Ladd W2KGV, opened the meeting at 9:35 a.m.

The minutes were read by the secretary, and were accepted as read, on a motion by Don, K8BXT, and a second by Andy, W8BIX.

Andy, W8BIX, reported the treasury at \$1293.54 with no change with one check to Bill, N4XEO, outstanding. The report was approved on a motion by Don, K8BXT, and a second by Jim, WA1COA.

**OLD BUSINESS:**

The letter to users, suffered the same delay as reported last month

**NEW BUSINESS:**

None

**TECH REPORT:** In the absence of the Technical committee, Ladd, W2KGV, gave a short review on the state of the TCPG Switch, as related to him by Bill, N4XEO, to wit: Version 3.9 B of the switch program is being burned in by the good graces of John, WB4MOZ, of the Palm Beach Packet Group. Updating the TCPG Rose Switch will begin with the 2 meter switch, and then doing the 220, and 440 ports once the 2 meter switch is deemed operative. There may be a delay until John, WB4MOZ receives clarification of the specifications.

The meeting was adjourned at 9:51 a.m., followed by Q and A session.

**Attending were:**

K8BXT, KF4LTT, N4LRV, WA1COA, W8BIX and W2KGV.

Respectfully submitted:  
Ladd Sajor, W2KGV, Secretary.

---

**TREASURE COAST PACKET GROUP  
MEETING**

MAY 1997

No formal meeting was held on Saturday May 10, 1997, since only four members attended. In its stead, the group discussed various aspects and problems relative to Packet.

A new member, Dock, N4HYK was accepted, and another renewed his dues.

It was also suggested that hereafter the TCPG adapt the membership procedure of the PBPG, and have the membership period run for one year from the date of joining which would help stagger the payment of dues away from the end of the year, when we have other expenses.

Also considered was the possibility of regular renewals be moved from the end of the year to any month a member chooses by their paying the additional dues (prorated) at their next renewal.

Please bring your comments, suggestions etc., to the next meeting at 9:30 a.m. on June 14, 1997, at the Morningside Library in Port St. Lucie Talk-in on the 147.060 MCARA Repeater. Attending were N4HYK, W9OQN, W8BIX and W2KGV.

Respectfully submitted:  
Ladd Sajor, W2KGV, Secretary

# WHITE NOISE



Volume 9, Number 5

June, 97

## UPFRONT

by Terry J. Taylor, W5JFM



Here is one of the many pictures that I took at the Dayton HamVention, in May of 1997. Of interest is this Timewave booth showing the AEA logo. Most of the AEA packet equipment was being displayed, some with AEA logo, and some with Timewave logo. Interest from hams was very high as seen by the number of people in this picture. Since AEA was one of the premier TNC manufacturers, then the packet community will be very interested in how Timewave implements the AEA product line into theirs. My discussions with the Timewave representative were very productive, and they have a very positive attitude. They are also working as fast as they can to get the TNC line into production. Further up-to-date information can be found at: <http://www.timewave.com>.

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## AN OPINION

by Karl Larsen, K5DI  
k5di@k5di  
k5di@acca.nmsu.edu

The internet has changed what you see on packet in

several ways. Today I read a very good paper on what happened to AEA, the defunct Ham manufacture company. All the information was gathered from an internet news group. What I see interesting and appreciate is the Hams that are on the internet take the time to transfer goodies to packet radio.

We who enjoy packet radio should not fear the internet. It's another service that is in the throws of changing. Like the earlier message said, "When your internet provider is down" you go back to packet radio. I have two internet providers, juno.com and my University nmsu.edu. I have just seen a large change in juno. Now it is often that I get a message saying the main computer is down.

Since I am a expert on packet radio and run Linux and am getting better but far from expert in that, I am approached by other Hams about packet and the internet. I try with success to talk them into both packet and the juno account. I see Hams using both because I use both. In fact this Linux computer has both the packet bbs From John-Paul F6FBB and a ppp connect to the University. I can pull up Pine in a window and work with that anytime I want. Lots of news and mail every day.

But I choose to write this note on packet radio.

Packet Radio is not dead and the Internet is not going to kill it. I and thousands others look to packet for Ham stuff. They look to the internet for other things like the www where you get data sheets for new electronic devices on-line and to your computer in minutes.

Different strokes for different services.

**CHIRPS**

by Terry J. Taylor, W5JFM

In the last issue of *White Noise*, we began looking at the three timers, called T1, T2, and T3 which operate under the AX.25 protocol to determine when frames are sent, or re-sent. The first timer, T1, and known as the Acknowledgement Timer, was discussed at length. To briefly recap this previous discussion, T1 is set by the TNC parameter setting called FRACK. The parameter is set for so many seconds, with a default of 5 seconds in my PK-96. The formula used by the TNC is:  $FRACK \times ((2 \times d) + 1)$ . The letter 'd' is the number of digipeaters in the link. Notice that if there are no digipeaters (ie.,  $d = 0$ ), then the value of FRACK is not increased at all. On the other hand, if there are two digi's, then  $2 \times 2 + 1 = 5$ , and the value of FRACK would be multiplied by 5. If FRACK was 5, with two digi's, then T1 would be increased to 25 seconds, thus allowing additional time for the packet frame to transverse through two digi's to the receiving station, generate an acknowledgement frame, and transverse all the way back to the originating station. If T1 runs out, with no acknowledgement, then the frame ( or frames if MAXFRAME is greater than 1) is resent under Version 1.0 of AX.25, or a polling frame is sent if operating under Version 2.0 of AX.25. The purpose of T1 is to set the length of time for a TNC to wait before taking further action when a sent frame has not been acknowledged.

You might have to experiment with various FRACK settings on a busy frequency. Setting it too high will take longer before your TNC will RETRY if your frame didn't make it through. Then again, your frame may have made it through, but the acknowledgement hasn't been able to make it back to your TNC yet. All in all, if FRACK is too short for the frequency conditions, then your TNC will RETRY before an acknowledgement can be received, and then RETRY out, with a resulting DISCONNECT. If it is too long, then you will be

losing efficiency if your original frame had a

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collision, since you'll have to wait until T1 runs out before your TNC will do anything. I leave my FRACK set to the default of 5 seconds, and that seems to work pretty well.

Further, realize that when using the network with ROSE, the ROSE Switch will be acknowledging all of your frames, and not the destination station. The Switch takes on the responsibility for acknowledgment to your TNC, and also the responsibility for acknowledgement to downline other ROSE Switches or destination stations such as a PBBS. Therefore, once your TNC receives an acknowledgement from the Switch, it has done its job and is now waiting for a frame to tell it to send more frames.

The second timer to discuss is T2, which is called a Response Delay Timer. This timer determines the amount of time to wait before sending an acknowledgement for an I (Information) frame. Since one or more I frames can be sent at once (depends on MAXFRAME), the receiving TNC should wait a brief amount of time before acknowledging any frames so that all received frames can be acknowledged at once. This would improve throughput. Apparently, some TNC's pause between each I frame sent, possibly during a file transfer. T2 is controlled by the parameter RESPTIME. It is specified in 100 mS increments, from 0 to 250. A value of 10, would be a full second. The default on my PK-96 is 0 (000 mS).

T2 begins when the receiving TNC receives an I frame. When T2 expires, then an acknowledgement is generated by the TNC for all I frames received up to that point. If more frames are still being received, then T2 will begin again, and yet another acknowledgement frame will be generated for the most recent received I frames. If T2 is too short, then more than one acknowledgement frame is generated, whereas only one acknowledgement frame is needed to acknowledge several received I frames. Efficiency, both in terms of frequency use, and throughput, is reduced by the additional ack frame(s). You can experiment with the setting for T2, RESPTIME, with 5 (500mS, same as .5 second) being a good place to start. Apparently, some TNC's, including my PK-96, will acknowledge all

incoming I frames with just 1 acknowledgement frame with RESPTIME set to 0. As long as the carrier is not dropped while I frames are being received, then the PK-96 will acknowledge all received I frames at once.

Next month, we'll conclude with a look at T3.

...CHIRP, CHIRP!

---

Optoelectronics 3000A Product Review  
Brian Mork, KA9SNF

Part 5 of 5

#### OPTIONS

You can buy a precision (0.2 ppm vs 1.0 ppm) timebase for an extra \$100. What used to be a \$45 backlight option now seems to be a non-optional extra expense. September advertisements still quote the lower price for the standard model, but the sales personnel won't sell one that way.

--- time base ---

There are two reasons why I did not want to buy the precision time-base option. One is because a RATIO mode is provided and I already have a precision 10MHz TTL oscillator scavenged from an old LORAN navigation board. 10MHz also happens to be the maximum frequency Input B accepted in the ratio mode (all ratios are A/B). What a coincidence. Works for me!

The second reason is simply that the 1ppm timebase is specified to age at a rate of 1ppm/year. A 0.2 ppm option would be degraded to the 1.0ppm option in only about 10 weeks. In any case, I usually don't need to know the last 2 Hz on a 10000000 Hz signal.

--- backlight ---

When it's on, I can hear a switching circuit bringing

---

up a high voltage for the luminescent display. It turns off after 10 seconds of inactivity and comes on again when some button is pressed or frequency is acquired.

It looks good. Worth \$45? The native display is plenty readable and the extra light actually makes reading it harder from angles "above" the counter.

#### >>> GOTCHAS

The serial interface is unidirectional. You send it a CR and it sends back 10 digits and a decimal point, in ASCII, 2400bps, 8 bits, no parity, 1 stop bit. It only works in FREQ mode. It provides only the most re-cent number, with no indication of whether this is another sample or the same number it just sent you after your last request. The interface can sink 1.6mA and source 0.06 mA.

Excellent amplifier sensitivity isn't everything. Sometimes it's even a burden. For decent counting, the signal you're monitoring must exceed the noise (combination of \*all\* other RF signals in the bandpass of the selected amp) floor by 10-15dB. Specified sensitivity ranges from -57dBm to -11dBm. The input amp is limited to +15dBm. Ambient noise, including FM stations hovers about -11dBm. Play with those numbers and you'll see that the window for a good count can be pretty small. Try to measure a cordless phone near your transmitter or computer monitor? Probably not. If you live near a broadcast station, good luck. I don't consider these numbers a design flaw given the intentionally wide frequency range of the amps, but it definitely affects your day-to-day operation.

In Damien's review, he emphasizes the importance of a limited bandwidth antenna. Take this recommendation seriously. Wide range frequency coverage means susceptibility to noise. A bandwidth limiting antenna helps mitigate this problem.

#### >>> SUMMARY

The at-your-door price for a 3.5" x 5" circuit board seems a bit high, but the counter is specified to do what I need it to do, plus a few options. Resolving the skittish Hi-Z input problems is a must. The M1 gets around this by simply not having multifunction capability. Paying the extra \$100 for a 3000A with specified capabilities that in real life are marginally usable deserves a second thought.

All models are available only direct from the manufacturer in Florida. Contact Optoelectronics: 5821 NE 14th Avenue, Ft Lauderdale, FL 33334. 800-327-5912 or 954-771-2050. FAX 954-771-2052. (Makes you want to dial ..2051 and see who you get, doesn't it? :)

73, Brian Mork  
(Opus-OVH/InCrea)  
ARO ka9snf@kb0kqh.#seco.co.usa.noam  
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#### An Intro to APRS

Part 5 of 5

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The following is a bibliography chronicling the development of APRS:

[1] MULTI-USER DATA NETWORK OVER VHF RADIO, Bruninga, AMRAD Newsletter, Mar 1978.

[2] HF PACKETS, MODEMS and GATEWAYS, Bruninga, Third ARRL computer Networking Conference pg 6-7, 15 Apr 84. (HF packet specification for 200 HZ shift)

[3] EASTNET - AN EAST COAST PACKET RADIO NETWORK, Bruninga, p 9-11, Third ARRL Computer Networking Conference. 15 Apr 84. (MD, NJ & NY packet map)

[4] THE RACING PROBLEM: A PACKET SOLUTION, Bruninga, p 12-15, Third ARRL Computer Networking Conference, 15 Apr 84. (A connectionless protocol for reporting the location and status of Horses on a 100 mile endurance run. \*(the original APRS concept)

[5] EASTNET - A YEAR LATER, Bruninga p 15-24, Fourth ARRL Computer Networking Conference, 30 Mar 85. (More East Coast maps and the first USA HF map)

[6] LINKING PERSONAL COMPUTERS BY PACKET RADIO, Bruninga, Proceedings, IEEE COMPCON 84 16 Sept 84, (Published the USA packet map, and amateur HF packet standards)

[7] CONNECTIONLESS EMERGENCY TRAFFIC SYSTEM, Bruninga, Packet Radio Magazine, pg 4-5, July 86. (details the design of the connectionless position and status reporting system)

[8] AN UPDATE ON THE CONNECTIONLESS EMERGENCY TRAFFIC SYSTEM, Bruninga, Packet Radio Magazine, Aug 86. (more of the same)

[9] CONNECTIONLESS PROTOCOL for the NDMS, Bruninga, p 19, Packet Radio Magazine, Nov 86. (using the connectionless protocol for emergency comms)

[10] PACKET RADIO AT THE WRECK OF THE AMTRACK COLONIAL, Bruninga, P 13 Packet Radio Magazine Jan 87. (using portable packet for disaster comms)

[11] LANS and WANS, Bruninga, 7th ARRL Computer Networking Conference, 1 Oct 88 (First DC/BALTIMORE area packet maps with APRS symbols)

[12] A WORLDWIDE PACKET RADIO NETWORK, Bruninga, Signal Magazine, June 88,

(shows HF map of 10.149 MHZ activity.

[13] PACKETRADIO IM NOTFUNKEINSATZ BEI EINEM ZUNGLUCK, RTTY magazine 18 Jan 87. (translation of article on APRS at the AMTRACK train wreck)

CURRENT:

[14] AUTOMATIC PACKET LOCATION SYSTEM (APLS), Bruninga, ARRL Gateway/QEX, Feb 1991. (early specification for position and status reporting formats)

[15] GROUND STATION TRACKING VIA PACKET RADIO, Bruninga, AMSAT Journal, Pg 1 May/June 93

[16] TRACKIT RADIO, Stan Horzempa, p 92, QST, July 93

[17] UPFRONT IN QST, p 11, QST, August 93. (excellent pictures)

[18] A DESCRIPTION OF APRS by WB4APR, AND MORE!, PACKET USERS NOTEBOOK, Buck Rogers, CQ Magazine, Dec 93

[19] INTERFACING GPS/LORAN DEVICES TO PACKET RADIO, Bruninga, pg 9-14, QEX, Feb 94

[20] HOMING IN, Radio Direction Finding, by Joe Moell, page 56-59, October 94 issue of 73 Magazine.

[21] HOMING IN, by Joe Moell, Jan 95 issue of 73 magazine.

[22] Ads by PacComm, AEA and KANTRONICS touting GPS packet. April 95 QST

[23] Buck Rogers Column, Packet Notes. CQ magazine May 95 issue.

[24] QST Compares: GPS Compatible TNC's, Steve Ford WB8IMY, QST Oct 1995

[25] Availability of Seventy 9600 Baud Packet Channels on Two Meters, 14th ARRL Digital Communications Conference, Arlington, TX8-10 Sept 1995

[26] APRtrak, A Program for Determining the Locations of Ground Stations and Spacecraft, Proceedings of the AMSAT-NA 13th Space Symposium Oct 6-8 1995, Orlando, FL

[28] APRS in Balloons and HOMING-IN column Nov 95 issue of "73" Magazine

[29] The MIM Module, Mobile Radio Technology, May 1996

-End of Part 5 -

73 de Larry

**PALM BEACH PACKET GROUP MEETING**  
JUNE 12 1997

OPENING AND REPORTS

The meeting was opened by President Doug (WB4KGY). There were 5 wide eyed and enthusiastic members/guests in attendance.

1. Welcome/NO SMOKING/ Introductions
2. Treasure's Report not available due to Marvin being out of town.
3. Technical Committee report-Doug (WB4KGY)
  1. No problems with switch or APRS
  2. Problems with cross state path corrected with software reload in Arcadia.



**AT THE JUNE MEETING**  
Tom Kneisel K4GFG discussing Detecting Radio Signals from the Mars Global Surveyor Spacecraft.

Photo by KB4XE

OLD BUSINESS

1. Treasury Review Committee will complete their review when Marvin returns later this month.
2. "WHITE NOISE" mailed on June 3rd.
3. Handout of:  
ROSE Switch list  
NODE'S list.

NEW BUSINESS

1. FADCA meeting held a Altamonte Springs last month. Joe WB4TEM (FADCA VP) comment about meeting. Joe reported that Dana RODAKIS (K4LK), Florida Repeater Council Director, sent a letter to the officers of FADCA stating that the FRC wants to "start coordinating repeaters below 442.0 MHz". They feel there is a severe shortage of 440 repeater pairs in the Miami/Ft. Lauderdale area. Unfortunately this includes frequencies that the FRC had assigned to FADCA for coordination of backbone links. Included in the list are frequencies currently used for repeater voter links FADCA is responding with a letter stating that FADCA is

going to continue to coordinate it's assigned frequencies.

2. Bring a friend or someone to the meeting next month.

3. If you would like to become involved in an experience of a lifetime, volunteer for a place in PBPG.

4. BARDS meeting June 21st. @ MOTOROLA.

**ADJOURN/BREAK/WORKSHOP**

=====

**1. WORKSHOP/SPECIAL PRESENTATION**

Tom KNEISEL (K4GFG) Presented an outstanding program "HOW'D THEY DO THAT" "Reception of Mars Probe" It was enjoyed by all.

2. Meeting was adjourned @ 21:05 hrs.

**TREASURE COAST PACKET GROUP  
MINUTES**

JUNE 14, 1997

The meeting was opened by Vice President Joe, K1VAO, at 9:32 AM. After the introduction of those present, the Secretary, Ladd, W2KGV, read the brief report of the last meeting. It was accepted on a motion by Bill, N4XEO, and a second by Wayne, KA1VRF. The Treasurer, Andy, W8BIX, reported that the funds were \$1328.54 with 3 new members renewing. The report was accepted on a motion by Bill, N4XEO, and a second by Wayne, KA1VRF.

**TECHNICAL COMMITTEE:**

Bill, N4XEO, reported that the .050 Switch is working better since the remote control was installed, whereby he can reset the switch from his QTH, eliminating the long trip to the site. He described a new French Switch program, which was working well in Tampa and has many new features. We would need to provide a computer for this switch. Bill said he was going to Tampa next

weekend to checkout the program and to load it into his computer. He also suggested that the Rose Switch remain on .050, for keyboard to keyboard operators and .053 for BBS access. Ladd, W2KGV, so moved, with a second by Wayne, KA1VRF.

**NEW BUSINESS:**

There was a report of pirating (bootlegging) calls on packet and using unacceptable language. Members were asked to print out anything observed of this nature and to note beam headings. Bring such info to the next meeting.

Bill, N4XEO, announced that the PIN net will now be on later on Tuesday since the Fort Pierce Amateur Radio Club Net will now start at 8:00 p.m. Bill also reported that the Vero Beach switch still had problems going to Melbourne. He also said he has been trying to get in touch with KC4IBT, Joe, relative to the problems with the 9600 path to Melbourne. So far he has not been unsuccessful.

The Treasurer, Andy, W8BIX, inquired as to how long he should keep the monthly Bank statements. It was decided that 2 to 3 years of the year-end statement and all of the current year. All checks showing payment for equipment should also be preserved for insurance records.

Bob Stien, WB1HJC, of Stuart was voted into membership.

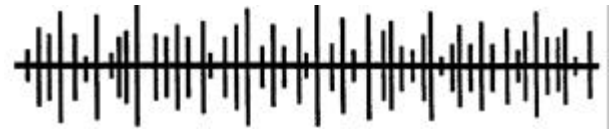
The meeting was adjourned at 10:03 on a motion by N4XEO and a second by Wayne, KA1VRF.

Attending: WB1HJC, KA1VRF, N4XEO, K1VAO, W8BIX, N4HYK and W2KGV.

NOTE: This is the last meeting until September. Have a good summer!

Respectively submitted:  
Ladd, W2KGV  
Secretary, Treasure Coast Packet Group

# WHITE NOISE



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Volume 9, Number 7

July, 97

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## UPFRONT

FPAC, a French Solution. - Part One  
By Chuck Haast, KP4DJT

*[This will be a multi-parted article spanning several months. Chuck has written an interesting article that could be the possible impetus for moving from the ROSE network to using FPAC. There are many facets to consider, so read each part as it is released, and then read the article in its entirety. EDITOR]*

As some of you have heard, in the Tampa Bay area we are implementing a networking solution known as FPAC.

Some have asked why we have taken this path. I will attempt to answer this question and others along with an introduction to FPAC, including its strong points and weak points.

The first question asked of us is "why go to FPAC?"

1. Our network was experiencing failures that were costing us time and patience. Some of our sites are in limited access areas and these failures would go for days on end because of those access limitations.

2. Routing tables were growing to the point of becoming hard to manage. The IBM site alone had 10 routing tables, and the job of handling that site was almost a full time job.

3. Network administration and trouble shooting. The original ROSE code did quite well for low volume low usage sites with only one or two switches, but when our sites grew to the number of

switches at many of our sites, the administration became a nightmare. The lack of link history made it very difficult to trouble shoot a link without long periods of observation.

We looked at other solutions, and at one point we were even contemplating a move to NetRom. We were quite content with the network architecture and the basis for the routing -- X.121 addressing. We looked at the other solutions and found that each had it's own can of worms.

But thanks to the introduction by KB4GBS, Roger here in Tampa to a French visitor who used FPAC, we found FPAC.

FPAC met our requirements and allowed us to correct the problems mentioned above.

1. We have seen no failures of FPAC. There have been RF failures, but the networking code is very stable.

2. Since all the networking is contained in the PC multi-switch, sites now only have one routing table, with the exception to this being the IBM site, because there are two PC's in different parts of the building. But even here we have gone from 10 routing tables to only two. This makes life much easier.

3. Network administration is now much easier such that we can trouble shoot the system with great ease because FPAC collects link histories. I will show screen shots of these screens in this series.

There are also some additional benefits that we are realizing by going to FPAC.

Some of the most outstanding are:

1. KISS TNC;

We are not limited to only those supported by ROSE, or another networking system. FPAC can talk to KISS, KISS CRC, or Polled KISS TNC's. We can use AEA, GLB, Kantronics, MFJ, PacComm, or any other TNC that supports KISS.

2. SCC Cards;

Products such as the DRSI and several other SCC card solutions are available and can be used with FPAC totally eliminating the TNC box from the picture.

3. Single Routing Table per Site; The growing collection of routing tables and the administration of these routing tables has been one of the on going problems with large switch sites. With FPAC, there is only one per PC. Most sites only have one PC.

4. FPAC Alias and NODE callsigns

You may connect to either one, then you can either do switch administration duties, or you can node hop. The ability to node hop has been requested by NetRom users. FPAC now gives this facility to X.121 based networks where there are FPAC sites running. If a routing table has not been updated, a connection to the NODE at the offending address will then let you jump across the offending path and press on. This, of course, requires the presence of the RF path. No amount of node hopping facilities will fix nonexistent RF paths!!!

5. Routing tables are visible to all users. The latest version which we are beta testing has a command that allows you to SEE the routing tables with the primary and secondary paths.

6. Link History;

FPAC gives a very complete link history, something that has been missing in the previous solutions. X1J made an attempt at it, but the information shown is

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N4JOA@WB4MOZ

still not nearly as complete as that displayed by FPAC. The latest versions will display link activity dynamically on the console, allowing the switch op to see certain errors as they occur.

7. PC adds a box to site; Some have pointed out that you are adding one more box to a switch site, and

indeed this is true if you are using TNC's. If you move to the SCC based option, you will only have your radios and the PC, no TNC's.

8. PC handles data faster;

Another fact we have found to be very true is that these links are faster, for whatever reason the throughput is much greater. A FPAC box is a definite point of connection to say 56kb GRAPES RF Modems, or any other fast RF path that is available.

The lack of speed on the network has been one of the weak points of our whole system, regardless of the solution used, this solution appears to have the speed needed to push us at least into the next generation of data radio systems using spread spectrum.

9. ROSE interoperability;

By following in Tom Moulton's footsteps using X.25 at level three, the networking overhead has been kept down to only 3-5 characters. This overhead problem has been a plague of all of the networking solutions except for the KANode concept which is really just in many ways a simple AX.25 device that allows you to remotely connect to other AX.25 devices. It has no network smarts.

The PID transparency allows for other network interconnection and transport of foreign PID's through the network to the target network to which the PID belongs allowing adjacent networks to connect and pass the data needed for their functioning.

We have found that the site address where a error takes place is not exchanged between ROSE and FPAC, just the error code. The authors are working on this one. If you are connected to a distant ROSE switch application and issue a 'B'ye command, you get the EOT back from the ROSE switch but there is no disconnect. This is also being looked at.

We have found that these are minor inconveniences compared to the problems we had keeping the network running.

The fact that FPAC runs without crashing under heavy traffic loads and when network failures do occur has greatly reduced our work load in the bay area. We are now dedicating time to making the network grow again. Also looking at adding new facilities to draw users back to this mode of operation.

Part Two will be next month.

---

**FROM DAYTON HAMFEST**

Terry Taylor W5JFM



The Dayton AMSAT "Get Together" Friday night was an evening enjoyed by all. Standing and talking is Keith Baker, KB1SF, Executive Vice President, making his remarks concerning present and upcoming activities. Facing the camera on the left is Barry Baines, WD4ASW, Vice President, Field Operations. Subjects discussed were the upcoming launch of Phase 3D, and the ongoing activities with SAREX. The buffet food was outstanding and enjoyable by all. Several hams getting started in satellite activities were rubbing elbows with the movers and shakers of the amateur satellite group.

**The Hassle and the Hustle** *Photo by W5JFM*

Bill Manley KB4XE

Owning and operating a personal computer can be an exercise in frustration. This short story describes an actual event which confronted me, and can confront you as a packeteer, although it is not ham radio specific.

Last September I bought a new computer. I selected a popular computer and parts software vendor whose store was right here in Coral Springs, Fl. I had dealt with him in the past, he sponsors the hamfests, has competitive prices, and his over-the-counter sales personnel seemed knowledgeable (or at least they talked a good story). The purchase was accompanied with a 1 year parts and 2 year labor warranty.

### THE HASSLE BEGINS

I soon discovered that the included modem had a timing bug. The issue is openly discussed on the modem manufacturer's home page. By phone the manufacturer agreed to replace the modem, but charged me \$25.00 to cover the shipping for a "hot swap".

After two months, the computer and replacement modem began to malfunction intermittently. Now the manufacturer customer service explains that, after 4 to 6 months, Win95 develops a bug whereupon it suddenly develops a conflict with COM2. He recommends that I restrap the modem to COM3 IRQ 5. "That will correct the problem."

But it didn't.

With numerous phone calls, he continues to insist that the modem is good and the problem is with the computer or its software. He is very persuasive

### THE HUSTLE

I returned the computer to the "popular vendor" with written commentary concerning the dealings with the modem vendor and additionally described computer lockups and other anomalies.

Following up by phone the following week revealed that his service department was not even aware that the computer was there for repair. I conveyed a sense of urgency. Subsequent calls disclosed an increased sense of his awareness.

Finally day the technician announced that the total problem is laid upon the modem. He replaced it and "the computer now works perfectly". When I returned to pick up the computer, it became evident that the technician never read my letter describing the lock up and other problems with the computer, nor did he trouble shoot them.

He summoned the manager of the "popular vendor" company who was critical of my dealings with the modem manufacturer as opposed to having returned the computer to him directly. That made it awkward for him to replace the modem under those circumstances. That didn't not seem to me to be unreasonable and so I agreed that he should remove the new modem and return the bad one, but how about the other problems?

He argued that they were all attributable to the bad modem. I questioned his concept of "all" since they had not read my letter until I arrived to pick up the computer. He was unswayed by my logic and then HE HUSTLED ME TO PAY FOR THE 5 HOURS SERVICE.

It took him 5 hours to discover what I had disclosed in my letter?.

"Give me my computer, and its bad modem, and you will never see me again" settled the conflict.

I am back where I started with the intermittent modem and a erratic computer.

So much for the "popular computer vendor" and his worthless 2 year labor warranty.

**THE HASSLE CONTINUES**

Reopening the phone dialogue with the modem manufacturer CS representative re-entrenched him in the conviction that the problem was with Win95 and my computer and his modem could not be faulty. After all, he “carefully checks his product before offering it as a hot swap.”

Also, since I already had two modems, and he was “not going to provide any more!”

He was unswayed when I reminded him of his written 5-year warranty, that he admitted the defect in the first modem, and the fact that this modem had problems while a test, substituting another, worked perfectly.

He was adamant, until I insisted in speaking with a manager. “...none are available” didn’t placate me. After further rhetoric (this was a 4 hour phone call!), he condescended to providing a third modem.

The third modem has been received and is installed. This time I had to cover the expense of returning the bad modem myself.

It works just fine.

The computer still hangs periodically.

Guess I must trouble-shoot that myself.

Corrupted software?

Bad motherboard?

We’ll see.

**MINUTES PBPG JULY 10, 1997**

Meeting called to order at 7:35 PM . 14 members

present.

**Introductions**

Card signing for John Wilson (KN4HX). John is in the hospital for back surgery.

The Treasurer's report normally would come next, but was delayed till Old Business discussion.

Technical committee report was delivered by our President WB4KGY (Doug). A software problem had developed due possibly to lightning strike in the area. The old call sign resides in the EPROM and presented itself on the HEARD list along with the new one. WB4MOZ reloaded 561655 TNC remotely from home. Yesterday’s storm and accompanying lightning tripped the circuit breaker. All equipment except the APRS final P.A. continued to operate powered by the backup batteries. The APRS P.A. is not powered in battery (operation) mode.

Next we had a report from Terry Taylor (W5JFM) on the Dayton Hamfest with some interesting stories about the Saturday night HamVention dinner. One piece of equipment that particularly caught his attention at the show was a computer controlled receiver called 'KACHINA'.

It was now time for 'Old Business' and our new Treasurer, Marvin Kaskawits (KD2CK) gave his report along with 'revue' chairman Mike Michaels (K2GPI). A Quicken 6.0 program has been purchased by Marvin to document all future transactions. In addition to that the 'committee' (Henry Felton W4UJ and Mike Michaels) worked with Marvin to restore records dating from January 1st 1997 into 'Quicken'.

Also under Old Business, a Packet radio book purchase program has been started by our secretary BillyBob KE4GUM to place into a lending library for members. A correction to the published minutes was made (page 6...should read...15 members

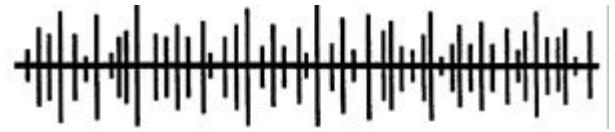
present). New Rose Switch, NODES list were presented for handout along with copies of White Noise for those that may not have received theirs. The past week-end was used for the 'FIELD DAY' annual exercise and the West Palm Beach Radio Club (W4HAW) was congratulated for the excellent job that it did.

It was announced that should an emergency (i.e. Hurricane or Tropical storm) occur the EOC would be closed to club meetings. Contact a club officer if in doubt. Doug solicited members to bring a friend to our meetings and also suggested if any member would like to 'get involved' any and all help would be appreciated. An announcement was made regarding the BARDS meeting schedule and members were encouraged to join FADCA and also reminded to check the address page of their White Noise to see when their annual dues payments are due.

The date of the next meeting was announced ... AUGUST 14 7:30PM at PB County EOC. This concluded the business portion of the meeting and a break was announced while the Technical Session was being prepared.

Doug made the Technical presentation on Satellite Packet activity and handed out data sheets showing frequencies for up and down links. He commented that the latest information may be downloaded from the BBS at WB4MOZ.

# WHITE NOISE



Volume 9, Number 10

December, 97

## They Call Me the Breeze

Bill Manley KB4XE



APRS viewers have watched W7LUS-14, the most mobile of the mobiles, as he moves to-and-fro and up-and-down their screens. Peter Gross W7LUS is an enthusiastic amateur radio operator who is also a trucker. He transports Trade Shows and Electronic Equipment for North American throughout the US. Before entering his migratory life style, Peter lived in Broward County Florida. He was an active member of PBPG and BARDS. He still is, when he is in town.

Peter spent the Christmas holidays with friend Joe Loewy KB4FO in Cooper City. He had recently taken delivery on his new 450HP Kenworth tractor and had the rig, with trailer, parked at Joe's house. I called Peter to arrange an opportunity to obtain a graphic profile of him and his house-and-business-on-wheels.



He gave me a tour of the tractor. It's exterior is white and beautifully decorated. The logo "They Call Me the Breeze" gives a clue of his participation in *that other* radio service. But the antenna endowments suggest something more serious is inside. The interior features the ham gear which defines his sophisticated amateur station on wheels. On the dash, between the driver and passenger seats, are the control heads for the Yaesu multi-mode and Yaesu HF rigs. "Mr. Potato Head" microphone serves the multi-mode but the HF rig is slavishly tuned to APRS at 10.151 LSB. The living quarters includes air conditioning, lavatory, shower, bed and kitchenette, sink, refrigerator, freezer, and microwave oven serve the necessities of life. Added to that are a computer station, with printer, and a Sony DBS television system. A 7.5 Kw diesel generator powers the home.



Locally Peter is known for his lavish barbecues. If you observe Peter heading for your area, invite him to yours. Let him do the cooking as you become nourished by his culinary skills, ham radio and trucking experiences.

## APRS Excitement

Bill Manley KB4XE

If ham radio is dying, the APRS enthusiasts don't seem to realize it. They appear to be the avant-garde group, combining their ham radio interests with state-of-the art computer/internet technology.

Bob Bruninga WB4APR, the founder of APRS, continues to upgrade his DOS tracking program. In addition he maintains a web page featuring the latest. Check out:

<http://web.usna.navy.mil/~bruninga/aprs.html>.

In the meantime the Sproul brothers enhance their Win95/MacIntosh versions.

<http://aprs.rutgers.edu/index.htm>

Steve Dimse K4HG contributes the JAVA version. This exotic application links APRS sites nationwide through the internet. If you would like to see what is happening country-wide bring up

<http://www.aprs.net/usa.html> .

There are subsets to Steve's site. You can look at the whole world, the USA, or selected areas of the country. Bring it up while you run your own local site. You are certain to see yourself mapped on the internet. For example, Floridians can bring up

<http://www.aprs.net/Florida>

The latest internet link is Brent Hilderbrand's APRSa4 home page. This links GPS and other fixes with the mapping detail offered by the popular Street Atlas application.

<http://home.att.net/~bhildebrand/aprsa4.html>

And then there is also the APRS Microphone Encoder (Mic-E). I haven't really checked this one out myself.

<http://www.tapr.org/tapr/html/mic-e.html>.

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While connected to TAPR check out their other APRS files:

<ftp://ftp.tapr.org/tapr/sigs/aprssid>

**TO QSY, OR NOT TO QSY?****That is a question**

Bill Manley KB4XE

APRS enthusiasts in many parts of the country operate on 145.79 MHz. The huge network represents an investment and tradition the likes of which we know is hard to change.

Planning ahead for the future Space Station, AMSAT has requested that that frequency be vacated to avoid interference with their planned amateur band plan. The suggestion has been made that terrestrial APRS operations QSY to 144.39 MHz.

Recognizing the emotional, and perhaps financial impact of the proposal, the TAPR Corp., inspired by Steve Dimse K4HG, is conducting a poll to determine the willingness of the APRS community to QSY and to assess the potential economic hardship. Potentially they may manage a fund to expedite the change by offsetting the expense to comply.

A questionnaire is attached to this newsletter as a convenience to mail in your feelings. Visit the TAPR web page to review more details on the subject.

<http://ww.tapr.org>

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**THE HUDSON LOOP**

Bill Manley KB4XE

We are always vigilant to bring to *White Noise* readers articles of interest to the amateur radio community. One particular internet publication deserves special notice.

The purpose of *The Hudson Loop* is to rapidly provide essential news of interest to active amateurs residing in the ARRL Hudson Division and other areas faster than can be achieved via packet radio or

printed means. We strongly encourage membership in the American Radio Relay League and participation in the activities of its divisions, sections, and local clubs.

This service is available by free Internet subscription.

To subscribe, send an Internet e-mail message to

-----> arrlHUDSON@aol.com <-----

and type "SUBSCRIBE HUDSON LOOP" on the subject line.

No message text is necessary.

To cancel,

type "UNSUBSCRIBE HUDSON LOOP" on the subject line.

Here are two examples of some of the articles which have appeared in *The Hudson Loop* during the past several months.

"TECH AMERICA" OPENS, OFFERS FREE CATALOG

If you lived in the Northeast back in the sixties and early seventies, perhaps you remember the "Lafayette Radio" chain of electronic stores based on Long Island. Or maybe you recall the Chicago-based "Allied Radio." Remember those four and five hundred page catalogs of order-by-mail electronic goodies? Wouldn't you like to be able to order from those catalogs again?

Bob Miller, K2RM, is Vice President of Merchandising and Marketing for Tandy Corporation's new retail/mail order outlets called "Tech America". Tandy Corporation, which operates "Radio Shack" and "Computer City" retail outlets, is now in the mail order business with the new operation. "'Tech America' is an extension of Tandy Corporation's core competency," says Miller. "'Tech America' is picking up what 'Radio Shack'

has left behind. The new business is what most 'Radio Shack' stores were about thirty years ago."

"Tech America" carries components, test gear, kits, batteries and a lot more. 2000 technical book titles are available. Having trouble finding Rohn tower? How about that odd value resistor, or capacitor? You won't have that problem anymore! "Tech America" also carries computer parts down to the chip level. Amateur radio gear in the catalog includes complete lines from Standard and Alinco, Cushcraft and Valor antennas, and more to come.

With its flagship store located in Denver, other outlets are also open in Atlanta, Dallas, and Mesa, Arizona. Their FREE full-color, 548 page catalog, sure to please any technophile, is available at 800.877.0072.

(Info provided by Hap Holly, KC9RP, and "The RAIN Dial-up.")

-- submitted by George Bowen, N2LQS  
(kxkvi@delphi.com)

### ***The ARRL Letter***

November 28

AX.25 Version 2.2 is up on the Web! You can access both the 1984 and 1997 versions of this amateur radio packet link protocol at

<http://www.tapr.org/tapr/html/ax25.html>.

This document marks the fourth edition of the AX.25 Amateur Packet Radio Link Layer Protocol by the ARRL and the Tucson Amateur Packet Radio Corporation (TAPR). The AX.25 Version 2.2 document is available free of charge.

This document defines a protocol used between two amateur radio stations in a point-to-point or networked communications environment. The protocol specifies only link layer and physical layer functions. It is not intended to specify any upper-layer protocol other than certain interface requirements to and from other layers. This

protocol recognizes and accommodates the uniqueness of the amateur radio operating environment.

Since the publication of the first edition of the standard, an amateur radio digital network has evolved. Because this development has negated the need for the digipeater mode of operation, the proposed new specification limits digipeating to a maximum of two hops or separate radio links.

A big addition in this version has been the addition of the System Description Language (SDL) diagrams to help anyone better understand how the system works. The SDL, included in Appendix C, is a much clearer description of the protocol than the verbal text.

At the ARRL and TAPR 1997 Digital Communications Conference in October, the ARRL Future Systems Committee transferred all responsibility for the AX.25 document to TAPR. TAPR now maintains the PID assignments and work on any future corrections or changes to the document. Three new PID assignments have been added to the current version--one for FlexNet and two for Jacobson TCP/IP compression.

A major effort toward updating Version 2.0 was published by Eric Scace, K3NA, in 1988 at the Seventh Computer Networking Conference. This work is included in the latest standard version, together with protocol improvements that will aid networking and HF users. The latest document began with the work of William A. Beech, NJ7P, Douglas E. Nielsen, N7LEM, and Jack Taylor, N7OO, in the early 1990s. "Without their work in the initial stages several years ago, the document wouldn't have been updated and the diagrams wouldn't be available today," said TAPR's Greg Jones, WD5IVD. Jones says Lee Knoper, N7CUU, a technical writer, edited the document last year. Jones and ARRL Technical Relations Manager Paul

Rinaldo,W4RI, got the Future Systems Committee to look at the resulting document.

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## **PALM BEACH PACKET GROUP MINUTES**

DECEMBER 1997

### **OPENING AND REPORTS**

The meeting was called to order by President DOUG (WB4KGY) @ 1932 hrs. Thirteen Elves / Members / Guests were in attendance. County policy as to smoking in public buildings was stated. Introductions were made.

### **TREASURER'S REPORT:**

Marvin (KD2CK) gave his latest report. A motion was made and seconded that it should be accepted as read. We are in excellent shape financially. A detailed report will appear in *WHITE NOISE* !

### **TECHNICAL COMMITTEE REPORT**

Doug (WB4KGY)

1. Switch has been converted to FPAC !
  - A. Conversion was made Sunday 28 Nov. 97
  - B. Rearranged shelves in 8ft. rack.
  - C. Installed backup UPS donated by BOB (K4KTS).
  - D. Replace EPROMs in all TNC with KISS PROMS.
  - E. FPAC runs on a tower 486-66.
  - F. Club bought 2 dual port com cards.
  - G. Even with John's (WB4MOZ) weeks of testing, we still had problems which were corrected with the EPROM change Monday.
  - H. No more diode matrix.
  - I. Proved the system would work under polling.

NOTE: The Club / Packet Radio, would be in deep STUFF, were it not for the dedication of these guys.

### **OLD BUSINESS**

- A. You should have your" WHITE NOISE". Mailed 2 Dec. 97.

B. Library books are available for check out. APRS book has been ordered.

C. Handout of: ROSE SWITCH / NODE LIST. ROSE / FPAC users guide.

### **NEW BUSINESS**

A. MIKE (K2GPI) was released from the hospital today after surgery. A card was signed by those in attendance and mailed.

#### **B. ELECTIONS:**

Additional nominations were sought. None were made.

A motion was made, and seconded that the slate of Officers nominated should be elected by acclimation. After a rousing demonstration on the convention floor. The 1998 Officers were installed / rammed into place.

President DOUG (WB4KGY)  
Vise President MIKE (K2GPI)  
Treasure MARVIN (KD2CK)  
Secretary BILL (KE4GUM)

C. The "CLUB" could use your HELP ! so volunteer your talents. Contact any of the club officers for more information.

### **ADDED ATTRACTION**

Prior to the break, our ESTEEMED Treasure MARVIN (KD2CK), made us aware that we had missed a golden opportunity to acquire a real BUY on a hand held computer. While on a trip to "RIELLEY" North Carolina to see son Stuart (NF2N), an add appeared in the local paper, that a Sony hand held computer that listed for \$ 1999.95 (this is not a misprint) was "ON SALE" for \$ 99.95. Never one to miss a "good deal", they were at the door @ 0600 hrs. They bought the only 2 they had in stock. Readers will not get "the rest of the story". See what you miss by not coming to the meetings. Had there been 3 available, it would have made a good door prize for 1998 HAMFEST

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

Adjourn / Next meeting, Thursday Jan. 8th,\. 22:30 hrs.

Workshop / Packet Demo / FPAC (WB4KGY)  
 Meeting ended @ 21:15 hrs.  
 HAPPY TRAILS !! (KE4GUM)

## TREASURE COAST PACKET GROUP MINUTES

Dec.13,1997

Vice President Joe K1VAO, opened the meeting at 9:35 AM.

The Secretary Ladd W2KGV, read the minutes of the Oct. 11 meeting, which were accepted after a correction of Tom's call in the attendees list, on a motion by Don K8BXT, and a second by Jim WA1COA.

The Treasurer, Andy W8BIX, reported a Balance of \$1339.69 after the payment of the Equipment Insurance Bill of \$ 48.85 His report was accepted on a motion by Tom N4LRV and a second by Jim WA1COA.

NEW BUSINESS; The Vice. Pres. Joe K1VAO, asked if the membership recruitment letter had been sent. The Answer was No. He then offered to print up the letter and the labels to facilitate the process. It was also noted that there were about 35 members two years ago. The secretary agreed to write the letter.

NEW BUSINESS: The V.P., Joe K1VAO, Reported that the Tech Committee was in need of more members, due to attrition caused by members moving out of state, and the work schedule of the only active member, namely, Bill N4XEO. He invited members to volunteer to serve. Joe K1VAO, and Ladd W2KGV, both previously active Tech Comm. members, said they would be willing to assist.

Q & A :Ladd W2KGV report a problem in using the 05 switch. There is a also sounds like a computer

malfunction that was observed during Morse Code transmissions.

In answer to a question, Ladd W2KGV, described the Switch layout at the site, mentioning the age of some of the equipment, and the plans for updating the setup. Audio disappears in one setup, but by unplugging and plugging the unit seems to correct the problem for a time. It was suggested that they might try using the circuit cooling spray, and selectively spraying componants might localize the problem area.

Attending were WA1COA KD4VAA N4LRV K8BXT W8BIX K1VAO W2KGV

Respectfully submitted, Ladd Z Sajor W2KGV

### ARTICLES FOR *WHITE NOISE*

The Palm Beach Packet Group accepts articles from other clubs and individuals wishing to have them published in the *White Noise*. This is offered as a gratis service for those not otherwise having publication services at their disposal. Article content should be amateur radio related, including all operating modes, applications including computer, experiences, announcements and reports of meetings. Advertising is not accepted.

We reserve editorial privileges regarding content, spelling, punctuation and structure as well as the decision to publish or not. Articles can not be returned.

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