DIGITAL Journal

The Premier Source of Digital News and Knowledge Since 1953

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IN THIS ISSUE

Your Operating Position

"No, you don't have to live on the East coast to achieve contesting success!"

Operating positions occupied by (from l. to r.): Hal, WA7EGA, Jay, WS7I and Ted, HC5K

(*See cover story on page 5*)

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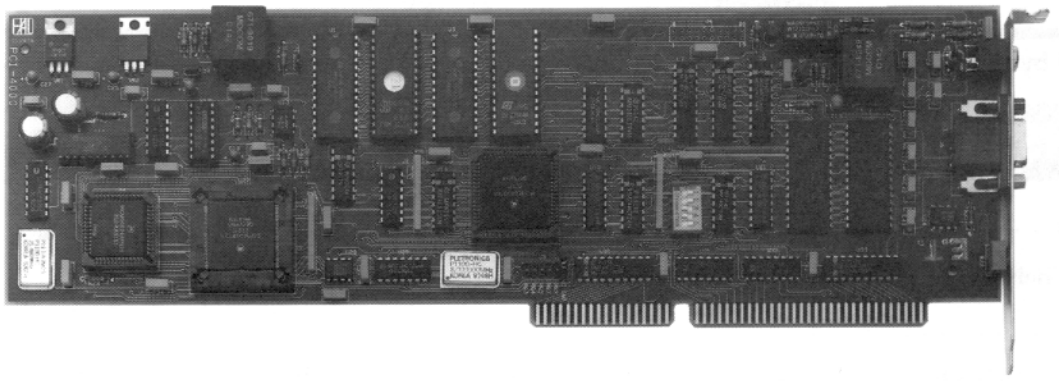

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HITS & MISSES

Dale Sinner, W6IWO

Last month I wrote about Hamventions and their importance to our hobby. I hope, upon my urging, all of you have made a resolution to start attending a Hamvention real soon. This month I am going to expand a little along the same lines but more so toward the exhibitors.

When contemplating the purchase of a new piece of gear, one of the first things we all do, is find out as much as possible about the piece we are attracted too. We go to our favorite candy store and if they have the one we are interested in, then we get an opportunity to turn the knobs and push all the buttons. We will be able to make a decision much easier because of this visit. However, on the other hand if the store does not have this particular piece on display, then we will probably have to settle for a specification sheet. Chances are, we will take the spec sheet home to evaluate the item before making any further decisions. We might also get on the local repeater or Packet node and inquire about the same item, with the hope that we will locate someone who has one and can help us out.

All of the above with the help of the store salesperson will make it easier for us to decide on this new gear. At this point we also will know the bottom line on cost and what terms we can arrange.

Upon decision, we make our purchase and take the new item home. Within minutes, hours, or days we are up and running with this new gear. Getting reports from everyone. I am sure these reports are all good and we are very happy with our new purchase. We tell our friends how happy we are, so that they to when ready, may also consider this same piece of gear. But what if we decided instead to but a used piece of gear?

The approach to buying will be a lot different. Now we will probably screen magazine classified ads, listen to swap nets, buy used equipment listings, go to flea markets, and so on. We spend considerable time hunting for a piece of gear. Maybe we have a particular piece in mind but can't find it. Now what? Maybe we advertise in a magazine for this item, put the word out on the local repeater or packet node. Time passes and maybe we hit and maybe you don't. Let's say we strike out. Can't find what we want. Ho Hum! Now what?

Seems to me that if anyone expended that much time and surely some money to find a piece of gear that it would have been a lot easier to buy the new gear. Besides purchasing a new piece of gear gives us "state of the art" technology and above all a guarantee. One might say, "Hey, I can save a lot of money by buying a used piece of gear." I don't think so. When you add up all the time of looking and the money spent going and coming to numerous flea markets and Hamfests, wear and tear on your car and gasoline, etc., I wonder if you are really going to save any money. I would agree though that some of you have probably been lucky and found what you wanted in a short time. But I think a person this lucky is the exception not the rule.

Now that brings me back to the new piece of gear. When you buy a new piece of gear, you not only are getting the benefits of the latest design and technology but you are also supporting the manufacturers who make these products. Each year Ham radio manufacturers spend countless dollars on development of products that will do more to enhance our hobby. They don't do this for fun. They are in business to make money and they must continue to do this or they will be gone. We can't desert our manufacturers, we need them as much as they need us. The next time you start considering the purchase of a piece of gear, think NEW. Think about the manufacturer for a moment. Lets' keep him going, let's buy new. Now, that brings me back to my column last month. Support your local Hamventions and you will always know what is new and how it works. You will be giving support to the exhibitors who spend all those dollars just for you. I hope to see you soon at one of the upcoming conventions. For those of you in the San Francisco Bay area, I hope to attend the Pacific Division convention in Concord, CA. October 21 to 23.

KEYBOARDING

I've been on the air some this last month doing some keyboarding. I have been having fun that I have missed for some time. I must confess though, I have not been on as often as I would like. I also have some antenna problems I need to solve here. But all that will happen real soon and then I will be much more active. I have been on RTTY and Clover mostly. I even worked a Cuban station the other day and I wasn't even looking for DX.

Classified Ads

Long before local Ham swap meets were popular, people who had gear for sale usually turned to their favorite magazine and placed an Ad in the Classified section. That method has been lost somewhat, I believe, because of local swap meets. However, I think the seller is missing a chance here. When selling something at the local meet, chances are that you will make a quick buck but maybe not quite what you thought your gear was worth. Quick turnover is the key word here. You probably sacrificed the end result for a quick buck. On the other hand, had you advertised in the pages of your favorite magazine, your gear most likely would have commanded a higher price.

The next time you have a piece of gear to sell, how about giving the Classified pages some consideration. Especially, the pages of the *DJ* which I know is your favorite magazine. Just think for a moment! When you advertise in the *DJ*, you are going to reach the buyers who would be most interested in your gear. Digital Hams buy lots of digital gear. They buy it new and used. Here's another thought. If you get a better price for your gear selling through the Classified section then you have more money towards that new piece of gear you wish to purchase.

Remembering back about fifteen years, whenever the *DJ* arrived at my house, I always looked at the Classified Ads section first. That is where I bought my used equipment. There were no swap meets back then. And, you know what, there was always a lot of gear for sale in the journal. Guess what? I never bought a bad piece of gear either. I could always trust a fellow digital Ham.

Why not give a old method a chance next time you have something for sale. The *DJ* has really good rates, you'll be getting to the right people, and you will also be supporting your favorite magazine. More money for your used gear is the secret to buying new gear sooner.

Finally, if you buy new gear, you are supporting the manufacturer. If you buy used gear, you are taking the interium step toward new gear. Maybe next time it will be new gear for you. Either way, enjoy your purchase, you are doing your part to keep our phase of Ham radio active.

73 de **Dale,W6IWO** ■

The Contest Chair

by Ron Stailey, AB5KD

This month I want to talk about two contesters who live out west. Long time friends of the Journal, Hal WA7EGA and Jay WS7I accomplished almost everything there is to do in RTTY contesting. What one hasn't done, the other has. What they couldn't do alone, they have done together. What a pair!

Most of their operations have been in the Multi/Single category (multi-operator/single station). These two warmed up in 1985 when they entered the VOLTA and the SARTG. In the Swedish test, they finished 4th Worldwide (WW) and 1st in North America (NA), in the Italian they won first in NA. They began to take contesting seriously in 1986 and entered every RTTY contest through 1990 before they sort of went their separate ways. The M/S was a wide open event in those days and couple of those contests have since gone away. Be that as it may, Hal and Jay won every North American first in 1986. They even had special T-Shirts made up with "BARTG, CARTG, VOLTA, ANARTS, SARTG and WAE," the six big contests of the year. They didn't do too badly in terms of WW either: BARTG 7th, CARTG 3rd, VOLTA 2nd, ANARTS 3rd, SARTG 2nd and WAE 3RD!

The following year, 1987, saw them focus on certain contests, BARTG, CQWW, SARTG and WAE. The BARTG was a particular target because it was their worst finish in 1986! And they promptly won their first World title, operating from WA7EGA. Next came the brand new CQWW. Hal and Jay ran that one from Galapagos Island as a M/S using the callsign HD8CQ. The crew included some other well known calls as well—Roy KT1N, Ted HC5K and other HC's. They were "out for blood." Out for blood, indeed. They won their second World title of 1987! That, by the way, was the point at which they started using lockouts and multiple radios, running two bands at a time, etc.. The SARTG and WAE were again from Hal's QTH, and they finished 3rd WW and first NA. (I would say they had a rather good year, wouldn't you?!!!)

In '88, the crew entered BARTG, ANARTS, CQWW and SARTG. Once again they went to Galapagos Island, this time for the BARTS, using the call HD8EX. They won the World M/S for their third world title. This was the year, by the way, when Jay and Hal invented the RTTY Roundup and all of its rules. Jay claims that about half of the rules made it easier for him to beat Hal! Why else do you think there is only a single multiplier and few DX incentives! Anyway, the rest of the contest season was run from WA7EGA. In the ANARTS they finished 3rd WW, CQWW 4th WW and SARTG 6th WW. Of course they finished first in NA in all three!

In '90 Hal and Jay "kinda split," both wanting to see what they could do as single op's. Special contests drew them together again, but Jay went into the 1990 RTTY Roundup Single category with a vengeance. He whipped W3LPL with Ed W3EKT operating. Jay's antenna was a KT34XA at 65 feet, a 40 and 80 wire at about forty feet and a vertical. (Note: I wish I could say I "whipped W3LPL" and wouldn't care if it took 5 over 5 on all bands to do it! Bear in mind that Jay did this from almost the West Coast in Spokane, WA. He is a lucky SOB).

All joking aside, Jay did do this one right and no one can take it from him. There aren't many people claiming a win over a super station like W3LPL, particularly one with the antennas Jay had. Oh, yes, Hal and crew also won the Roundup M/S that same year from WA7EGA. A clean sweep for Spokane!

Together, they again won BARTG M/S in 1990. Jay then decided to try to win both the Roundup and CQWW in the same year. So he went to Ecuador and using the call HC5J, he set what remains as the world record Single score (Unassisted). That QSO that year remained the record until he beat it as HC8J in 1993!

Meanwhile Hal ran Single Assisted and won CQWW from his home base. This was there 4th World title but both operated as Singles. Together they entered ANARTS (2nd WW), SARTG (4th WW) and WAE as a M/S team. All three resulted in first NA, as usual. The string continued. In 1991, Hal and crew won the RTTY Roundup as M/S, were 4th WW and first NA in the CQWW, while Jay won Low power M/S at WA7AVD in the Roundup just as a change of pace.

Not yet satisfied, they ran the CQWW in 1992 and took (you guessed it) first NA and 4th WW. They won the WAE and received their 5th North American win in that contest. And, in 1993 Hal's crew won the BARTG M/S USA. Jay decided to go back to the Galapagos using HC8J for BARTG. He set a new record for that contest in the Single category and a new QSO record—1141 QSO's, 262 Multipliers, 6 continents and a total of 1.677 Million points!! (As my dear old Pappy would have said, that ain't bad!)

Then, in the 1993 CQWW they decided to do a single band trick, Hal on 20 meters and Jay on 40 meters. Hal did well, but Jay sorta got whipped by Barry W2UP. Oh well, you can't win them all! But Hal did with the first SARTG AMTOR contest finishing first WW!

If you are one of those types that needs a record to shoot at, something to get motivated by, here is a classic target. But be prepared to spend a lot of years to overtake their record. Such records show what you can do when you really want "It" bad enough.

I've heard people give numerous reasons why they can't win a contest—"can't do it from the middle of the USA," "can't do it from the so called Left Coast," "you've got to live on the East coast," and so forth. Apparently none of the reasons hold much water, at least according to Jay and Hal. Congratulations for a great record!

Until next time, remember "Big antennas high in the sky work better than little ones close to the ground." □

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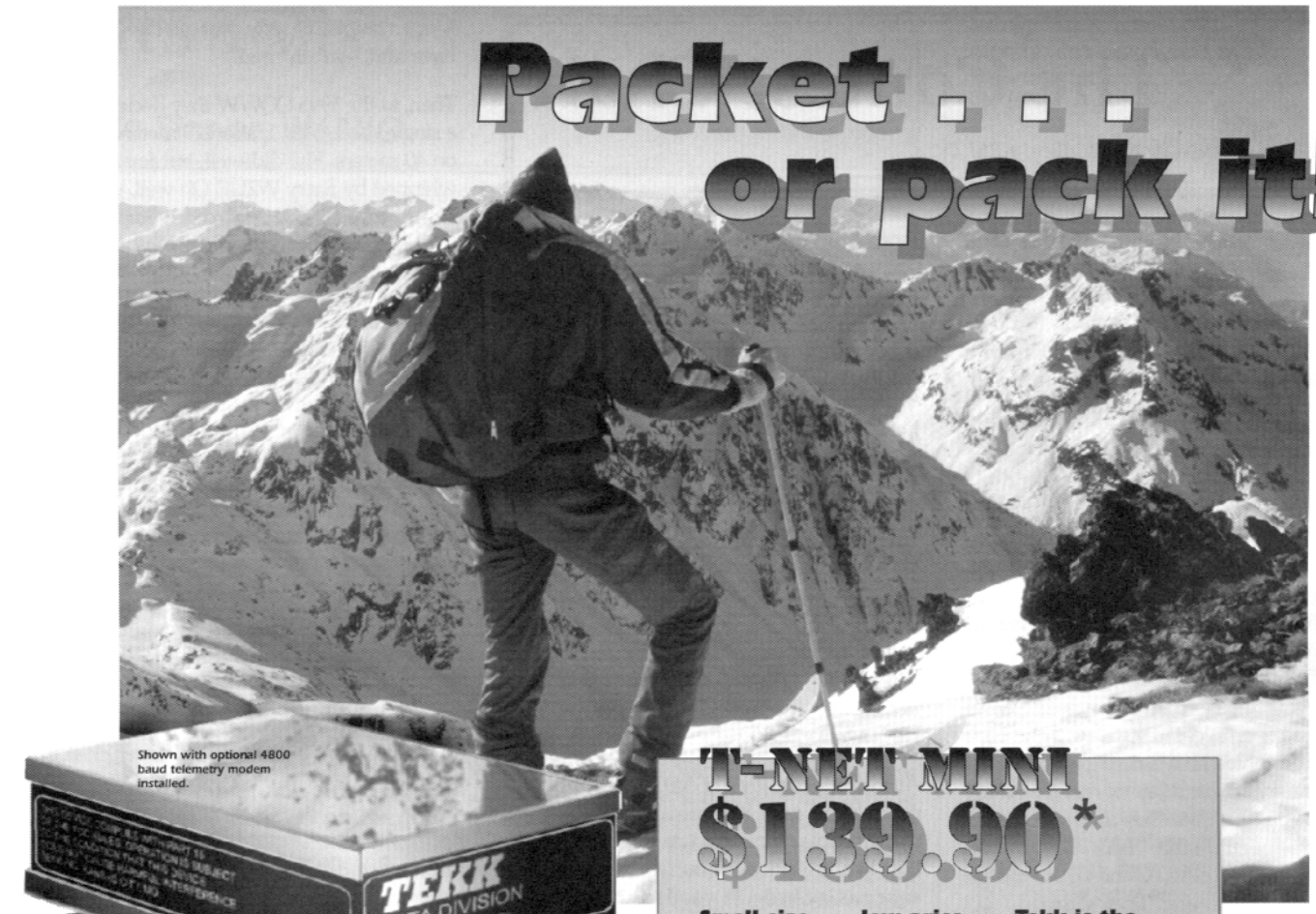

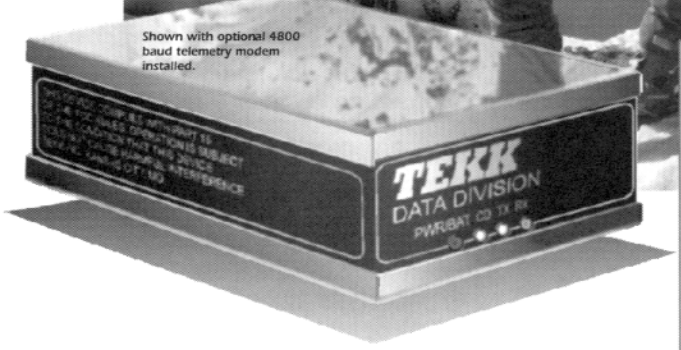

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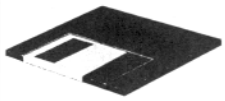


Log Windows

Taking a second look. I switched, perhaps you should too!

by Bob Boyd, W1VXV

In April of this year I reviewed the first release of AEA's Log Windows, an application which runs under Microsoft Windows on an IBM-compatible pc providing the functions of logging, award tracking, packet cluster and callbook interface, and transceiver control. In that review I indicated my enthusiasm for the product and stated that I was thinking about moving from a DOS-based logging package to Log Windows in a Windows environment. In the past six months the author of Log Windows has added many new features to the application and that convinced me to make the transition to the Windows environment now. As I mentioned in the previous review, Log Windows will run adequately on a system using a 386 processor. However if you wish to run several applications at the same time, and utilize a CD-ROM and sound card, you might want to consider using a 486-based system for faster performance.

The new and expanded features in Log Windows Release 2 include:

- support for interoperation with an enhanced version of PC-Pakratt for Windows
- a data browser which provides a powerful means of querying and reporting
- display of bearing and distance data upon entry of a call-sign, and control of antenna rotors that have a computer interface
- support for DOS-based QSL managers
- expanded support for CD-ROM call books with automatic callbook lookup
- support for interface to additional radios
- voice announcement of DX spots (and support for announcements in your voice!) in addition to earlier Morse announcement, and a Quiet mode to silence all announcements and beeps
- tracking of contacts for CQ Magazine's US County Award
- expanded import/export capabilities to move log data to and from Log Windows
- ability to search the Remarks field for specific or wild-card matches
- print QSL label data to a mail merge file, or formatted labels to a printer

This release of Log Windows supports "interoperability" with AEA's 'PC Pakratt for Windows', which means that one of Pakratt's port-windows may also directed to the Log Windows TNC receive window, or that the Log Windows TNC transmit window may be also directed to the Pakratt transmit window. In addition, one or more of Log Windows user buttons (or macros) may be defined to contain a command or data to be sent to Pakratt. Personally I prefer to run Log Windows with it's packet cluster connection and voice spot announcements as an application which is

unconnected to Pakratt, and use Pakratt's transmit and receive windows exclusively for my digital QSO's. When I want to log a contact, look up name and address in the CD-ROM callbook, search the GO-list, browse the log or spot list, or turn the beam, I'll switch to Log Windows by pressing Alt-Esc (the MS Windows 3.1 task switcher), accomplish the task, and then switch back to Pakratt with another Alt-Esc. Pakratt and Log Windows are a great combination, and it is very easy to swap back and forth.

The Browser provides a means of querying the log for all contacts which match certain criteria: a date-range, prefix, CQ zone, band, mode, state, or QSL status (sent, not sent, or confirmed). Records which match the criteria are displayed in the browser window, and may be sorted, viewed, printed, saved to a file, tagged for QSL labels, or discarded. If you want to see or modify one of the selected contacts, just click on it and it will be immediately displayed in the main window.

Log Windows supports control for the Heath IntelliRotator and the ProSearch and Yaesu rotators (with the GS23/GS232 interface). You can turn your beam to the short path, long path, or arbitrary direction with a mouse-click or function key. Bearing is determined by location of country, state, or grid-square, and can automatically be determined by entering the call-sign. I replaced my old manual control head with a Heath box, and now I just click the mouse instead of having to hold the rotator switch down until the antenna is positioned!

If you use a DOS-based QSL manager (such as the GOLIST), Log Windows can access the manager and return the data in a window; you simply key in the callsign.

Log Windows supports the SAM, QRZ, and HAMcall online (CD- ROM) callbooks. This is an operating convenience that I simply cannot do without! Just enter the callsign in the log and press Enter to have operators name, city, state, county, country, bearing, and distance entered automatically into the appropriate fields. It's great to be able to respond to the station who has answered your CQ and use his/her first name (or to be able to respond to someone else's CQ only if you need him). Furthermore, if your eyes have difficulty reading the small print used in the printed callbook as mine do, an online callbook is ample justification to add a CD-ROM drive to your system!

Support has been added for the ICOM IC-275, IC-375, IC-475, IC-575, IC-736, IC-738, Kenwood TS-60, Yaesu FT9000, and the TenTec Omni VI transceivers. Clicking the mouse on a packet cluster spot will automatically cause the transceiver to be set to the frequency and mode of the DX station (if you have the interface installed).

In the previous release, notification of DX spots could be made via a 'beep' through the PC speaker, or Morse announcement of 'DX' through a sound card. Log Windows now can provide voice announcement of callsign and frequency through an MCI compatible sound device (for example, a Sound Blaster card). WAV files with all required sounds are supplied, but directions are also provided so that you may also record a selected person's voice in your own WAV files. When I first learned that voice announcement had been added, I thought why would you ever want that distraction. However, I quickly learned that it's a feature that you will turn on if you're working around the shack and it's not convenient to watch the screen, or if Log Windows is being run minimized while you have some other application running in the foreground. A quiet mode with no announcements or beeps is also provided.

The CQ Magazines United States County Award is now supported by Log Windows, providing the county name is entered into the Remarks field (which can automatically be done if you're using the SAM CD-ROM database with the county option).

The first release of Log Windows had an import capability, but it has been considerably enhanced and made a stand-alone program. Import support is currently provided for the following file types: ASCII, CT DXLog, LogMaster, Easy-DX, HyperLog, DXBase, N6RJ 2nd Op, Log View, and PK Pakratt, and capability exists to add additional import routines in the future. The CT import capability has added features, including tagging of imported records for sending QSL's, and generation of a report containing the value of all contacts made during the contest. Export support is now provided to move log data to a dBase file format; this can be useful if you want to view or report the data with an external application. I use this feature to print log summaries with several programs which I'd used with my previous logging program. (Old habits die hard!)

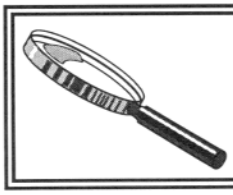
The Remarks field can now be searched for specific or wild card matches. This is useful to me because I use this field to store county names, IOTA and 10-10 numbers, and other data. I'd like to see the Remarks field added to the database Browser in a future release.

The first release of Log Windows supported printing of QSL labels, as do most logging programs. This release allows QSL data to be optionally written to a mail merge file (comma separated fields) so that you can use an external program to import the label data and create your own label formats.

The many other features include ability to set colors, configure an second user-defined button bar, and include a filename instead of a string in a user button setting. The country database has been updated to reflect official ARRL DXCC prefix changes.

You can probably tell that I'm very enthused about Log Windows. It is an application that provides a great deal of ease of use and power

(cont'd on page 12)



The Art & Science of Demodulation

Taking a closer look

by Richard Polivka, N6NKO

Why do I call demodulation an "art and science"? Well, I call it that because I believe it is. Let me explain.

What kind of signals do we demodulate? This is an interesting question. Let's start with the kind of signals we transmit. The easiest way to transmit a signal is by turning a carrier signal On and Off. That mode is interrupted continuous wave or, more commonly known as CW. Hams use this mode for transmitting Morse Code on all of the bands where applicable. This is the easiest mode to send and receive. To receive CW on a particular frequency, the frequency of interest is mixed with a signal that is either above or below the frequency of interest and what we hear is the resultant beat frequency. For example, a CW signal is on 7,050 KHz and I want to hear the code sent on that frequency. I mix the 7,050 KHz signal with a signal that is 7,049.5 KHz to yield a beat frequency of 500 Hz. Admittedly, I should also hear a signal on 7,049.0 KHz simultaneously. This is taken care of in the radio by additional circuitry that filters out the unwanted signals and passes only the signal of interest.

The next step up from CW is Amplitude Modulation or AM. Instead of interrupting the sending of a carrier signal, the carrier signal is left on all of the time. The information, usually some form of sound, is impressed on the carrier as amplitude variations. Depending on the level of the modulating signal applied to the carrier, the resulting amplitude of the carrier can double in voltage or be reduced to zero. With no modulation present, the carrier will be sent at a static level, usually at half output. The reception and demodulation of this signal is probably the easiest to do. An AM receiver can be built by anyone. The input network is tuned to resonate at the frequency of interest and the received signal is sent to a diode to eliminate the carrier and then the resulting voltage is fed to a speaker or amplifier. This receiver provides natural filtering of adjacent signals next to the signal of interest. I remember building an AM radio that had just an antenna, a coil, a tuning capacitor, a germanium diode, and a crystal earphone. This worked quite well and WJR came in a little too loud on it. How many of you remember building one of these units affectionately known as a "crystal radio"? CW is a form of AM, either the carrier is full on or full off.

NOW TO THE FUN STUFF

Dumb question time . . . how many of you have worked the sideband mode? That seems like a crazy question. Receiving sideband is interesting. We will borrow on our previous discussion of CW reception and add a few things to it.

Remember in reception of CW, a signal was added to the received signal and the resulting beat tone is heard. This consisted of one resultant pitch. AM reception just involved filtering out the carrier signal and listening to the received amplitude variations of the carrier signal. Think of a sideband signal as an AM signal without a carrier.

With sideband transmission, the carrier is eliminated because it eats up a significant amount of power. The carrier is not necessary to receive a signal. So we just send out the audio energy as discrete frequencies. If a signal is transmitted on 14.300 MHz and is modulated at 1000 Hz, the result yields three signals, 14.299 MHz, 14.300 MHz and 14.301 MHz. The middle frequency is the carrier and is not needed. This frequency example is on 20 meters, and per convention, the upper sideband is transmitted. Because of this convention, the lower sideband is not transmitted.

Of course, the human voice consists of many frequencies of different intensities. That is what gives everyone their own sound. If one tries to listen to the transmitted signal the same way as one would with AM, the received signal would sound like someone talking with marbles in their mouth. The transmitted frequencies can't be received directly. The received signals have to be beat against a signal that represents the missing carrier. After the beating process is done, the simulated carrier is filtered out and the resultant audio signals are filtered and sent out to the speaker as sound. If the reinserted carrier is too high in frequency, the tones slip down to the lower part of the audio spectrum and if the carrier frequency is too low, the tones slide up in pitch. Getting the right carrier frequency relies on a soft finger and a good ear for the human voice. AM signals can be received with this process providing you inject the same frequency in i.e. the AM carrier frequency. If the two signals are not the same, one would hear a tone that is the beat difference between the transmitted carrier and your locally generated signal.

HERE COMES THE FUN ONE . . . FM

Frequency Modulation is an interesting form of sending a signal. With AM and SSB, a signal was sent that was based on the intensity and frequency of the modulation. FM is quite different. The output frequency is directly proportional to the instantaneous voltage of the modulating signal. Here is what I mean by that. As an example, the carrier frequency for this exercise is 146.000 MHz. If a DC signal of positive one volt is fed to the modulator, the output frequency will rise 2.5 KHz to 146.0025 MHz. If a DC signal of negative one volt is fed to the modulator, the output frequency will lower to 145.9975 MHz. If a signal of zero volts is fed to the modulator, the output frequency will be 146.000 MHz. A couple of items should be apparent. FM allows us to send DC levels and analog voltages using the same transmitter, but not necessarily simultaneously. This only applies if the transmitter is using direct frequency modulation and not phase modulation. A phase modulator can pass varying voltages but not DC levels.

Demodulating an FM signal is a bit different from what we have discussed in the above sections. There are a several ways to perform the required task. A discriminator, ratio detector, or Phase Lock Loop (PLL) can be employed for reception of FM signals.

The discriminator circuit is the first system that will be discussed. This circuit, when first created, was called the Foster-Seely Discriminator. The circuit takes in a received frequency and compares it to a fixed frequency. The output reflects a comparison of the received frequency to the reference frequency as a voltage difference. If the received frequency is higher than the reference frequency, the voltage output is usually positive and vice versa. If the received frequency is the same as the reference frequency, the output is zero. This demodulator is capable of receiving DC signals if a DC level is transmitted. If I transmitted a signal that had two distinct alternating frequencies, I would see a square wave output that would depend on the difference in the received frequency and the reference frequency.

The second circuit to be discussed is the ratio detector. This demodulator works differently than the discriminator. The ratio detector relies on the rate of change of the received signal to give an output signal. If there is no change, there is no output. The greater the rate of change, the greater the output voltage. If the rate of change is positive, the output will be positive. If the rate of change is negative, then the output will be negative. If I transmitted a signal that had two distinct alternating frequencies, I would not see a square wave and also spikes on the output as the received frequency changes in frequency. As the frequency increases, I would see a positive spike. When the frequency decreases, a negative spike will be output.

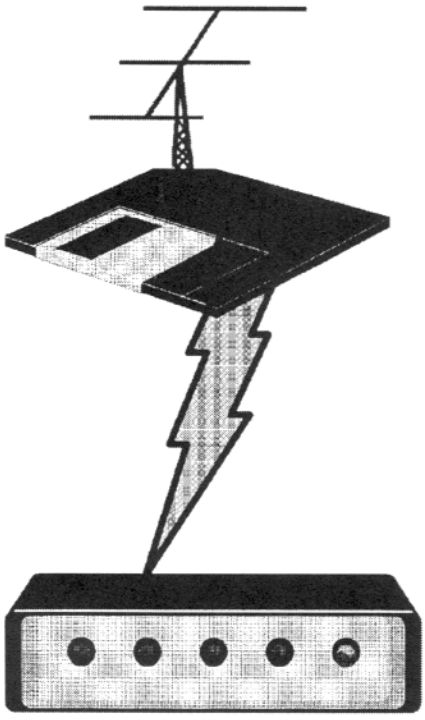
The third circuit is the Phase Lock Loop. The circuit uses a Voltage Controlled Oscillator (VCO), a loop filter, and a comparator, which usually is a simple phase comparator. Here we go into the explanation of how a PLL does its magic.

The VCO is set to run at some base frequency, for this example 10 MHz. This frequency will occur when the voltage input to the VCO is at zero. In practice, it is usually a voltage away

(cont'd on page 14)

Software Control of Your Station - from Anywhere – Part Two

by Paul Richtor, W4ZB



Based upon my prior experiences, I knew in undertaking this project that it would be essential to do extensive "local" trouble shooting and debugging before attempting live remote control operation at a distance. I used the two separate telephone lines at the home QTH for initial dial-up testing of the remote control software. I also used a 50 foot shielded null modem cable connections for testing. All testing was at 9600 bps. I did not do any remote control testing with connection over an AX-25 packet link, but I describe below how a 19.2 kbps AX-25 packet link has been used successfully with remote control software.

Since getting the basic system working, I have used it to run the home digital mode ham station on VHF packet and CLOVER from a remote computer in Washington, D.C. thirty-five miles away. I can presently operate either or both modes at the same time under remote control without difficulty. Only the relatively limited level of computer controlled automation presently implemented in the home station has kept me from doing more at this point!

One of the advantages of this general remote control approach is that as additional computer controlled features are implemented at the home station, all new features will be immediately available by remote control to those who have authorization to access them!

As previously mentioned, W2AX and W2GGE described in the Nov. 1991 QST a system for remotely controlling and operating a multiband HF SSB and CW station with a transceiver, high power amplifier and selectable and rotatable antennas in Vermont over a dial-up telephone line from Long Island. Their approach was intriguing, although complex and not practical for most hams. W2AX's system used proprietary modems which provided low speed duplex (300 bps) digital channels simultaneously with duplex analog audio channels over a single telephone line. The system employed the Carbon Copy remote control software together with custom programmed control software and several specially constructed hardware interface devices.

To follow up on that I recently exchanged some E-Mail with Larry, W2AX, over the Northeast PacketCluster to find out how his system is working and what changes

he has made to it. Larry reports he has been using the system, mostly for chasing rare DX, since 1989, but that he upgraded to a transceiver with more controllable features. To further improve remote control operation, he has also gone to using two separate telephone lines - one for the duplex audio channels, and the other for the remote control digital link which now runs at much higher speeds. Due to my experiences using Carbon Copy at 2400 bps, I was skeptical about the likely long delays using a 300 bps control link, and Larry confirmed that the original performance was only barely acceptable!

To save on telephone line charges, Larry is currently investigating a new modem from AT&T which is supposed to provides a 4800 bps digital channel together with a duplex audio channel over a single dial up telephone line. I suggested to Larry that in order to save on these expensive, special modems, he might wish to explore the use of current variable rate vocoder techniques which at 4800 bps sound better than most ham band SSB signals. By using digital multiplexing techniques over a 9600 bps modem telephone link, he could have his needed audio channels together with his remote control link running at a minimum of 4800 bps.

I mention these recent discussions with W2AX as a design challenge to interested readers of the Digital Journal who want to advance the art! If interested, you should contact Qualcomm at Tel: (609)-597-5005 and ask for a copy of Qualcomm's technical literature and application notes (and demo tape recording) package for Qualcomm's Q4400 and Q4401 VSLI vocoder products and information about the QCELP Vocoder Evaluation System.

Pure digital mode ham stations, of course, have no need for providing remote audio channels! I mention what W2AX has been doing to demonstrate that the simple addition of a second telephone line for a duplex audio channel would immediately allow the remote control approach described herein for a digital mode station to be extended for use with analog SSB or FM voice without any complicated hardware at all. The only additional hardware items required to accomplish such voice operation would be a simple answering device and a phone-patch.

Other hams have been successfully using remote control to operate their digital mode stations for some time. Warren Sinsheimer, W2NRE, of ADRS who travels frequently uses PC- Anywhere for Windows to dial into and remotely access his home station near New York City. Warren also permits a selected group of others to access his station remotely.

Peter Schulze, TY1PS, of ADRS reports he regularly uses remote control software over an AX-25 packet link for a business use in Benin, West Africa, where telephone service leaves a lot to be desired. Peter uses PC-Anywhere for Windows from his residence to connect to and remotely access and operate a Windows for Workgroup LAN at his office several miles away. He uses a 19.2 kbps AX-25 packet radio link with off the shelf TNCs and UHF transceivers from Kantronics for the RF connection between his residence and office. Peter reports that he initially had to "fine tune" certain AX-25 packet parameters settings (e.g. CONPERM, etc.) to assure a full time, dedicated digital link, but that the system performs very satisfactorily for remotely operating computers running Windows applications on the LAN in the office. Note: this is not a ham use, but the principles are readily adaptable to ham uses!

Peter's system works well because he is able to achieve a effective digital link speed of close to 19.2 kbps. VHF packet at 1200 bps would be very slow, but remember that W2AX used a 300 bps control link for quite some time before adding a second telephone line. Keep in mind that 9600 bps VHF and UHF packet equipment is now becoming readily available and 56 kbps links, of which there are a few now, will be in widespread use in a few years. Consider the possibilities!

As we have seen, many developments in the last few years have come together to fundamentally affect the ease with which remote control operation of a digital mode ham station may now be implemented. Computers can now control most operating parameters of modern radio transceivers using off the shelf hardware interfaces and readily available software. Computers can also control power amplifiers and antenna selectors, rotators and trackers, BBSs, E-Mail and other message storing and forwarding systems. Readily available software now permits keyboard to keyboard QSOs on many digital modes, as well as the exchange of text files and other types of

files (e.g. binary or executable files, image files, voice files, etc.).

A number of very significant "programming" developments have occurred. The Visual Basic for Windows programming environment now provides very powerful, and easy to use capabilities for custom programming in the Windows environment. As hams who are interested in custom programming become more familiar with Visual Basic (and similar) products, more sophisticated applications will be developed for ham use.

Many of the superb facilities of the EXPRESS software and interface developed by Peter Schulze, TY1PS, for use with CLOVER are not yet widely available or as easily usable with the other ham digital modes, including VHF and UHF packet. Most who have used EXPRESS which is available through ADRS wonder why not! This is a challenge to software developers for packet radio because Peter does not have the time to make an EXPRESS like product available for packet.

As the computer based systems become more complex and more capable, expectations are raised for further improvements. As users become familiar with new capabilities, users demand still greater capabilities! Many hams are now considering implementing in-shack Ethernet LANs to tie different computers together to better utilize computer resources and to more easily implement very complex and capable station arrangements. One can readily imagine an in-shack LAN in which each computer workstation on the LAN controls TNCs or modems connected to various transceivers and to telephone lines, all of which may be remotely controlled.

Exciting new developments are in process!

IMPLEMENTATION NOTES FOR REMOTE CONTROL OF A DIGITAL MODE HAM STATIONS

Following are a series of implementation notes which should be considered when implementing a remote control system for a digital mode ham station.

1. Avoid "Call Waiting" signalling problems on the telephone line.

"Call Waiting" is an optional telephone service feature which many residential telephone subscribers find valuable, but which can cause a remote control link to fail. A single "Call Waiting" signal on either end of a telephone line being used for a remote control link will usually cause the link to fail immediately. Unfortunately, most telephone service providers now allow their subscribers who have "Call Waiting" to turn that feature off only on a call by call basis, and only for outgoing calls originated by the subscriber. Very few telephone service providers presently provide any means for the subscriber to turn off "Call Waiting" generally. If you are fortunate to have the facility to turn off "Call Waiting" generally, then you should do so whenever you load the host program in preparation for an incoming call which will initiate a remote control session. If you are not able to turn off the "Call Waiting" feature generally, the easiest and best solution if you want to use the telephone line for remote control operation without interruption is to get rid of the "Call Waiting" feature entirely, i.e. notify the telephone company to eliminate that service on your line. If you use either of these approaches, the responsibility to assure that no "Call Waiting" interruptions occur will then be solely on the remote user who can make sure that any "Call Waiting" feature on the remote end of the line is turned off when he originates his call to the host computer.

If you have the "Call Waiting" feature on the telephone service in your ham shack which you do not want to eliminate it, the best workaround is to require automatic call-back to the remote user during initiation of each remote control session. You can setup the host program to add the appropriate the prefix code (usually *70 in North America) during such automatic call- back to disable the "Call Waiting" feature on the ham shack end of the telephone line for the duration of the call only. This approach can assure that there will be no "Call Waiting" interruption at the ham shack end, but unfortunately cannot prevent the link from failing if a "Call Waiting" signal is received at the remote user's end of the line during the remote control session.

2. Use a special answering device with an on-off switch.

You should consider using a special answering device with an on-off power relay which can be configured to switch the host computer (and other radio equipment) at your ham shack on only when an incoming telephone call is being received. Suitable special answering devices are now available from local computer accessory suppliers for about $100. (DALCO, mail order supplier at Tel: 513-743-8042, lists a suitable device for $139 in its current catalog.) Make sure that the AUTOEXEC.BAT file in the computer is set up to load the host program automatically during initial bootup when power is switched on. As will be explained, this probably represents the best engineering approach for provision of a (virtually) fail-safe mechanism to shut off the transmitter if the control link fails or is terminated.

Advantages: the host computer in the ham shack can be forced to reboot if the telephone connection is terminated, thereby providing the remote user with the ability to force the host computer to recover from a "crash" or lock up caused by an application program error during remote control operation; the remote user always has the ability to shut off the transmitter simply by terminating the telephone connection; less usage hours will accumulate on the equipment while it is waiting to be used by a remote user and electric consumption will be reduced.
Disadvantages: unintended incoming calls will cause the equipment to cycle on and off unless a "ring" counter is used to require many (usually 8 is enough) telephone rings before the special device answers the telephone line; additional delay time be incurred during remote control session startup; common equipment failure modes occur during initial power up; an additional hardware element - the special answering device itself is added which may malfunction.

3. Setup software procedures for automatic rebooting and transmitter shut off, especially if a special answering device with a power switch is not used.

Configure the remote control software in the host computer for automatic "software" rebooting of the computer upon termination of each remote control session. The AUTOEXEC.BAT file in the host computer should be set up so that the host program will be reloaded automatically during rebooting.

Configure the timeout features in the remote control software to cause the telephone line to disconnect and automatic software rebooting of the host computer to occur if there is no activity on the control link for a predetermined timeout period.

Additionally, consider setting up a power switch controlled by the software rebooting process to make certain that the transmitter being controlled by the host computer will be in a "transmitter off" state at the end of each rebooting sequence.

You need to keep in mind that certain types of application software errors can "crash" or "lock up" the host computer controlling the ham station during remote control operation and prevent these time-out and automatic software rebooting features in the remote control software from working properly. Hopefully, you will not use application software remotely which is likely to cause "crashes" or "lock ups", and many potential "crash" or "lock ups" occurrences for the host computer will occur while the transmitter is not in the "transmitter on" state. A special answering device with a power switch as previously described can be used to permit the host system to be reset (and the transmitter shut down) remotely even if there is a "crash" or "lock up" of the host computer.

If you use application software which sometimes "crashes" or "locks up" the host computer and you do not use a special answering device with a power switch as previously described, you should consider installing a simple external time out (shut off) device for the transmitter which will shut the transmitter off if it transmits for more than a predetermined period of time. A suitable time out device can be constructed with a relay, a single 555 timer IC, and a handful of passive components.

4. Password and security procedures.

Once you get your remote control system up and working, you will find it works so well that you may wish to permit others to use it, but in you will need, in any event, to take measures to prevent unauthorized use. Make up passwords which cannot be "guessed" or "broken" by others. Keep several written copies of all passwords, including the master passwords. Setup the software for automatic log-on and exchange of passwords and for disconnect immediately upon any attempted log-on with an invalid password. If you use a radio link for any remote access, implement procedures which invalidates each password after its first use over the radio link.

Do not give out passwords or information about how to initiate a remote control session for your ham station to anyone without a proper ham license, to anyone you have not instructed on how to operate your station remotely or to anyone you would not trust to operate your station from in your ham shack if you were not present. As the licensee, you are always responsible for the proper operation of your station even if someone else you have authorized is operating it under remote control.

Consider using facilities provided in the software for full remote session logging and requiring automatic dial-back to predetermined telephone numbers as a security procedure for remote control sessions initiated by particular individuals to whom you given predetermined passwords. The individuals with any of those particular passwords can then be held accountable for all remote access and use which occurs with particular assigned passwords. Additionally, consider limiting computer access privileges (e.g. rights to delete or modify files, to effect file transfers, etc.) for remote accesses with certain passwords. Use common sense! We are living in the mid-1990s!

5. Use a computer based tuning aid to assist with precise remote tuning of HF digital mode signals.

If your ham shack computer can tune the frequency of the transceiver used with the HF digital modes, you may need a computer based tuning aid which can be viewed on the remote computer's monitor to assist with precise tuning of digital signals for optimum reception.

Certain HF digital modes stations (e.g APLINK and WINLINK stations) operate on predetermined frequencies which can be selected satisfactorily with modern transceivers simply by tuning to a predetermined frequency, without further fine tuning adjustments. The practice has also evolved that CLOVER keyboard to keyboard QSOs take place about predetermined, "even" frequencies spaced 500hz apart in the subband areas used for CLOVER. Modern transceivers used with CLOVER are also sufficiently accurate and stable frequency-wise that little more needs to be done in practice for precision tuning than to tune the receiver to one of the CLOVER frequencies and listen with the Clover detection software before transmitting. If your remote digital HF mode operating will be confined to these modes or types of operation, then no computer based precision tuning aid will be needed.

Remotely controlled HF stations seeking keyboard to keyboard QSOs using the RTTY, AMTOR, PACTOR or GTOR modes, on the other hand, must adapt to the different operating patterns for these modes: typically, an operator picks a clear spot in an appropriate subband segment for the particular mode and then begins transmitting on a "clear" frequency without specific attention to being on any specific or "even" frequency. A precision tuning indicator is essential for remote operation in this situation. Many ways exist to accomplish tuning using the computer monitor, but one of the easiest and most elegant is to use a software product such as Spectra Vision in the limited band segment surveillance mode of operation. See, J. Jennings (KE5HE), RTTY Digital Journal, Vol. 42, No. 4., Apr., 1994, p. 5, Update: Product Review: Spectra Vision. This product is available from Pioneer Hill Software, 24460 Mason Road, Poulsbo, WA 98370, Tel: 1-800-401-3472 or (206) 697-3472 for $89. The tuning displays on the host computer's monitor can be viewed remotely where the control operator can determine by visual observation what frequencies are not in use and what types of digital signals are present on the frequencies which are in use. The remote operate can then remotely set his digital operating mode and QSY in one step to an appropriate frequency to initiate a call or to monitor the transmission from a digital mode station which has been detected. What could be easier!

6. Use application programs which are reliable.

Application programs which do not work reliably or which "crash" or cause the host computer to "lock up" during normal operation of ham shack computer are certain to cause the same problems if run during remote control operation. Use only well behaved application programs which will not "crash" or "lock up" the host computer.

7. Minimize unnecessary use of graphics and images.

To speed up the transfers of the host monitor screens to the remote location during remote control operation, turn off unnecessary "wallpaper" backgrounds under Windows or Windows applications before or during any remote control session.

A number of application programs have on-screen tuning aids which are graphically "busy". Remotely turn off such tuning aids after proper signal tuning has been achieved if possible. Minimize the use of application programs which have complex graphics or images except when necessary to your remote operations.

8. Leave the monitor at the host computer off if no one is in your ham shack.

There is no need for the host computer monitor in the ham shack to be turned on if no one is there to observe that monitor during remote control operation. Save electricity and prolong the life of the monitor by leaving it off.

9. Test your remote control set up thoroughly before using it at long distance.

Use prudent testing procedures to test thoroughly remote control operation using a local mockup before going "live" at long distance! Use a null modem cable, a second telephone line in your ham shack or your neighbor's telephone for initial testing of remote control operation. The chances are very good that everything will not work as you expect on your first attempt to make everything work properly. Trouble shooting and changing of setup parameter is easiest to do locally until everything has been tested and is known to be working properly.

10. Create an online help and menu system.

If you are going to allow individuals to whom you provide passwords to remotely access and use your digital mode ham station, create online help and menu systems which document how your station works and how to use it remotely. This will help you and the other users to remotely control your station more effectively. It is difficult for anyone to remember all necessary details and to completely visualize everything that is happening from a remote computer screen! Make it easy for yourself and the other authorized users.

11. Use extra care to minimize RFI and to assure safety.

Computers, transmitters and all other equipment in the ham shack need to be properly bonded together, shielded, grounded and fused. Make certain that transmitter RF does not interference with signals on computer cables or telephone lines or with the operation of the station computer. Similarly, make sure that the computer does not cause interference with the station receiver. Use RFI/EMC/EMI techniques to minimize or eliminate interference and use good equipment fusing practices to minimize risk of fire. Good engineering practices are particularly important for operation of equipment at an unattended location.

12. Take steps to avoid foreseeable disruptions of your unattended, remotely controlled station operations.

Consider using an Uninterruptible Power Supply. If your commercial electric power at your ham shack is sometimes interrupted or is

erratic, you should use an Uninterruptible Power Supply ("UPS") at least for the host computer and modem. This approach will eliminate host computer "crashes" or "lock ups" caused by short duration power system transients, and is particularly desirable if you are not using a special answering device with a power switch as previously described. Provide a timer controlled switch to avoid running down the UPS batteries if there is a long term power interruption. A UPS is not a substitute for an emergency power backup system for use during prolonged commercial power outages.

Put up DO NOT TOUCH and DO NOT DISTURB signs. Even if no one is expected to be around or in your ham shack during remote control operations, put up big signs at appropriate places in the ham shack. This will deter family members or others from touching or using the keyboard on the host computer or from turning off equipment which they think you left turned on by mistake! If you don't do this, sooner or later your remote control system will not work when you call in because someone did something with the host computer or turned the equipment off while you weren't around!

Consider installing a line seizure or lockout device on the telephone line unless you have a dedicated telephone line into your ham shack. The purpose of such a device is to prevent family members or others at your residence from inadvertently picking up an extension telephone (e.g. to make an outgoing call) while a remote control session is already in progress on the telephone line. The attempted use of another extension telephone which has not been disconnected by a line seizure or lockout device will usually cause a remote control link to terminate immediately. Such failure modes may be difficult to diagnose because the "guilty" parties who did not intend to cause any problem may later deny causing the problem. If others are at home, this type of disruption is guaranteed to happen unless you take this preventive step!

13. Set up a computer LAN in your ham shack.

Consider connecting all of the various computers in your ham shack into an Ethernet LAN. With appropriate remote control software, you will then have access to all resources and items connected to the various computers on the LAN when you call in. You can setup a much more complex and capable system! ❑

(Log Windows - cont'd from page 7)

to the ham shack, and is an excellent way to organize your contacts so that they can be tracked for awards. I'm glad I switched, and you will be too!

Log Windows (and PC-Pakratt for Windows) are available from AEA, Inc., 2006 1906th Street SW, Lynnwood, WA 98036, and from it's distributors. ❑

Another form of Error Correction

Software Dictionaries and Spell-Checkers

from the desk of Wayne Renardson, NZ4W

Words are, of course, the most powerful drugs used by mankind.

—Rutyard Kipling (1865-1936)

Anyone who writes needs a dictionary, unless they happen to be one of those rare creatures with the ability to recall and correctly spell any word in their vocabulary. As people who use sophisticated digital technology to communicate, we should emulate the poet, whose business it is to select the right word, and to spell it correctly. As Mark Twain reminded us, the difference in lightening and lightening bug is, well, significant.

Time spent reading digital traffic on the packet networks or reading the mail on AMTOR/CLOVER MSOs reveals a plethora of misspelling and worse, the use of words whose meaning the writer obviously does not know. But definition and spelling are not the only reason to have quick access to a dictionary and spell checker. If you are concerned with sending literate traffic, such niceties as parts of speech, synonyms, or even verb tense, matter.

The digital world is not replete with dictionaries. I am still looking for one that truly satisfies, but Matthew Dalton, president of WordScience Corporation, is helping meet the need. His Instant Definitions Dictionary (IDD) derives its lexicon from the American Heritage Dictionary, office edition, which contains 166,000 words, word forms, and phrases. Granted, it does not contain every word a user might need, but it does provide users with a sizable lexicon.

IDD was written to run on a PC XT/AT, PS/2, and MS-DOS clones with DOS 2.0 or higher. It occupies only 4K of RAM with 125K needed for loading as a TSR. The files occupy about 2.5 MB on the hard drive. It loads with an automatic installation routine which displays configuration messages and the various steps during installation, a nice feature for those who wonder what files installation is altering. As a matter of fact, it should be a crime for a program to modify the users autoexec.bat and/or config.sys files without alerting the user. The routine will ask if you want to use the dictionary with various spell checkers

and word processors, including IBM DisplayWrite v.3, v.4, or v.5, Lotus 1-2-3, WordPerfect 4.2 and 5.x, Microsoft Word v.4-5 or Works v.2x, MultiMate Advantage II or MultiMate 4, PFS: First Choice, Professional Write, Q & A Write, Volkswriter, WordStar 5.x and 6.x and 2000, and XyWrite.

Other options are color selection, which according to the installation are limited to three choices of white on blue, blue on white, or white on black with the word to be defined in white, the part of speech in green, and the definition in red. However, my copy gives me a black background with a bright white color for the word to be defined, yellow for the part of speech, and a darker white for the definition. Go figure.

As a TSR, it remains resident in RAM, waiting to be executed by configurable hot keys to avoid conflict with whatever other program they are using. IDD defaults to ALT-X, a hot key I use to exit QEdit v.3.0, which I am using to write this article. It was a simple matter to reconfigure the hot key to ALT-Z, eliminating the problem.

It is not necessary to run IDD as a TSR. By typing 'def'and the word in question at the command line, ID will supply the definition or, if misspelled, a list of intended words. IDD can be loaded automatically via the autoexec.bat file, or a small batch file can be written to load an application and IDD simultaneously, a method recommended when running under DESQview or using a DOS window in Windows 3.x. Most serious writers will use ID as a TSR.

Once loaded, IDD will perform a number of functions, from defining any word on the cursor, to defining a phrase by moving the cursor to the first word of the phrase and banging the phrase capture hot key. With single words, often several definitions are provided, with various suggestions displayed for misspelled words. Common phrases, such as a-la-carte are clearly defined. For words or phrases not on the screen, the cursor can be moved to a blank spot and an entry window will appear, allowing the user to enter whatever word they want defined.

Once the window containing the definition appears, the screen displays the word, its part of speech (verb, noun), one or more possible definitions, an indicator that tells if specialized information is available about the word, and a slider bar if more than one screen of information is available. In addition, the screen allows definitions within definitions, displaying information about words found within the on-screen definition. The ability to fully explore related words gives the user additional perspective and might suggest a better usage for a particular word. Each additional display of the related word appears in its own on-screen box, allowing direct comparisons between the various words. Another feature of IDD is its browse dictionary. Pressing a user-defined hot key allows the user to browse through the dictionary's main words.

If the cursor is on a word or word fragment, the browse will begin at that word or fragment. The first few lines of the definition appear in a separate box and banging the ENTER key will display the entire definition.

A scan feature lets the users search through the dictionary for a word or phrase. If more than one word is specified, Boolean operator 'and' conducts the search. For example, if you specify a search for 'large' 'radio', only those words that contain both 'large' and 'radio' will be displayed. The user can set the range for a search, from A to Z, avoiding searching the entire dictionary for a word. Entering the word radio produced 39 words, including actinide (a radioactive element), airwaves, antenna, atmosphere, band, beacon, beam, broadcast, call letters, citizens band, communications satellite, and dosimeter (used to measure radioactivity).

Any words from the suggestions box, browse screen, or search result boxes can be inserted into the user's document. In case the user wants to look up words already checked during a session, IDD has a history feature, activated by a hot-key, that recalls the previous 50 words requested during the session.

IDD comes with a 64 page, well written, correctly spelled, manual that clearly describes how to use the dictionary with a multitude of word processors, spell checkers, and thesauruses. Its simplicity and convenience make it a worthwhile program for anyone interested in sending literate text, over-the-air or otherwise. Literacy Volunteers of American (LVA) estimate that 27 millions Americans are functionally illiterate. Amateur radio traffic is read by thousands of people. We should not contribute to the mess. Matthew Dalton's commitment to improving literacy extends to his donation program that allows users of IDD to donate one of the programs to an organization that sends them to schools and literacy centers. Additional information from Dalton at WordScience Corporation, 1415 Oakland Blvd., Suite 220, Walnut Creek, CA 94596 (510) 939-1190.

What do you mean I misspelled a word? My modem has error correction! ShareSpell is an old friend. When I was using an XT, most of my writing was done in QEdit 2.x, the venerable text editor from SemWare. At that time, QEdit did not contain a spell checker, so an outboard program became necessary, and ShareSpell fit the bill. It uses a mere 256K of RAM, can be run off a floppy, and will use any version of DOS back to v2.1. ShareSpell became so popular with users of QEdit that the SemWare echo/forum was replete with macros to call ShareSpell from within QEdit.

The present dictionary contains 80,000 words, and the files occupy about 250K of disk space, making it easy to carry on a single floppy, with plenty of room to store text files. It comes with a no-brainer installation program that avoids making alterations to your autoexec.bat or config.sys files.

It is started from the command line by typing 'ss [name of file]', or if there is more than one file to be checked, 'ss file1 file2 file3...' Wildcard are acceptable, so if you want to check all of the .doc files in a directory, type 'ss *.doc'. Starting the program with no parameters brings up a listing of all the files in the directory, and cursor movements navigate the screen to let the user select the file to be checked.

The program is completely interactive and displays the text of the selected file as it checks each word. When it encounters an error, the user has the option of replacing the word from a list of suggested correct spellings, manually editing the word, adding the word to the dictionary, marking the word for later correction, or ignoring the word in the remainder of the document.

The user can select one of three methods for finding incorrect words by toggling the F1 key. ShareSpell will scan the file based on either a close match, phoneme, or Optical Character Recognition (OCR) method, making it unique among spell checkers. The close match method looks for common typing errors and transpositions, while the phoneme method is based on the sound of the word, breaking it into its component sounds to find sounds similar to the misspelled word. For example, if you typed the word 'kat', you would receive such suggested words as 'cat', 'cut', and 'cot'. The OCR method checks spelling in documents that have been scanned and converted to ASCII text by OCR software. The close match method is the most common default.

ShareSpell can be configured from within the program by banging the F5 key. Options include setting colors, both normal and inverse, to highlight various items, and there is an option to make backup copies of checked files. The path to the user-dictionary can also be set, which is a convenient feature if the user is linked to a network with other users and each person wants their own dictionary with words they have added.

In the analog world, dictionaries are the most common spell checkers. But books are static. Users are not able to add or delete words, define the look and feel of the book, or loads groups of words that are unique to their particular interest. For example, my user dictionary contains such words as Packet, AMTOR, ARRL, and QSO, words unlikely to be found is most analog dictionaries. When writing about music, my dictionary contains such words as dobro, counterpoint, and polyrhythmic, which are not found in common usage dictionaries. Being able to add almost unlimited numbers of words to the lexicon is a most helpful feature.

In order to manage the spell checker, ShareSpell comes bundled with Dictionary Manager v3.0, a utility for maintaining the dictionary file. Typing 'dm' brings up a screen split into three sections. The left screen contains a list of the user-added words which are scrolled via the up/down arrow keys. The middle window contains the commands that act on the word list, and the right screen contains a holding list of words that have been selected for addition to or deletion from the user's dictionary. The options are to add a single word, which is maintained in alphabetical order, to mark a word for future deletion, to unmark all selected words, or to load a separate file of words.

For words you want to temporarily add to the dictionary, the delete feature is essential. If I am writing something as a one-time event, I can quickly add the unusual words in the document to the dictionary knowing they can by simply deleted after the document is complete. And for those who think they have mismanaged their dictionary beyond all hope, the manager provides a convenient 'quit without saving changes' option.

ShareSpell, written by Robert Bequette of Acropolis Software, works on a network, so it can be shared with anyone linked to the users system. It carries a measly registration fee of $20 and comes with a printed manual and support. As shareware, the user can try it for a period of time without paying a fee. Acropolis can be reached at P.O. Box 5037, Fair Oaks, CA 95628, USA or via land-line (916) 967-4971 FAX (916) 967-4749. If you want to e-mail Robert, he can be reached on CompuServe 75146,3471 or AOL as RobertB377. His internet address is bequette@netcom.com.

For the well-heeled, Oracle Corp recently released ConText, an application designed to read and semantically analyze text in databases to filter out info people need to do their jobs. ConText includes a 600,000-word dictionary with as many as 1000 pieces of linguistic data per word to help it analyze text content. Prices range between $7,500 to $100,000 dollars, depending on platform. For the rest of us, other options exist.

GDSpell is a freeware program from GDSOFT, 57280 Osage Drive, Goshen, IN 46526. It requires little space and does an excellent job of checking ASCII documents. It can be downloaded from the GDSOFT BBS at 219-875-8133, from CompuServe type GO IBMSYS, or GENIE's IBM Conference. Search for: ARCTOOL or ARCPLUS to obtain GDSpell and other fine DOS utilities.

The digital world is replete with acronyms, many of them bordering on the goofy. Cards for laptops are PCMCIA, and other equally odd terms abound. Lexicon Services comes to the rescue with their Abbreviations and Acronyms guide, a shareware program that provides the user with over 2700 acronym meanings used in such areas as computer science, electronic communications, fiber optics, mainframes and mini computers, networks, optical storage, telecommunications, and voice/data communications. It includes over 500 abbreviations and acronyms for computer organizations and societies, user groups, clubs

and associations. There is also a separate database for technical symbols and measures such as g for giga, meaning one billion. In addition, they add acronyms found in the words of accounting and banking, money managements, real estate and securities trading, and there is a list of state abbreviations. The registration fee is $10 and available from Lexicon Services P.O. Box 1328, Elverta, CA 95626.

The beauty of DOS-based programs such as QEDIT, with its own on-board spell checker, and the other stand-alone spell checkers, is that they occupy so little disk space. Both will fit on a floppy, leaving room for a terminal program and files. If you have a laptop and enjoy going mobile, it is a simple matter to run Packet from anywhere, secure in the knowledge that the transmitted data will be at least spelled correctly. All of us have the responsibility to insure that the digital communications we exchange are literate and coherent. The software providers above help to make it possible. ❑

(Demodulation - cont'd from page 8)

from zero but zero volts will serve adequately for the explanation. The output from the VCO is sent back to the phase comparator. There the VCO signal is mixed with the received signal. The output signal from the phase detector is sent to the loop filter. The loop filter determines how the PLL will respond to differences in input frequency. From the loop filter, the output signal is fed to the control voltage input of the VCO. This is how the circuit received its name. The circuit keeps the phase of the output VCO and the phase of the input frequency together.

Now to the fun part of the PLL . . . where do we pick off the demodulated signal? The demodulated signal is picked off the output of the loop filter. This signal is usually buffered to prevent any drag on the PLL circuit. Optimizing the loop filter is an interesting process. The loop filter has to respond quickly to signal changes without overshoot and not be too sluggish to changes. For receiving digital signals, a quick impulse response with minimal overshoot is required. The specifics of this loop filter need to be tailored to the transmitted signal and data rate. For voice, a damped response would be needed to keep noise from altering the received signal.

WHY THE ABOVE DISCUSSION?

The discussion above was done to give you the information needed to wire in the MLT-3 demodulator to your radio. There are two ways that the MLT-3 signal can be sent, as direct digital or using audio tones. The type of receiver that will be used for the reception of the MLT-3 signal will determine how the demodulator is configured.

The demodulator can handle either audio tones or digital. Admittedly, sending digital data is preferred to sending tones because of its inherently higher S/N ratio. Audio tone systems are usually easier to set up as opposed to digital transmission systems. There is no carrier alignment and making sure that the receiver puts out a zero when it receives a zero and outputs a +1 or a -1 when the appropriate signal arrives. Audio systems are self centering by design. One tone represents a +1, another tone represents a zero, and the third tone represents a -1.

In the next edition, explanation of the demodulator will commence. This information will cover both the data demodulator and the two receiving subsystems to cover AFSK and FSK reception. Until then, have fun and enjoy this hobby of Amateur Radio. ❑

SARTG WorldWide AMTOR 1994
Contest Results

Call	Final Score	QSO	Pts	Multiplier/Band (MHz) 3,5	7	14	21	28
Single Opr - All Bands								
VP5JM	24150	65	690	1	12	20	1	1
G0ARF	21280	59	560	9	9	18	1	1
SM4CMG	16640	51	520	9	9	14		
OH2LU	11830	48	455	2	7	15	1	1
G4ZKJ	9715	36	335	5	7	15	1	1
GW4KHQ	7920	34	360	3	7	12		
OH2GI	7350	37	350	1	4	13	1	1
SM5EIT	5000	26	250	4	7	9		
G5LP	4000	31	250	4	11	1		
SM0TGG	3520	21	220		7	9		
SM0ELV	2210	18	170		3	10		
N1ES	2170	14	155		6	8		
G0MBQ	1960	19	140	5	3	4	1	1
W9FFQ	720	8	80		2	7		
SP7FQI	400	8	80		3	2		
UA6LP	160	4	40		1	3		
7 MHz								
G0ARF	1485	17	165		9			
DL8EDC	840	12	120		7			
14 MHz								
JA3DLE/1	7350	26	350			21		
LZ1MC	6205	33	365			17		
OH2GI	4200	30	300			14		
DL2SDE	1700	16	170			10		
JR4GPA	325	5	65			5		
UA6LP	90	3	30			3		
ZL2JON	60	2	30			2		
DJ2YE	20	2	20			1		

Check Logs
LA4ND, OY3FT, VK2BQS

Comments

GOARF: It was very hard to find new contacts due to very poor propagation, but we have to take it as it comes and make the most of it. A lot of patience was required this year.
OH2LU: It's a pity the condx were down during the contest.
G4ZKJ: Pactor seems to be taking its toll of stations that were on Amtor which is a pity!
W9FFQ: Enjoyed what limited time I could devote to the contest and was unable to operate on Sunday because of a local hamfest, also conditions were very poor here!
SM5EIT: Urdåiga conds. Fick två japaner. Såg dej få även VK. hagenting vastefifrån hos mej i alia fall.
SMOTGG: Condx uruselt men kul ändå.
GOMBQ: What a disaster my first SARTG Amtor contest turned out to be. First of all I was unable to link with anybody unless they called me on ARQ. I seemed to be getting links but no sync so no traffic. So I gave up before the end of the contest. Later I found the ADelay parameter had got altered somehow. I was also most surprised by the lack of activity, where were all the Swedish Amtor lads?
GW4KHQ: Thanks for the opportunity to try something new. Cuagn.
SP7FQI: Sorry for only 8 QSOs but propagation was very bad.
VP5JM: The conditions for me were very poor— A real shame — I enjoyed this contest last year but tiffs year the results as you can see were terrible!
JA3DLEII: Really no conditions — meantime few participants.
Hope better next year.
LZIMC: My first AMTOR contest!
ZL2JON: I have only been operating for 17 months, and never have I heard the band so quiet. It has not improved in the few weeks since the contest either!

Submitted by: Bo SM4CCMG, July 1994

Who Turned Up The Power

Unraveling some interference mysteries

by Phil Sussman, KB8LUJ

If you've been on the digital modes for any length of time you've probably observed interference from an adjacent frequency. The typical comment is "he's sure running a lot of power." At times this has led to verbal warfare between parties, with one asking the other to turn down the power while the latter insists that he's operating properly. The problem might only abate slightly as power decreases power and then everyone becomes even more upset.

A study was made in an attempt to unravel the mystery of why some stations cause interference to adjacent QSOs and others (who are offset by exactly the same frequency difference) do not. Power is not the whole story and the results may surprise you.

There are two ways of modulating a digital signal, FSK and AFSK.

1. An FSK signal is an RF signal generated by a rig that transmits on a fixed RF frequency and shifts that frequency by 170Hz or 200Hz depending upon the configuration of the rig.

2. An AFSK signal is TWO AUDIO tones which toggle back and forth and are transmitted in the SSB mode. (either LSB or USB depending upon the frequency of the tones.) [See Note]

When properly transmitted, it is almost impossible to tell an FSK signal from and AFSK signal on the air.

You might note that an FSK signal does not use a modulator, while the AFSK signal relies on the same transmitter circuitry as SSB. So when transmitting AFSK, the possibility of having both tones present at the same time in the modulation (intermodulation) is possible. This rarely happens with FSK. It is caused by weakness in the transmitter design (which allows ringing) or by overdriving the modulator (which causes distortion) or BOTH.

An FSK signal can be amplified more cleanly than AFSK. However, if either FSK -OR- AFSK is used to drive a power amplifier and the amp is being overdriven it can also cause problems.

What happens is that the normally formed digital signal begins to 'flat-top' which causes harmonics to be generated in the transmitter or amplifier. These harmonics add and subtract causing other frequencies which add and subtract as well (like musical notes). Those frequencies which fall within the bandpass of the transmitter's filters are radiated along with the fundamental signal and are called spurious emissions.

FCC Regulations 97.307 (b), (c) and (d) deal with spurious emissions from transmitters below 30 MHz. First they must be reduced to the greatest possible extend in accord with good engineering practice. In addition they must not exceed 50mw and must be at least 40db below the mean power level of the fundamental signal. Doing a little math, it's easy to see that an adjacent signal which is 20db over S-9 can still give you an S-9 headache and still be in accord with the regulations.

Another factor to be considered is HUM and NOISE. Every transmitter is not entirely pure. The lower the hum and noise of a specific transmitter, the less distortion it will offer to a signal being generated.

Typically a PACTOR signal should only have a domain of about 500 Hz and can effectively operate with a minimum separation of 400Hz. However, 600Hz would give better results.

RTTY and AMTOR usually have a narrower bandwidth than PACTOR. This is because of their lower baud rates. Likewise, GTOR and PACKET have wider bandwidths because of their higher baud rates and so cause more problems to stations operating in their proximity.

RECOMMENDATIONS

There are two related solutions. First, help yourself:

a. Use narrow filters, if you can. They can help reject AGC problems caused by operation on an adjacent frequency. But they do nothing about signals that fall within your bandpass. b. Use FSK if you can. With some modes (like CLOVER) this is not possible. c. Use only the MINIMUM amount of power needed and watch your duty cycle. Remember digital modes have much larger duty cycles than SSB. A good rule to remember is the 50 per-cent rule. Use only 50 per-cent of your full rated SSB power as a MAXIMUM on any digital mode. d. Use a transmitter with good hum and noise factors and good rejection of spurious emissions. e. If operating AFSK, be sure that you are not overdriving your rig. Remember the 50 percent rule. f. If you use a power amplifier, be sure it is not being overdriven. Once again apply the 50 percent rule. g. Listen BEFORE you transmit.

Then help others by:
A.. Asking rig manufacturers to consider digital operation by:
1. Adding narrow 500Hz filters to their SSB mode. 2. Reducing Hum and Noise figures to that of commercial equipment. 3. Substantially improving spatial purity and intermodulation figures. 4. Providing better power control for digital modes.

B. Help new operators to better understand the relationships involved. Education is the primary key.

C. Politely inform other operators of any problems observed. Many of them will never know if you don't tell them and will be glad that you did. Even the 'gruff old man' will check over his set-up if he gets several polite requests.

So, in a nutshell - Power you might say, is not the problem. But it will greatly amplify it. (hi)

Thanks for reading and sharing your time with me. de Phil - KB8LUJ. May God Bless you and yours. -73-

NOTE: There are two customary AFSK modulation schemes. One uses 2300Hz as space and 2100Hz as mark with LSB. The other, commonly used in Europe, uses 1200Hz as space and 1400Hz as mark with USB. One is just as good as the other, but a difference of dial readings is immediately apparent. The European complaint is that the higher frequency of the 2100/2300 pair would give anyone a headache. The response is that 2100/2300 fits nicely into FSK narrow filters. The choice is yours. ❑

"TOR" Modes Made Easy!

by Phil Anderson WØXI

Columns in magazines and newsletters within our market have recently discussed the new teletype-over-radio (TOR) modes: G-TOR, Pactor, and Clover. In addition to performance, price, popularity, and licensing by manufacturers, the authors have raised questions about equipment and operational compatibility, frequency allocation for these modes, and whether or not other new modes might arise. For some authors, the new modes are an omen of increased 20-meter gridlock, mode mutation, and "the end of digital radio." For the majority of writers, however, these innovations are a bright star, prophetic of good things to come for amateur radio. Not only is innovation exciting, it is necessary for retaining our amateur radio bands through continuing to "advance the state of the art" as the FCC rules imply.

The popularity of G-TOR and Pactor is evident if you listen to band activity; QSOs can be found on the digital segments of the HF bands, particularly 14065 to 14080 kHz. A casual accounting shows that G-TOR and Pactor QSOs now easily outnumber AMTOR connects too, and over 4,000 G-TOR EPROMS have shipped since its introduction in March of 1994.

In addition, G-TOR and Pactor are truly price bargains for the amateur; they are included without additional charge in new KAM Plus units and can be purchased as low cost firmware upgrades. Both modes provide for error-free transmission of data, Huffman compression for increased throughput, and the ability to adapt somewhat to band conditions – benefits not provided for in AMTOR. G-TOR also features run-length encoding, a longer data frame than Pactor, and 300 baud as the top rate. As a result, a number of file transfer tests between Kansas and Los Angeles on 20-meters showed G-TOR to be roughly 2.5 times faster then Pactor.

In addition to use and cost, licensing has been a subject of interest among newsletter editors and amateurs. Kantronics was the first all-mode TNC manufacturer to license Pactor, and because of its inclusion in the volume-leading KAM two years ago, Pactor is now a very popular mode. Within months of introducing G-TOR, Kantronics published the full protocol in the 13th ARRL Digital Communications Conference proceedings and is offering a low-cost license on a non-exclusive, non-exclusionary basis to other manufacturers.

Within the past month, Kantronics has announced firmware version 7.1 for the KAM Plus and KAM Enhancement Board. While version 7.0 introduced G-TOR to the amateur community, 7.1 goes a step further, adding a "TOR Standby" mode that makes operation in the TOR modes easier and interoperable. From this single mode, you can call CQ in G-TOR, Pactor, or AMTOR, copy broadcasts in AMTOR FEC, and respond and connect to a link request in these modes for your keyboard or BBS. 7.1 also sets (default) the Mark and Space tones to 2125 and 2295 Hertz so all modes may operate on the same frequency, eliminating the need to adjust your receiver dial when switching modes. 7.1 also allows <Control-C E> to substitute at your keyboard for '+?' so that AMTOR changeovers are the same as for G-TOR and Pactor.

For example, in TOR Standby, you can call CQ, receive a link (in G-TOR, Pactor, or AMTOR), have a QSO, and return to standby:

cmd: TOR <return>
<TOR Standby>
type <Control-C T>
CQ CQ CQ G-TOR, Pactor, or AMTOR de WØXI
type <Control-E>
<TOR Standby>

When a link request is then received, say in G-TOR from W4NGA, your station will respond and display (in terminal mode)

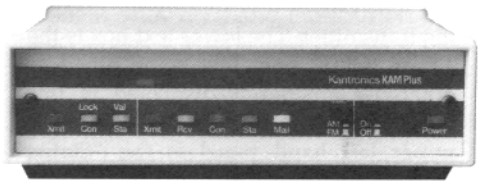
<Linked in G-TOR to W4NGA>.

Of course, you may continue to operate in any of the modes one at a time, using commands supplied specifically for those modes.

What about new modes? Is it likely we'll see a bunch of new TOR modes appear within the next few years? The answer is no for the following reasons: cost, time, and a limited number of groups who may have the expertise to do so. For example, Kantronics' four-person G-TOR development team had a manufacturer's budget, allocated substantial time for development (during working hours and more!), a varied and strong background in electrical engineering and communications theory (two doctorates, a master's degree, and substantial teaching experience) and experience in coding more than six TNCs over a ten-year period. In addition, some of the unique features of G-TOR, such as the invertibility of the Golay code, were discovered during development – not even mentioned in the textbooks on coding. It simply isn't likely that such a team could or would be formed often. Hence, it's not likely that many new modes will now appear.

In any event, the last few years have been exciting for digital operators: AMTOR, Clover, Pactor, and now G-TOR. These modes are all new toys to play with and enjoy. And now, TOR Standby simplifies keyboard activity, transceiver operation, and makes multi-mode operation of G-TOR, Pactor, and AMTOR easy. Therefore, the 7.1 firmware for the KAM Plus and KAM with Enhancement Board inexpensively contributes to the fun.

Pactor is fast. G-TOR is more along these lines.



Kantronics KAM Plus with lightning fast G-TOR

The KAM Plus strikes again. It's now available with lightning fast G-TOR, a Kantronics innovation. More than twice the speed of Pactor in most band conditions, this error-correcting mode is the fastest HF mode available in a stand-alone TNC.

In addition to G-TOR, the KAM Plus operates the other popular modes and is capable of operating an HF mode and VHF packet at the same time. The KAM Plus also features more than 100K of personal mailbox space. And like most Kantronics products, the KAM Plus is small, portable and equipped with a NEWUSER command set and on-line helps.

KAM Plus with G-TOR. Together, the two are taking HF digital communications by storm.

Kantronics

For more information, contact your authorized Kantronics dealer or Kantronics at 1202 E. 23rd St., Lawrence, KS 66046-5006 913-842-7745 FAX 913-842-2021.

RagChew

Windows software for the HAL PCI-4000M

by Jim Jennings, KE5HE

My summer was filled with activity, fishing was not too great, but I did a lot of carpenter work on our cabin in Wyoming. In addition, I had some quite time to do a little software writing. The result of that activity is starting to show it's face. It is a program I call "RagChew" for want of a better name. I developed RagChew to satisfy my needs for an interface with the HAL PCI-4000/M to supplements the capabilities of the HAL provided PC-COMM.

What is RagChew?

First of all, RagChew is a Windows application. It runs in Windows like any other normal Windows application. It was developed to run on Windows 3.1 and DOS 6.0. The program was written in Visual Basic (ala EXPRESS). All of the utilities, such as OPEN FILE and SET FONT, use the standard Windows dialogs. As a result, anyone familiar with Windows will be immediately comfortable with the program. Except for capturing text off the RX screen (such as callsign, name, QTH) a mouse is not required to run the program. Every button on the screen that can be clicked with a mouse has its "hot key" label affixed. Most of the hot keys are an ALT+key combination in the standard Windows form.

A Quick Look at RagChew

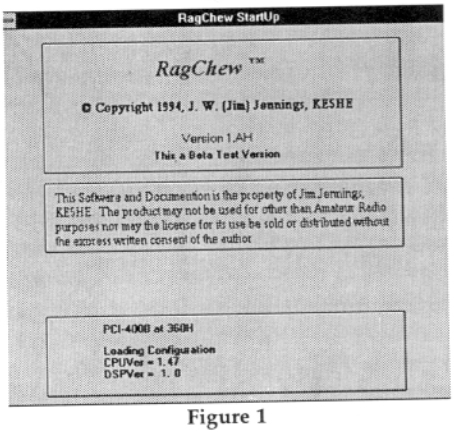


Figure 1

Figure 1 shows the start up screen that is visible while RagChew is downloading software and parameters to the PCI-4000/M. The first time the program is run the address of the PCI-4000 is found and recorded in a configuration file for later use. After loading the CPU and DSP software to the PCI-4000, the program then downloads all parameters stored in the configuration file so that the configuration of the 4000 reflects the latest parameter settings. The final release version of RagChew will display the callsign of the licensee on the setup screen.

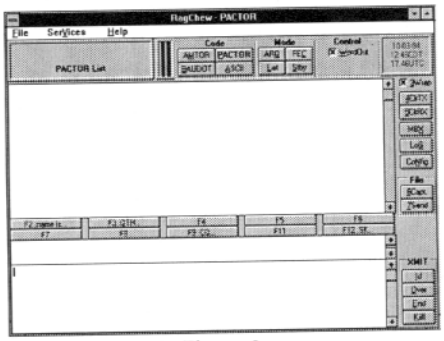


Figure 2

Figure 2 shows the default screen that comes up when RagChew is started. There are 3 "text boxes" on the windows that have vertical scroll bars on the right. The upper text box is the RX or "IN" box. The middle (small) box just below the "F" keys is the echo box. Data is placed in the echo box as it is sent by the 4000 to the transmitter. The lower text box is the TX or "OUT" box. Text being typed or otherwise entered is displayed in this box before it is sent to the 4000. The upper left hand panel is the "Status Panel". This panel displays the current status of the 4000 and callsign/name information if linked. The active code, in this case PACTOR is indicated by the bold characters on the PACTOR button as well on the title bar and Status Panel. The mode may be changed by clicking on the appropriate mode button (or by using the assigned hot key). Figure 2 indicates that the current mode is List (listen). Clicking on the ARQ button will start an ARQ call to a station. Similarly, clicking on FEC or Stby will start and FEC transmission or put the 4000 in standby mode.

The 2 bars in the small panel to the right of the Status Panel are the tuning bars. The receiver is tuned so that these 2 bars are of equal and maximum amplitude. In the Control Panel is the option "WordOut". RagChew is always in a word out mode, that input text is not sent to the 4000 input buffer until a word is completed by the entry of a <SPACE> or <ENTER>. If this option is not selected backspaces beyond the current word will be transmitted. In that way the user can "back up" and correct typing errors already present on the other station's screen. The WordOut option was included because some software does not support this back up feature. The current time and date are shown in the Time Panel on the upper right of the window.

Down the right hand side are buttons for other functions. The Wrap function causes the transmitted text to be word wrapped at 68 characters. There are buttons for clearing the TX and RX windows and the associated program buffers. The MBX button brings up a personal MBX (not yet fully implemented). The Configuration button brings up a configuration screen (figure 6). There are buttons for file capture and send and for sending the ID, OVER, and END strings. The remaining button is the "Panic Kill" button that immediately stops any transmission taking place and returns the 4000 to the previous standby mode.

The remaining button on the right is the Log button that displays the log (figure 8). A log entry is automatically created at the end of each ARQ contact. The log is displayed at the end of each ARQ contact so that manual additions can be made if desired. You will also notice user programmable "F" keys in the center of the screen. The utility to program these keys is available from the "Services" menu. When an "F" key is pressed or clicked the text associated with that key is placed in the "Out" screen for transmission. This text may include certain program information like callsign, ID, name, date and time. These are shown in figure 5.

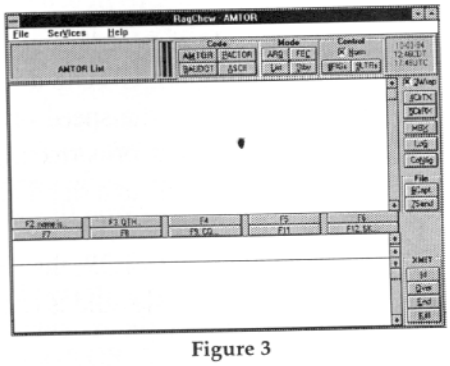


Figure 3

Figures 3 and 4 show the main screen when AMTOR and BAUDOT are being run. The Norm button is included so that the tones may be reversed. The converse

button on figure 4 selects an auto mode for Baudot operation. When selected,

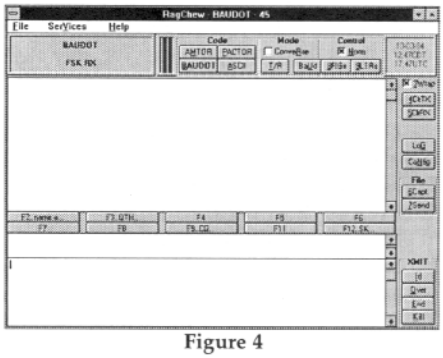


Figure 4

transmission is started whenever you start typing and quits after a CR and slight delay. It automatically starts again when you start typing. When this option is not on, the T/R button starts the transmission of the buffer.

Figure 5

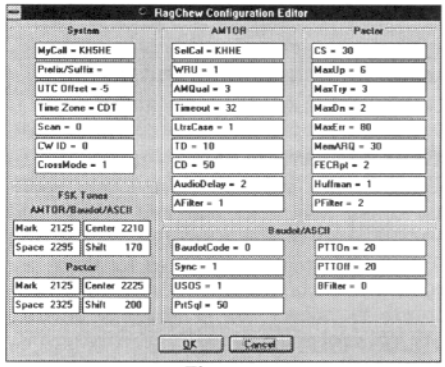


Figure 6

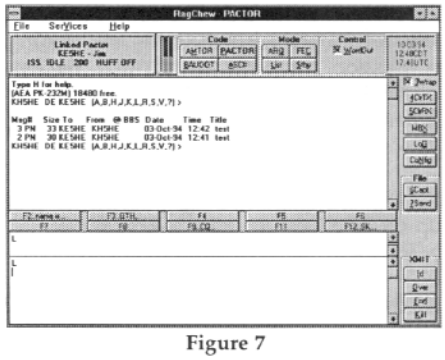


Figure 7

Figure 7 shows the main screen while linked in Pactor. The complete status is shown in the status panel as well as the callsign and name of the station to which you are linked. The name will appear only if the name is in the log entry for that station. The log is scanned during the linking process so that the name will be displayed and the appropriate log entry is available when you click the Log button.

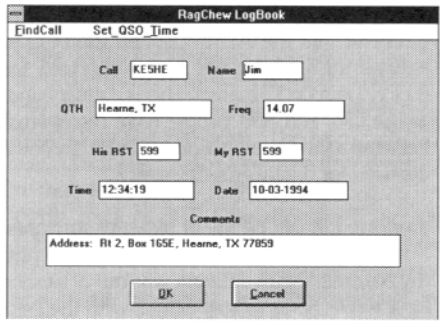


Figure 8

How to Obtain RagChew

I plan to make the program available to ADRS. They will license the use of it at a nominal cost ($25). All proceeds from this licensing will go to ADRS. Program updates will be available from time to time on the ADRS LLBBS. Major revisions in the future may require an upgrade fee. The first release should be available from ADRS in mid November 1994.

Additional Information

During my testing with the development of this program, I found that a distinct improvement in the operation of the PCI-4000/M with my radio (TS-850) on the FSK modes was obtained by using the FSK converter outlined in my column in the May 94 issue of the RTTY Journal. I mounted that modification directly on the PCI-4000 board so that no external wiring is required. I used the jack normally used to power the SPT-1 (just a hole on later boards) for the FSK output jack. The converter board is available from Bob, W4NPX and installation is straightforward

I hope you get the chance to try this program out.

73 and God Bless, *de Jim, KE5HE*

CONTEST DATE CHANGE

The EA RTTY Contest will be held the first weekend of April (April 1st and 2nd) 1995. The EA Contest was originally scheduled in February, but they moved it to the April date to avoid conflict with the ADRS WW RTTY WPX.

DX NEWS

The latest Digi-Doings from around the world

by Jules Freundlich, W2JGR

New digital modes are gaining wide acceptance, but RTTY is still alive and well.

If you regularly read the weekly VK2SG RTTY DX Notes, you will see that in excess of 99 percent of all RTTY DX operates in the 14080 to 14090 khz range. This is not an aberration, or an estimate on my part. Don't take my word for it. Pull a few samples, and verify that fact for yourself. RTTY DX shows up above .090 very infrequently now, except during contests. And so I was shocked to see the suggestion by Jim, N2HOS, (DJ, Oct. 1994, p.19) that we accept cutting the RTTY slot again by encouraging Pactor to move up to 14.085. Most Pactor activity is now between 14070 and 14080, and has made Amtor operation in that range tenuous. Some Pactor has recently started operating between 14064 and 14070, thereby conflicting with the Clover mailboxes in that area, and effectively smothering them more often than not.

Make no mistake about it...there are plenty of RTTY operators out there looking for DX between contests, as well as during contests. If you had your receiver and MCP on during the CQ/DJ WW RTTY contest during late September, you will agree that baudot ("steam") RTTY is far from dead. Why, even one of the most devoted DX proponents of Clover was in the scrap, handing out his coveted multiplier. The RTTY community spent years convincing major expeditions to include RTTY, and we have been notably successful in this regard. How amenable do you think future expeditions will be to bother operating this time honored mode, if all their callers are squeezed into a less than five khz wide slot (allowing for a one khz guard band above their transmit frequency.)? Well operated DXpeditions in the recent past have made in excess of one thousand RTTY contacts each. I doubt that we will see any major expeditions making a significant number of contacts using any of the burst modes, assuming they even bother playing the mode.

As Ted, W2FG, said (DJ, Sept. 1994, p.9), Pactor interference on 14080 threatened to scuttle the planned RTTY operation by 3Y0PI. Disaster was avoided when, cued by Ted, I advised the expedition of that fact, and they moved up about 1 khz because Pactor is a killer of a co-channel RTTY signal. With an improperly adjusted transmitter, the effect can be disastrous by being several khz wide. I believe there are other acceptable alternatives without further squeezing the remaining living space of a popular unique mode that shows no signs of going away in the foreseeable future. Certainly, I agree that exploitation of 30 meters, where there are few entrenched interests, should be seriously considered. I recommend that the ADRS petition the FCC to enlarge the pathetic ten khz authorized for RTTY/Data on 17 meters. This is a great band, as the CW and SSB people have discovered. Let's use a little imagination to effectively solve the need for digital growing space.

Working DX can be full of pleasant surprises. I would like to share one with you. Recently my Sommer beam antenna was out of service for a while. So as to stay active, with the help of Bob, K0RC, I erected a temporary 20 meter inverted Vee running from the top of my 40 foot tower to the ends of the roof. This allowed me, at least, to stay in touch with my co-editors of the VK2SG RTTY DX Notes. The dipole worked pretty well in the North/South direction (broadside to the antenna) but was pretty poor East/West. One morning, at about 1250Z, I received a telephone call from Mike, W5ZPA, in New Orleans, that 9M8BT (a country, Mike knew I needed) was on 20 meters. I ran into the shack and tuned to the frequency. I could just copy him above the noise. Mike gave me an assist by advising Dave that I needed him, and would call him. I threw on the 500 watt AL-80A amplifier and gave a call. Wham! Back he came. We exchanged 449 reports and I had him in the bag for my No. 314. The return card, from his manager, N5FTR, came in about two weeks. The important parts of this anecdote are...don't sell a simple wire antenna short. It's effectiveness can be surprising. Also, DX alerting via a telephone network, among a few friends, can occaisionally add some unexpected excitement to the hobby. Thanks Mike!

DX DOINGS

(Signals are 45.4 baud RTTY unless noted.)

Note that the DX Doings below include activity as reported world-wide. Therefore some stations may not be seen in your particular part of the world at the times indicated. To make best use of the data given, couple it with your knowledge of propagation paths to your QTH. For help in this regard, see the monthly propagation charts in QST. and listen to the hourly propagation reports at 18 minutes past each hour on WWV. Good luck!

BELIZE, V3 - Belize must be a great place for ham radio and skin diving. Glenn, AE0Q along with Leo, WN0B, and CB, AA0KL, will be paying another visit to this tropical paradise from 28 December through 9 January. They will sign V31RY from Ambergris Cave during the ARRL RTTY Roundup. Again, Glenn invites anyone who would like to join them for all or part of the trip, to contact him at telephone (303) 986 6379, or send a packet message to AE0Q @ N0RSE.#NECO.CO.USA.NOAM.

BOTSWANA, A2 - Ken, WA8JOC, who is QSL manager for Dave, A22MN, has advised that Dave's RTTY days may now be limited as he is leaving Botswana in March 1995. If you don't have this one in the bag yet, stay alert. Where next, Dave?

BRUNEI, V8 - V85GA continues to give a new one to the deserving on 20 meters between 1600Z and 1700Z. QSL Gerald to P.O. Box 1200, B.S.B. 1912, Brunei, Borneo. (Personal boo-boo - The following note was on the QSL card I received from Gerald "Jules - Sorry I only received your 3rd card, but you have been sending it to the wrong country! You are lucky the post office in Jakarta sent it on. 73 Gerald." I really sweated out that one!)

CHAGOS IS., VQ9 - This Indian Ocean outpost seems to have taken up Pactor in a big way. Three stations, VQ9KC, VQ9SS, and VQ9TN are active. Check 14069 and 14071 khz. QSL VQ9KC via AA7AN, '93 CBA or later. QSL VQ9SS to N6SS. QSL route for VQ9TN is K5TNP.

CHINA, BY - It's nice to see BY1QH again on 20 meters around 1545Z. QSL to Tsinghua University Amateur Radio Club (TUARC), Box 2654, Beijing, P.R.C. (See Nepal below.) Also recently, BV7WB became active. He appears on 20 meters around 1200Z. QSL route is needed.

CUBA, CO - CO2JJ and CO2KG are both active at various times of the day, depending on propagation. QSL routes are needed.

DOMINICA, J7 - From 2-5 December, Dieter will complete his tour here. (See St. Lucia amd St. Vincent below.)

EAST MALAYSIA, 9M6,8 - In addition to Dave, 9M8BT, and 9M8HF previously reported upon, two more stations, 9M8SR and 9M8ST are both active on 20 meters around 1515Z. QSL routes are needed for these last two.

HEARD ISLAND, VK0 - Tony, WA4JQS, of VP8SSI, South Sandwich, and 3Y0PI, Peter I, fame, applied for, but has not received, landing permission for a DXpedition to this protected area. He has, however, received landing permission for Scott Island, and Balleny Island. I believe these two would count for Antarctica. It seems that Tony will be cooking up something interesting in 1995.

IVORY COAST, TU - Jim, TU4EI now comes up on 20 meters as early as 2100Z. QSL via W3HCW.

JUAN FERNANDEZ IS., CE0 - CE0ZIS is again active on 20 meters around 2315Z. QSL to Eliazar Rojas, P.O. Box 1, Juan Fernandez Island, Chile.

KAMPUCHEA - XU - There have not been many recent reports of RTTY activity from XU7VK, but we who still need this country

have until February 1995 to work him. Let us hope for more digital action from this rare one. For QSL information see RDJ, May/June 1994, p.9.

MADAGASCAR, 5R - Wrapping up a six week Indian Ocean trip, JA1OEM will be operating 5R8HP between 1-20 November. CW-SSB-RTTY will be activated. 5R8DS often operates Pactor between 1400Z and 1500Z on either 14071 or 14076 khz. He also operates RTTY in the same time frame. QSL to his '94 CBA.

MAURITANIA, 5T - 5T5MS has been active on 20 meters around 1600Z. QSL to Box 327, Nouadhibou, Mauritania.

MONGOLIA, JT - Bat, JT1CS has been active again on 20 meters between 1330Z and 1430Z. QSL to Box 125, Ulan Bator, Mongolia, via Japan.

MOUNT ATHOS, SV/A - Monk Apollo, SV2ASP/A continues to show up unexpectedly on RTTY. Recent RTTY sightings have been on 20 meters around 1715Z. For direct QSL route see the DJ, Oct. 1994, p.11.

MOZAMBIQUE, C9 - C91BW may be found on Pactor around 1145Z on 7037 khz. QSL route is needed.

NEPAL, 9N - Satish, 9N1AA, is the moving force for amateur radio in Nepal. In a gesture of international good will, a package of RTTY Digital Journals was airmailed recently to the Nepal Amateur Radio League (NARL) by the Tsinghua University Amateur Radio Club (TUARC) in Beijing, China. This constituted TUARC's message of "Good Luck" to the developing 9N1 amateur community. If you would like to make a RTTY or Pactor schedule with Satish, he is easily reached at JA5TX.JPN.AS. He accesses that MBX daily. Look for him on 20 meters around 1130Z.

PACIFIC TOUR - Mori, A35MW will be making a circuit of the Pacific all during November. He will be operating from 5W, ZK, FO, CE0Y, CE0Z, and VK. Watch the weekly VK2SG RTTY DX Notes for details. For some of the APlink mailboxes carrying these reports of digital activity, see the DJ, Oct. 1994, p.10.

QATAR, A7 - A71EY has been active on 20 meters as early as 1000Z, and more often between 1600Z and 1800Z. QSL to Box 2260, Doha, Qatar. A71CW may also be found on 20 meters around 1700Z. QSL to Chris Dabrowski, Box 22101, Doha, Qatar.

SAO TOME & PRINCIPE, S9 - Glenn, S92ZM, an ex-Navy man, works for the VOA on the island., He normally operates Amtor on 14065 khz (LSB) using PAMS 2.09. He will change over to Pactor upon request. For QSL route see DJ, Sept. 1994, p.11.

ST. LUCIA, J6 - Dieter, DL3KDV, will start a Caribbean tour from this island 9-17 November. Operation will be on CW-SSB-RTTY. He will then move on to J8, St. Vincent.

ST. VINCENT, J8 - DL3KDV operates from here 18 November to 1 December, before moving to J7, Dominica. See above.

SOUTH GEORGIA I., VP8 - The planned DXpedition by Al, WA3YVN, Jan, WA4VQD, and Vince, K5VT is well passed the planning stage, as the equipmnent was recently loaded on board the R-V Abel-J. This well known carrier of Antarctic DXpeditions (VP8SSI) then headed for the Falklands. The team will rendezvous there, in late December, for departure to their 4-19 January stay on Grytviken, on the north coast of SGI. Operations will include CW-SSB-RTTY. Financial support is still being requested to cover non- personal expenses. Donations, no matter how small, should be sent to SGI DXPEDITIONS, P.O. Box 2235, Melbourne, FL 32902, USA. QSLs will be handled by W4FRU.

SOUTH SHETLAND IS., VP8 - As this was being written at the beginning of October, Andy, SP2GOW, was preparing to leave Poland for the Polish Antarctic Station on King George Island. Andy is scheduled to be on the island for one year starting in December 1994. He has stated his interest in operating RTTY at HF0POL, if equipment could be made available. Don, W6PQS, of the International RTTY DX Association (IRDXA), was hard at work arranging the logistics of supplying RTTY gear. We hope that Don can make Andy and the gear meet at Chile in time. This country is one of the most needed RTTY DXCC countries.

SVALBARD, JW - If you haven't yet worked this snowy outpost, you will be happy to know that JW0I will be QRV there at least into 1995. Look for him on 20 meters between 1300-1400Z, or around 1730Z. QSL via SP3ASN.

SWAZILAND, 3DA - Jon's lightening damage has been repaired. Look for 3DA0CA on 20 meters around 1915Z. For QSL route see the DJ, October 1994, p 11. Jon told me he is looking for a CW contact with WA for his CW WAS.

TANZANIA, 5H - In response to my comment in the DJ, Sept. 1994, p.11, that 5H3MA was reported in the W6GO list as a pirate, Satish, 9N1AA advised me that 5H3MA is named Martin and is involved in a telecommunications network development project in the country. He also apparently has plans to install a VHF repeater on top of Mount Kilimanjaro at an altitude of 6000 meters! Martin also frequents 14069 khz on Pactor early in the UTC day around 0540Z, but also later, around 1445Z. If you want to try to make a RTTY or Pactor schedule with 5H3MA, you can drop him a note at the APlink MBX of ZS5S.ZAF.AF. QSL him at Box 777, Moshi, Tanzania.

UGANDA, 5X - Paul, WF5T, will return to "The Pearl of Africa", for the entire month of November, to teach anesthesiology at the University at Kampala. When not involved in the classroom, he will be operating as 5X1XT on CW and RTTY. QSL to Paul Rubinfeld, P. O. Box 4909, Santa Fe, NM 87502.

WEST MALAYSIA. 9M2 - 9M2MW shows up on 20 meters between 1400Z and 1600Z. QSL route is needed.

ZAIRE, 9Q - 9Q5TE operates Amtor around 0440Z on 14073 khz. Otherwise he may be found on RTTY on 20 meters around 1845Z. QSL to SM0BFJ.

ZIMBABWE, Z2 - Ken, Z21HD now frequents 20 meters between 1800Z and 1900Z. QSL to P.O. Box 257 Belvedere, Harare, Zambia.

HAVE DX NEWS?

Leave a message in the W2TKU/4(1) mailbox (AMTOR or CLOVER), find me on RTTY, OR via any of the following: Packet: W2JGR @ WB0GDB.#STP.MN.USA.NA Amtor: WJGR on 14070 khz. Telephone: (612) 377 7269 FAX: (612) 374 8161 (mark to my attention) or use the U. S. Postal Service.

THANKS - Thanks to the following for all your information: AA5AU, BZ1QL, K7WUW, N4SS, I5FLN, JA1IDY, JW0I, SP4KM, WA3YVN, WA8JOC, WB2CJL, W2TKU, W5ZPA, W6GO, W6OTC, W6OAT, W6PQS, Z21HD, ZS5S, and 9N1AA.

See you all next month. For now, bye bye from Minnesota, PAX....73 de Jules W2JGR

(footnote in small type) 1. W2TKU/4 scans 7070, 7076, 14072, 14076, 14078, 21074, and 21080 khz. on AMTOR. On CLOVER, he scans 7066, 7068, 10136, 14066, 14067, 14068, 21064,and 21066 khz. ❑

NEWS UPDATE

Ben, KR6E, is now in far north Alaska for a three month tour of duty. He is probably the only active ham up there, but active is a relative word. No digital for now (though that will change if he decides to make the move a longer term one) he is on CW with KM6GD every Saturday afternoon at 3PM Pacific time. They use 14048.0 as the preferred frequency. The north slope isn't exactly cold... on October 7 it was only-5 with 20 mile winds. Thanks but no thanks.

CONTESTING

& Coming Events

by Rich Lawton, N6GG

RTTY Contests - Coming Events

Date:	Contest:
NOV 6	DARC Corona 10M Digital (German)
NOV 12-13	WAE WW RTTY (German)
DEC 10-11	TARA RTTY Sprint (USA)

—— REMINDERS: ——

CQ WW RTTY/Digital Contest (September '94) log entries must be postmarked no later than December 1, 1994. Extension given if requested. Mail logs to: Roy Gould, KT1N CQ WW RTTY/Digital DX CONTEST DIRECTOR BOX DX STOW, MA 01775

JARTS WW RTTY Contest (October '94) log entries must be received by December 31, 1994. Mail logs to: Hiroshi Aihara, JH1BIH JARTS Contest Manager 1-29 Honcho, 4 Shiki Saitama 353, JAPAN

—— COMING UP: ——

DARC CORONA 10M Digital Contest

November 6, 1994

Sponsored by Deutscher Amateur-Radio-Club e.V. (DARC)

CONTEST PERIOD: Sunday, November 6, from 1100Z to 1700Z (6 hours) NOTE: Contest will take place on the first Sunday of March, July, September, and November of each year.

MODES: RTTY, AMTOR, PACTOR, and CLOVER

BANDS: 10M ONLY

CLASSES: A - Single op B - multi- op C - SWL

CONTEST CALL:
for RTTY: "CQ CORONA TEST DE ....."
for AMTOR/PACTOR: use FEC (mode B) for "CQ CORONA TEST de sellcall XXXX" Use ARQ (mode A) for answering and contest exchange. Contest exchange in any other mode is subject to disqualification.

EXCHANGE: USA stations: send RST + QSO nr. + name + State
All others: send RST + QSO nr. + name

CONTACTS: Additional QSOs are allowed with same station on different mode after a 15 minute interval, or after a QSO with another station.

MULTIPLIERS: Each DXCC/WAE country, and each USA state, and each call district in JA,VE,and VK, (NOT USA). Count only the first QSO with a USA station as a DXCC/WAE country multiplier.

QSO POINTS: Count 1 point for each completed QSO.

FINAL SCORE: Total QSOs x total multipliers.

AWARDS: To top stations in each class, country, and district mentioned above.

LOGS: Use separate logsheets for each mode. Logsheets must contain: Date, Mode, Time UTC, Callsign, message sent/received, name, USA-State, first-time multiplier prefix, and QSO points. Also required is a Summary sheet with a list of claimed multipliers. If entry is multi-op, please list names and callsigns of all ops. Comments are very much appreciated.

DEADLINES: All logs must be received by 60 days after the Contest.
Mail to:
Werner LUDWIG, DF5BX P.O. Box 12 70 D—49110
Georgsmarienhutte GERMANY

(cont'd on page 31)

BARTG HF RTTY CONTEST 1994 RESULTS

Submitted by John Barber, G4SKA

SINGLE OPERATOR ALL BAND

POSITION	CALLSIGN	QSO'S	MULTS	CONTS	POINTS
1	HH2PK	781	171	6	801306
2	K1IU	682	191	6	781572
3	AB5KD	642	131	6	504612
4	EA7GXD	464	159	6	442656
5	K8UNP/4	508	143	6	435864
6	OH0BBF	503	144	6	434592
7	4X6UO	498	137	6	409356
8	UR0HQ	482	141	6	407772
9	K4HSF	519	127	6	395478
10	N2DL	460	129	6	356040
11	KA5CQJ	507	110	6	334620
12	NO2T	420	130	6	327600
13	ZX2A	400	100	6	240000
14	N6GG	365	98	6	214620
15	SM5FUG	270	131	6	212220
16	PI4COM	346	102	6	211752
17	N9CKC	318	109	6	207972
18	PA0XPQ	249	129	6	192726
19	HA8EK	306	91	6	167076
20	GW4KHQ	263	114	5	149910
21	IV3FSG	303	117	4	141804
22	DK3GI	222	99	6	131868
23	AA7UN	348	71	5	123540
24	JH7QXJ	243	81	6	118098
25	VE7SAY	265	83	5	109975
26	NA2M	211	83	6	105078
27	SV2BFN	208	101	5	105040
28	OK1AJN	178	98	6	104664
29	JH1BIH	201	83	6	100098
30	G5LP	189	103	5	97335
31	G4MVA	200	95	5	95000
32	LA7AJ	168	94	6	94752
33	I2HWI	197	95	5	93575
34	DL9GGA	156	92	6	86112
35	N2CQ	175	80	6	84000
36	W6/G0AZT	209	80	5	83600
37	KE4BM	167	75	6	75150
38	YU7AM	178	78	5	69420
39	PA0VHA	149	77	6	68838
POSITION	**CALLSIGN**	**QSO'S**	**MULTS**	**CONTS**	**POINTS**
40	UN5PR	169	78	5	65910
41	K7DSR	161	79	5	63595
42	OH2LU	129	82	6	63468
43	I2KFW	165	89	4	58740
44	SP9UNX	189	76	4	57456
45	UA6LP	163	80	4	52160
46	HP1AC	173	69	4	47748
47	I0KHP	120	77	5	46200
48	KD2YG	113	72	5	40680
49	LA6VIA	135	60	5	40500
50	N0FMR	187	63	3	35343
51	WB4UBO	95	59	6	33630
52	VK2RT	168	50	4	33600
53	IK0BAL	94	58	6	32712
54	CP1FF	125	52	5	32500
55	WA6WGL	100	53	6	31800
56	ZL2AMI	117	52	5	30420
57	SP3EJJ	83	57	6	28386
58	W3GG	102	52	5	26520
59	IK3ASM	93	57	5	26505
60	W1HFN	80	66	5	26400
61	YL2KF	100	61	4	24400
62	KA1CLV	105	56	4	23520
63	LA3YU	83	50	5	20750
64	KB4IJ	97	52	4	20176
65	DJ1OJ	73	53	5	19345
66	WB3AAL	90	52	4	18720
67	IK0HBN	82	57	4	18696
68	SP7FQI	91	50	4	18200
69	SM5AAY	105	43	4	18060
70	I1QBI	65	50	5	16250
71	5R8DS	77	41	5	15785
72	SM7ATL	74	51	4	15096
73	EA2CNT	132	38	3	15048
74	IV3DHD	66	56	4	14784
75	IK5WGK	67	40	5	13400
76	JA1SJV	58	45	5	13050
77	WB4TDB	80	53	3	12720
78	YO3FRI	92	45	3	12420
79	OM3CPS	81	50	3	12150
80	KB3TS	71	42	4	11928
81	IK0PHW	62	45	4	11160
82	HB9AWS	63	41	4	10332
83	N4QN/1	69	37	4	10212
POSITION	**CALLSIGN**	**QSO'S**	**MULTS**	**CONTS**	**POINTS**
84	VE5SF	79	39	3	9243
85	KE9CU	68	44	3	8976
86	YU7AE	69	40	3	8280
87	G3HJC	40	34	6	8160

88	EA4AFP	66	40	3	7920
89	DF5BX	57	45	3	7695
90	WN1E	57	40	3	6840
91	DL6KBG	63	32	3	6048
92	SP6OPE	37	28	5	5180
93	DK7FP/P	40	27	4	4320
94	JA2ESR	34	23	4	3128
95	VE2AXO	32	24	4	3072
96	SP9LKS	53	28	2	2968
97	PA0YN	27	20	5	2700
98	S52SK	30	28	3	2520
99	SP6NVK	27	22	4	2376
100	EC2BAW	30	24	3	2160
101	LZ1MC	46	20	2	1840
102	SP2EIW	23	15	5	1725
103	F6KEQ	30	25	2	1500
104	K8CV	14	15	3	630

SINGLE OPERATOR 15 METRES

POSITION	CALLSIGN	QSO'S	MULTS	CONTS	POINTS
1	UA4LCQ	269	63	6	101682
2	IK6GZM	163	45	5	36675
3	N2CQ	97	38	6	22116
4	S57J	136	40	4	21760
5	SP4CHY	83	40	5	16600
6	UR5LBX	83	22	5	9130
7	IV3UT	60	30	5	9000
8	G0MBQ	88	25	4	8800
9	JR4GPA	53	28	5	7420

SINGLE OPERATOR 20 METRES

POSITION	CALLSIGN	QSO'S	MULTS	CONTS	POINTS
1	S53MJ	317	65	6	123630
2	JR5JAQ	174	62	6	64728
3	IK2HKT	163	63	6	61614
4	G0LII	172	51	4	35088
5	TA2FT	118	35	5	20650
6	UA0SMF	85	31	5	13175
7	RW3PF	130	33	3	12870
8	JR2BNF/1	55	37	6	12210
POSITION	CALLSIGN	QSO'S	MULTS	CONTS	POINTS
9	IK2UVR	59	39	5	11505
10	YU1NR	107	27	3	8667
11	N0AFW	113	30	2	6780
12	ZL2JON	54	30	4	6480
13	SM0TXT	53	19	4	4028
14	TF3US	47	26	3	3666
15	G3XVF	44	26	3	3432
16	VK3EBP	31	21	4	2604
17	HB9HLE	36	24	3	2592
18	BZ1QL	37	12	4	1776
19	OZ7XE	28	10	2	560
20	SM4CMG	11	8	1	88

SINGLE OPERATOR 40 METRES

POSITION	CALLSIGN	QSO'S	MULTS	CONTS	POINTS
1	W2UP	150	46	5	34500
2	HB9AON	32	23	2	1472

SINGLE OPERATOR 80 METRES

POSITION	CALLSIGN	QSO'S	MULTS	CONTS	POINTS
1	G0ARF	138	36	3	14904
2	SM4RGD	81	29	2	4698
3	G3NUE	77	24	2	3696
4	LY1BZB	71	23	2	3266
5	LZ1BJ	44	17	2	1496
6	G0LJD	32	14	1	448
7	LZ1JB	19	11	2	418

MULTI-OPERATOR CLASS

POSITION	CALLSIGN	QSO'S	MULTS	CONTS	POINTS
1	UZ9CWA	783	195	6	916110
2	GW5NF	583	188	6	657624
3	OH2AG	486	168	6	489888
4	AA5AU	410	116	6	285360
5	4N7M	409	134	5	274030
6	N3JLL	209	81	5	84645
7	G0PCA/P	270	47	5	63450
8	DF0BAU	150	78	5	58500
9	VE3FJB	147	59	5	43365
10	DL0HFC	54	44	3	7128

SHORT WAVE LISTENER

POSITION	CALLSIGN	QSO'S	MULTS	CONTS	POINTS
1	ONL383	370	138	6	306360
2	G6LAU	237	114	6	162108
3	G8CDW	184	93	5	85560
4	DE0GMH	99	71	6	42174
5	F-10095	129	68	4	35088
6	DE1UCS	87	61	4	21228
7	ONL3997	69	46	4	12696
8	ONL4335	60	46	4	11040
9	DE7TXL	40	34	4	5440
10	IT9-01407/PA		35	22	4
3080					

Check logs gratefully received from:
OZ5MJ, DL7UOO, DJ5QY, IV3WHL, 9H1ET,
HA6NY, SM3BCS, IV3ZDO.

Countries active in the contest included: 5R Madagascar, 9K Kuwait, 9N Nepal, OD Lebanon, OH0 Aland Island, PJ9 St Marten, HH Haiti, ZA Albania, 7P Lesotho.

This year we had received 172 contest logs, slightly down on last year's record entry. This may have been due to the declining HF conditions, particularly evident on 15 and 10 metres. Activity was still very high and most operators will have found a few new countries to work.

It was especially pleasing to see Patrick Cardozo HH2PK come out on top in the single band class. His 1993 entry would have been good enough for a top three place, but arrived a few days after the results had been announced. The winners of the single band classes all had solid clear-cut wins, but things were a little closer in the multi-op class where the lads at GW5NF gave the UZ9CWA group some serious competition. My good friend Jean-Jacques ONL383 is totally dominant amongst the SWLs, and I know he would join me in thanking everyone who took part in the contest. See you all in 1995, and don't forget the Amtor/Pactor test in July.

de John Barber, G4SKA

1994 CQWW RTTY
High Claimed Score

(Condensed from the latest reports)

Single High Power

CALL	BAND	SCORE	QSO's
HH2PK		1300.578	1252
S50A		1,165,000	1065
$56A		1,130,000	1086
VY2SS		1,028,970	1122
K4JPD		961.155	994
WEgV		818.845	958
		(at-KSgK STA)	
K2WK		723.989	815
N91TX/7		661.000	1054
N2DL		591.660	704
K2TW		556.000	817

Single Low Power

AA5AU		580.400	400
TY'IPS		380,000	585
KA4RRU		375.560	560

Single Assisted

N40NI		421.940	601
KB4GIB		370,326	594
NgCKC		311.000	594

Multi-Single High

WU3V		1,500,000	1200
DL2NBU		1.068.000	985
WgKDX		1.050,000	1142

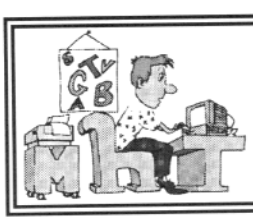
Multi/Multi

KING		2.7Mi1.	2273
W3LPL		2.6Mi1	2192

Single Band

KTWUW	40M	16,401	
N2AA	20M	160,000	499
K4IISF	20M	110.000	475
KP2N	15M	300,279	847

de Ron AB5KD <ron481@austin.relay.ucm.org>



The Last Word

from the Publisher

Jim Mortensen, N2HOS

Ian G4EAN corresponds regularly with me via the combined forces of Internet and CompuServe (his Internet address is ibx@cs.nott.ac.uk). Normally the content focuses on the doings of BARTG. But his most recent memo tells of an event that casts a gray cloud over the image, and perhaps the future, of amateur radio in the UK.

". . . I'm off to London on Thursday for a look around 'the largest consumer electronics show in Europe.' You know—video games VCR technology, photography, etc., anything for the hobbyist with lots of buttons, I expect. The RSGB (the ARRL of UK) have a stand there as do several of the larger ham retail stores. I'll be interested to see how busy they are. I'll not be surprised to see that hobby interest in the UK is tending towards 'users' rather than towards the traditional 'engineers.' These people would rather sit in front of the computer watching the Internet screen than learn how the radio networks are set up and controlled."

"Worryingly, the London Science Museum (the equivalent of the USA's Smithsonian) is closing down the ham station there. GB2SM was set up in the 1950's. 'They' feel that it has no place there in the 1990's because Internet and such now dominate! And I thought that museums were an institution to educate rather than just to show 'what is.' After all, the Museum has a large gallery of old aircraft, steam engines and so on. By viewing these, the visitor appreciates how technology developed. The removal of GB2SM closes down an avenue through which the visitor received an insight into the engineering side of communications. Continue that trend and all we will have in the future is a group of 'users' with no 'engineers.' Who will develop and maintain the systems and networks?"

While the London Science Museum might not represent the 'official' view of amateur radio in the UK, it is clear that the hobby has been seriously downgraded there in the eyes of those who no doubt claim to represent their countless thousands of visitors each year, if not the general population as a whole. If we in the USA had a station in the Smithsonian we would no doubt suffer the same indignity. The trivialization of the magic of radio continues and our image suffers in concert with the trend. Radio is no longer an exciting, wholesome word these days, or so it seems. The purveyors of the new technology think the "R" word recalls the crackling medium of the 1930's, or some other old fashioned image. Thus, the newest wrinkles are described as "wireless this" or "wireless that" and the word radio never appears in the breathlessly exciting descriptions of the new marvels. "Radio," in other words, is something you buy at the local toy store while "wireless" is the real thing, the new world, the state-of-the-art whatever.

Are they wrong? Probably not. We no longer have a corner on science, mystery, mastery of distance or technology . . . and certainly lack the public's interest, at least in comparison to the real or fancied achievements of the day. Why would anyone, for example, spend $3500 (or $10000 or $25000) for a ham station and one of those funny looking antennas to communicate with a friend in Europe or Asia or Africa (let alone California) when you can send a five page fax to anywhere in the world for two or three dollars? Or run a five minute phone call for no more than ten or fifteen dollars? Or make a two week visit for less than one thousand? Tough questions.

As I write this, one of the workmen is installing motorized drapery pulls for Gen. She'll can open them up to the outside world at a time of her choosing . . . whether I am around or not. There is no switch on the wall. An RF link pulls them open as easily as changing channels on TV. I look across the room to my cellular phone, a six ounce gem sitting on its charging stand, the cellular tower just a mile away. Another RF link we now depend on. The garage door opener . . . . the burglar alarm. The "panic button" module triggers via an RF link a series of events that impresses the casual observer more than the DX Cluster operating over there in the corner of this room. And this evening the news talked of the life-saving operation supervised via a satellite TV link by a surgeon 8000 miles away! The truth is we are surrounded by, and accept as a completely normal phenomenon, the convenience and power of wireless communication and its wonders. And we have no regard, as Ian rightly points out, for the engineering involved in the delivery of such wonderful appliances. In fact, we couldn't care less . . . as long as the thing works. If it doesn't work, we throw it out and buy a new one. So much for radio. So much for technology and engineering.

What does it all mean? Are we a threatened species? Perhaps not on HF. We can continue indefinitely to have our sports—contesting and DXing; occasionally do a sterling bit of public service through emergency links around the world; and develop, then treasure the long term relationships as we go about the business of advancing the art of digital communication. We do all of that very effectively. Besides, the big money is not interested in the HF frequencies. They want the VHF/UHF turf and we are vulnerable. Our saturated packet nets and voice repeaters, populated by the vast majority of the amateur community, have but a tentative hold on frequencies that can be auctioned off for billions and billions of dollars. It is unfortunate that those who decide when and where to hold the next auction have an insatiable appetite for money. And they have discovered a gold mine, a bonanza in the RF spectrum. The money is free! No new debt, interest, taxes or fees are involved. It is billions of pennies from heaven, so long as the supply lasts! Ah, as the saying goes, there's the rub. The usable spectrum is but a fraction of the demand. Beware, for the loss suffered in the 220Mhz squabble is but the first chapter. The events at the London Museum create an unsettling ripple in the pond.

Wayne's article on spellers reminds me of one of the fine features of Word 6.0. AutoCorrect is one of those tools that won't do much unless you take steps to fully utilize its power. I now have over 300 mini-macros in it. For example, if I start a sentence without capitalizing the first word, it does so. If I misspell (as I often do) "the," "its," "and" or a hundred other words it automatically corrects them. When I type two letters it spells out Dale Sinner or Tom Arvo or AMTOR, American Digital Radio Society, etc.. It saves me countless keystrokes as well as mistakes.

It's the perfect tool for the digital keyboarder. The only problem is I have yet to meet the genius who knows how to put it into the software in use every day we are on the air. It requires someone who has both the skill to accomplish it, and the desire to be a hero to thousands of us who admit to making a certain number of errors every time we sit down at the keyboard! Any volunteers?

Attention contest managers! The Journal is very anxious to keep everybody informed about both the rules and results of all the digital contests. Here's how to get it done right and on time. Send the rules and date information to Rich N6GG. As always, he will work the information into his column at the appropriate time. The results of the contest, however, go to Tom WA8DXD at the ADRS Florida address. If you have something that doesn't fit either description, drop a note to Tom and we will make sure the news item is handled correctly. Thanks.

Apologies to BARTG and 149 others. The BARTG results are a month or so late this year, thanks to the postal delays the ADRS encountered. On September 7th, Tom picked up a big package from our box in Goldenrod. Surprise! In it was 150 pieces of mail, some of which dated back to late June or early July. Someone in the NY Post Office was kind enough to dig it out of a dark corner, pack it up and send it on down. No one knows how it got there, of course. While we appreciate the effort, the frustration felt by many whose mail was delayed chagrined us all. For weeks we were

(cont'd on page 28)

DIGITAL DIGEST

News, Views, Tips & Reviews

from the editing desk of Tom Arvo, WA8DXD

OPINION

Response to Band Plan Commentary. . .

First, it is the first I have seen in print what seems to recognize a need to rethink our band plan for digital operations instead of bawling us out for not sticking to the one we have.

Second, I agree with those that cite BBS operation as part of the problem. I wonder why we need so... many of them? I do use them so I understand-how-useful-they-are. Could we adapt some sort of plan ..... similar to the one used for 2 mtr repeater frequency allocation to limit the number of stations operating BBSs? I know many BBSs are on the air to enhance the operator's feeling of self worth.

Third lots of problems are caused by stations keying up even though another station is already using the frequency. Some of this is just uncourteous operation. Some, I don't know how much, is caused by operators having only SSB filtration for the digital operation. They never hear a clear frequency' because their filters are so wide. Consequently they just operate hoping they are not causing interference. I have a friend who operates this way. I know that at times he has a great deal of trouble passing any traffic with all the QRM he hears. Education on the benefits of using better filtration maybe part of the answer here.

Forth, I want to jump on a soapbox for a second. While Dxing and Contesting are popular and legitimate uses for ham radio, I don't totally agree with those that say these operating events necessarily promote better operating practices.

All of this leads up to my proposing that hams who do not read or at least don't comply with the hams code of ethics is really what the problem is on the Digital portion of our bands. If we really followed those simple suggestions found in the code of ethics, interference would be at a minimum; especially on the digital modes where, except for RTTY, both stations in a QSO are transmitting at the same time. There is no excuse for a third station to start transmitting on top of them.

I started in the digital modes over 8 years ago. Amtor was just a baby when I got my PK-64 on the air. There was little problem with interference until the BBSs started to really proliferate. Especially when they started out by beaconing every few minutes. Thank goodness that practice is not common anymore.

Thanks for the great article and the great JOURNAL!!!!

73, Doug WA6IEL

##########

Response to article on the Information Highway . . .

I was on the HF bands just after the LA earth quake. For at least the first few day light hours after the quake all out of area phone calls were blocked. Both incoming and out going were blocked. Plus friends in the area reported using Cel phones even for local calls was impossible due to the circuits being busy. Other problems using Cel phones includes wide spread loss of power during major disasters. Many agencies such as the Red Cross and Salvation army don't have the budgets for even modern radio system let alone cellular systems. Plus much health and welfare traffic can be passed in and out of a disaster area using amateur radio, thereby saving other communication systems for more "important traffic". Read QST and other popular ham rags to see why ham radio still has a future in disaster corns. Many like yourself assume telephones will be available no matter what, but it just is not true. Not yet anyway and it will be some time if ever before they will be.

Your article still raises many valid points and should serve to. help inform many hams about the coming wireless revolution. Spectrum auctioning may be the biggest of the threats to our bands. Thanks for taking time to provide such a great article.

73, Doug WA6IEL

Observations from the last CQWW RTTY DX contest . . .

Hello DJ, here are my observations/thoughts during the CQ WW RTTY DX contest last weekend.

. . .Traffic from 14.060 to 14.095 MHz . . . A station calling a mailbox on 14.075 was asked to QSY . . . I monitored W1 to W4 and W7 to W0 with strong signals . . .

RTTY is the BEST digi mode! When calling CQ in clover I never got an answer from the States, I can easily link with WB1DSW though he points his antenna only to southwest for traffic transfer. It's also possible to link with W2TKU when he is pointing to EU. It seems to me that Clover is only used in W for mailbox traffic transfer? Because of my QSO's with EU stations (I use to call: "CQ G-tor/Clover de... " 4 radio amateurs bought the PCI4000/m and are now QRV or wi11 be in a few days.

ON6RO, who had already installed his Clover MBO had no luck. During a thunderstorm his computer was damaged. I was told that in a few days he will be back on the air as the first EU Clover MBO. HAL is absolutely inactive here. I saw only one advertisement many months ago in CQDL. Is it true that HAL will be selllng pactorII in the US? (So say the SCS people.) They (SCS) act very aggressive against Clover. DL amateurs use to wait for PactorII because it's made in Germany! Can you put a note into the DJ telling hams that there is a growing Clover community in EU and ask them to listen to CQ calls around 14.066 MHz? Most of PCI4000 owners don't use the board as they are frustrated at receiving no answers to calls.

73's, Fred DK4ZC

South Georgia Island DXpedition

** Donations Urgently Needed **

The South Georgia Island DXpedition team of Al WA3YVN (VP8SSI), Jan WA4VQD, and Vince K5VT will operate for at least 15 days from South Georgia, Jan. 4-19, 1995. They will have three HF stations on all bands, CW, SSB, and RTTY, well-equipped for low-band and new-hand operation.

Please help make this a successful operation. All donations will be used for non-personal expenses. (A used Kenwood TS-440 AT or equivalent is needed for donation to the ship for future operations of opportunity. Please: contact AI WA3YVN at (404) 7270201 or fax: (407) 728-8072 for details. We will pay for shipment and donor will be recognized on the QSL card.)

Please send your donations today to:
SGI DXpeditions, P.O. Box 2235,
Mclbourne FL 32902

QSL cards will be handled by INDBXA,
c/o John Parrott W4FRU, P.. O. Box 5127,
Suffolk VA 23435.

PacComm's PacTOR Controller

- PACTOR, AMTOR, and RTTY modes, Packet option
- Error-free data transmission
- Up to four times faster than AMTOR
- Complete ASCII character set supported
- Memory-ARQ with analog to digital converter restores bad data packets
- On-line data compression. (Can be disabled)
- Automatic speed adaptation 100 or 200 baud data rates
- Handles BINARY transfers
- UNPROTO mode (FEC)
- Listen mode to monitor PACTOR QSOs
- CW Identification capability
- Built in Message System
- Automatic logbook function which is accessable over the air and locally
- LED digital tuning display
- 16 status LEDs
- Selectable for either 'High Tones' or 'Low Tones'
- Meister Term program included
- VHF packet card may easily be added internally
- Licensed from the German inventors
- Cables and power supply included
- One year warranty, 30 day return privelege. Still only $295

PacTOR Chip Shortage?

Our German friends are selling a new Pactor model because they have run out of ICs for the original design. PacComm planned ahead and we have plenty of ICs for new production and for repairs.

PacComm's PacTOR Controller

Reviews of PacComm's PacTOR Controller: (Call or write PacComm for a reprint). January 1993 **QST**, New Product Reviewand February 1993 **Ham Radio Today** (UK) November 1993 **RTTY Digital Journal**, page 18. "Review" by Phil Sussman, KB8LUJ March 1994 **QST**, page 67. "Plug into PacTOR".

PACTOR, PACTOR-II, CLOVER, G-TOR, Who knows what else!

There has been so much development recently in HF protocols that we now have a tower of Babel situation. Your PacComm PacTOR unit will communicate with most all other HF digital operators - PacTOR, AMTOR, RTTY. Specialized protocols severely limit the number of stations you can communicate with.

Keep this in mind: PacComm pioneered PACTOR in the USA with a solid product that WORKS. We will continue to offer the PacTOR model. Perhaps other vendors are announcing 'something new and better' because their Pactor implementation didn't work very well!

Why Can't It All Be Done In Software?

One of the key features of the PACTOR mode is Memory-ARQ. Copies of corrupted frames are saved and correlated with frames received later.

The key to proper Memory-ARQ operation is an analog to digital converter (ADC)- an item of hardware.

The ADC converts the actual strength of each received bit into an 8 bit value which is stored in memory for later comparison. Thus each bit can have an exact representation of its received value. If Memory-ARQ is attempted without the ADC, the value of each bit must be rounded down to a zero or up to a one and the 'marginal value' of the signal is lost.

Beware of cheap 'software only' PACTOR implementations. They are NOT recommended by the German inventors of PACTOR. Anyone's implementation of PACTOR will work fine under good conditions. When the QRM is rough and the band is fading, the PacComm PACTOR will continue to decode signals too weak to hear.

PacComm Offers a wide range of Digital Communication Equipment

- NEW! **SPRINT-2**. A TNC for the 90's! Does not support 1200 baud! Does 9.6, 19.2, and 38.4k DFM for terrestrial, satellite, and network use. 57.6 bps serial port. 128k RAM, Personal Message System, GPS, DX Cluster, and deviation meter support built in. Proven G3RUH modem design for superior performance. **ONLY $199**. Optional received signal deviation meter, S-meter, and two channels of temperature measurement.
- Coming Soon: **SPRINT-2/RF**. A SPRINT-2 with a 2 watt data trasnsceiver and optional 25 watt amplifier. 2 meters (9.6) or 70 cm (9.6 to 38.4k). Optional RX & TX signal deviation, S-Meter, supply voltage, and transmitter temperature monitoring.
- **HandiPacket**. A complete battery powered TNC in a cigarette pack sized case. Full Featured!
- **TINY-2 MK-2** TNC. Over ~~14,500~~ 16,500 in service. A TNC-2 compatible for network node or personal station use. Includes KISS, DED host mode, and PacComm's Personal Message System. Now with a major new firmware release.
- **BayMod** Modems. Miniature modems in 9 or 25 pin data connector with latest BayCom software.
- **Satellite Modems**. 1200 baud PSK for Oscar 16, 19, and 27, and 9600 baud DFM for UoSAT birds.

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Order Line: (800) 486-7388
Switchboard: (813) 874-2980
Facsimile: (813) 872-8696

Announcing the premier Digital Contest.

February 4th and 5th 1995 your ADRS brings one of the most popular events in contesting to you. A WPX RTTY contest. It starts 0000 UTC Saturday and runs 48 hours. Your ADRS brings the most plaques and certificates of any digital contest.

Ron AB5KD and Jay WS7I are the co-chairmen and have attempted to make this event a little different. Packetcluster's for all. We want lots of Multi-Multi's so lots of M/M plaques. Low power for single operator's and special low-band points. The exchange is RST plus a serial number.

For ADRS WPX Rules, Log forms or Information contact: Ron Stailey, AB5KD, 504 Dove Haven Dr., Round Rock, Tx. 78664-5926

Don't forget the easiest category for a plaque will be M/M! These are fun to do. Mark your calanders, First Weekend in Feburary!

TROPHIES, PLAQUES and DONORS for the ADRS WPX

Multi-Multi

WORLD --------Kantronics Inc.
N.AMERICA-----John Troost, TG9VT Memorial (by W2JGR)
EUROPE--------Eastern Washington Amateur Radio Group
ASIA----------George Clausson, K7WUW
S.AMERICA-----George Wesley, KB2VO

Multi-Single

WORLD--------Advanced Electronics Applications, Inc.
USA----------RTTY by WF1B
N.AMERICA----Phil Duff, NA4M
S.AMERICA----ADRS Directors Plaque
EUROPE-------Jim Mortensen, N2HOS
ASIA---------Ted Marks, W2FG

Single Operator, All Band (High Power)

WORLD--------Ron Stailey, AB5KD
USA----------Irv Hoff W6FFC Memorial (by WA7FAB)
N. AMERICA---Hal Communications, Corp.
S. AMERICA---Pat Cardozo, HH2PK
OCEANIA------Shido Takahashi, AH6JF
AFRICA-------Euraf Communications, Benin
EUROPE-------Bill Helman, NA2M
ASIA---------Jim Colville, WB7AVD

Single Operator, All Band (Low Power)

WORLD------- Rich Lawton, N6GG
USA--------- Don Hill, AA5AU
N. AMERICA---Ron Hall, KP2N
S. AMERICA---Warren Sinsheimer, W2NRE
OCEANIA------Wayne Matlock, WA6VZI
AFRICA-------John Lockhart,WA0VQR
EUROPE-------Eddie Schneider, W6/G0AZT
ASIA---------Hal Blegen, WA7EGA

Single Operator - Single Band

WORLD 10 MTR--Robert Chudek, K0RC
WORLD 15 MTR--Washington Educational Foundation (by WS7I)
WORLD 20 MTR--Les Bannon, WF5E
WORLD 40 MTR--Barry Kutner, W2UP
WORLD 80 MTR--Tom Arvo, WA8DXD

The Official ADRS BBS Moved to New Location

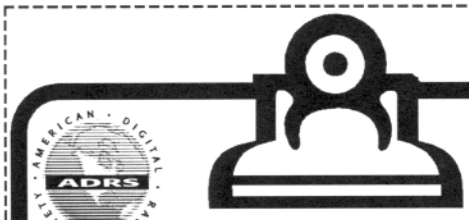
More changes, BBS and FAX. The official ADRS BBS has moved south. Dick, W4KAU volunteered to take over the care and feeding of this important aspect of our service. He runs a very busy, general BBS, but has set up a special place for ADRS, and ham-related material to ease your use of the board's software. He can run at speeds up to 28K baud, but, like most BBS sysops, he will soon discontinue servicing 2400 baud callers. Those old modems are too slow and tie up the lines for too long a period of time... and, of course, are expensive for the caller as well. His data line is 706-694-3295, voice line is 706-694-8369.

Brief Tutorial

All new users are required to answer a simple questionaire along with your name and callsign. Dick's Hi-Tech Gateway BBS uses Wildcat! software. This system is pretty easy to use if you read the menus carefully and help is always there with the [H]elp command. When you sign on to the BBS also be sure to state that you are a member of ADRS.

Sorry - Wrong Number!!

Re: The Contest Survey. In the October issue, we inadvertently published the wrong Internet address for Ron, AB5KD It is now correct. Please resubmit if you responded previously on Internet to the survey.



CONTEST SURVEY

We need your opinion.

Please take the time to answer the following questions and reply to Ron AB5KD (address below)

1. Your Callsign_____ (optional)
2. Contesting Experience (years): Digital___ All Modes___
3. Would you be in favor of an ADRS Hall of Fame for con testers? (One addition per year, plaque to be presented at the Journal dinner at the annual meeting). Yes___ No___
4. Would you be in favor of a Contester of the Year award? Yes_____ No_____
5. If you favor either or both of the awards. how should the winners be selected?
6. Should Contester of the Year award be for multiple categories (high power, low power, multi/single, etc). Yes No
7. Should Contester of the Year award be a single worldwide award or broken down by geographic area? Check One.
   ❑ Single WorldWide ❑ Broken Down

Please respond to:

Ron, AB5KD, 504 Dove Haven Dr., Round Rock, TX 78664 or "Internet:ron481@austin.relay.ucm.org," or via packet at AB5KD@W5SYT.#AUS.USA.NOAM.

Results will appear as soon as possible.

(Last Word - cont'd from page 24)

at a loss to explain the lack of mail, the lost checks, late membership renewals, missing Express orders, etc. I am sure many felt our procedures were out of control! Hopefully, the damage has been repaired, everything restored to normal. May it never happen again.

Did Ron do it? Elsewhere in this issue, Ron AB5KD suggested that he would "do anything" to win the CQWW and beat a certain station in the three call area. Well, maybe he did. Rumor has it that he traveled all the way to Rhode Island from Texas and joined a team that now claims to have won the big one. We will hold the applause until we hear more, but it sounds like Ron will have to set some new objectives.

New members are always welcome, but this one is a bit special, at least to me. Gordon VK2AGE, sent a note from the Sydney airport. Enroute to Europe and then to the Seanet conference in Malacca, he wanted to make certain he was a member. "Sign me up for whatever this bill covers," he said. There was a friendly US note wrapped carefully inside the envelope. Back in the days when the discovery of Aplink was such a wonderful adventure, Gordon, along with Frank WA1URA/8, John TG9VT, Craig WA8DRZ/6 comprised much of my radio world. And I linked with VAGE almost every day so I could stay in touch with friends in Europe, JA, VU, maritime mobile and even South America. His station rotates the beam to match propagation so it is (or was a few years back) generally accessible from all parts of the world, and it was a pleasure to use. Welcome aboard, Gordon. By the way, his station will be back on the air the 16th of November right after his return from the long journey.

Speaking of old-timers, Al W2TKU runs a complex of stations in Sarasota, and has since the earliest days of digital networks. Now he is going QRT. When I first met him, he was running seven or eight HF/VHF/UHF radios all the time and had a maze of antennas above and around his house. If you have ever received a message from anywhere in the world, it was probably handled by Al somewhere along the route. He has earned some rest! It's time for a bit of fun. Maybe he can get on the air and enjoy a keyboard conversation or two now, instead of devoting all of his time to pushing traffic around the globe. Thanks for the good service, Al.

Next month we will have a report on the Director's meeting. The Charlotte pow-wow takes place about the same time you receive the November issue of the Journal. Lots of other interesting stuff is in the hopper as well.

73 de Jim N2HOS sk.

ERROR CORRECTION

to WS7I's All-Time CQWW RTTY Records reported in the September issue of the Journal. PJ2MI should have been listed with the All-Time 40 Meter Single Band Records instead of YW1A.

PAGE 18, 9–1–94, 21875 — POSTAL BULLETIN

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RS-232C and COM PORT booklet: This is a compilation of all articles published in past issues of the RTTY Journal on these two very important topics. If you are using a computer in conjunction with Ham Radio, you will find this booklet an invaluable tool to have in your shack. The booklet contains information about COM ports 1,2,3 and 4 as well as the RS-232C information. Send $5.00 to the ADRS, PO BOX 2550, Goldenrod, FL 32733 and you will receive a copy of this invaluable booklet by return mail, postage paid.

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For Sale - PCI-4000 HAL CLOVER board. Complete with cables and software. $600, I ship. Certified check or Money Order. Gary Kaehler, W7DCR, P.O. Box 750 LaPine, OR 97739; 1-503-536-3153.

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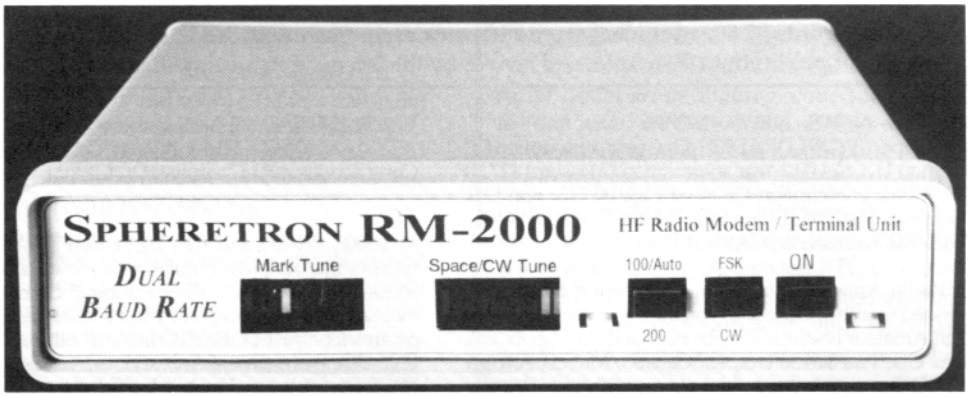

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(Contesting - cont'd from page 22)

COMMENTS: This is an all-digital 10M contest, except for HF Packet, and it is 6 hours long. It occurs on Sundays, 4 times a year. There are no multipliers for USA call areas. Just the STATES count for mults. This means that only your FIRST USA QSO in the contest will count for a DXCC/WAE country mult, along with the State mult. No indication was made about counting multipliers again after changing digital modes. No mention was made in the official rules about how to count KH6/KL7. Are they USA states or separate countries? Most contest rules count them as separate countries. I plan to do that. It makes more sense and is less confusing. With the propagation forecasts looking rather poor for 10M, this Contest will really be a 6-hour challenge. Let's see if the really high power stations can ionize some paths for us. Stay tuned (up).

TARA RTTY SPRINT

December 10-11 1994

Sponsored by Troy Amateur Radio Association, New York

CONTEST PERIOD: Second full weekend in December. Starts at 2100Z Saturday and ends at 0100Z Sunday. (4 hours)

MODES: RTTY ONLY

BANDS: 80, 40, 20, 15, and 10M

CLASSES: A) Single op, all band; 1) Less than 150W output 2) More than 150W output B) Multi-op, single transmitter

EXCHANGE: USA stations: send RST + state
Canadians: send RST + province
All others: send RST + QSO nr.

MULTIPLIERS: each USA state, DXCC country, and each Canadian province, + VE8 & VY1. NOTES: Þ Multipliers count only once, not once per band. Þ KH6 & KL7 count as DXCC countries only. Þ USA & Canada do NOT count as DXCC countries.

QSO POINTS: Count 1 point per QSO.

FINAL SCORE: Total of QSO points x total of mults.

DEADLINE: Logs must be received by January 17, 1995. Mail to: Bill Eddy, NY2U c/o TARA 2204 22nd Street Troy NY 12180

COMMENTS: Strictly a 4-hour RTTY speed contest. All rules, scoring, bands, etc., are the same as ARRL RTTY Roundup. There are NO band multipliers. It's a good workout for quick band changing and trying different CQing techniques. Since the rules are the same as the 'Roundup, you can use the same logging software, too. It should be a good tune-up for the 'Roundup 4 weeks later.

#########

...WEAK SIGNAL RECEPTION... PREPARE!

The declining sunspot cycle brings, once again, the temporary demise of 10M DXing. Ten meters is a spoiler. When its in, its wild! When its out, all the power in Haiti won't get you much beyond line-of-sight propagation. Face it. We have to migrate down to the bread and butter bands of 20 and 40M, and even some 80M, too. Fifteen meters will still have some activity, but mostly during daylight paths, and with weakened signals.

When band openings occur on 15 and 20M for the next few years, DX signals, on average, will be weaker. Nighttime signals on 40 and 80M will be a bit stronger because the MUF will tend to hover around the 5 to 10 MHz area. Since static (which is mostly lightning) is also propagated by the various reflective layers of our ionosphere, it too will be stronger, and is a major factor limiting weak signal reception on the lower bands. Having antennas with gain is not necessarily the solution. Sometimes gain can help if the antenna is horizontally polarized and the desired signal is in a direction away from lightning storms. Here's a discouraging thought for those with vertical phased arrays or slopers: Most lightning bolts radiate vertically polarized radio signals.

The common thread that weaves through all of this is: How can we improve the signal-to-noise ratio on the low bands? Here's a few thoughts for starters:

* Use the Antenna Attenuator Switch. It is often quite surprising how the Attenuator can knock down loud static crashes, power leaks, or QRM from a computer monitor flyback transformer and, at the same time, make the signal more readible. How come? The reason seems to be that the attenuator circuit creates a non-reactive (resistive) 50 ohm load for the signal source, which is the antenna. The transceiver's receiver front end is now forced to see 50 ohms. If the SWR on your antenna coax is not all the greatest, then the attenuator makes the coax look at 50 ohms right at the receiver, which tends to minimize interfering signals picked up by the coax. It does indeed drop the desired signal strength but the noise will drop more. To compensate for the signal strength, merely turn up the RF gain control. This trick, I've found, also helps diminish computer noise.

* Reset RF/AF gain controls. Your transceiver RF/AF Gain controls have to be set differently for reception on the low bands. First, make sure that the AGC switch is set to the "FAST" position. FAST is better than OFF if you wear earphones because those big loud static crashes can destroy your hearing! FAST AGC can catch most of the crash before it reaches your ear, if it is set properly. Here's how: Best setting for the RF Gain control during static crash conditions is to watch the "S" meter as you decrease the gain, until the meter only kicks on the loudest crashes. Then increase the Audio Gain until the TNC Threshold indicator just occasionally lights with those crashes. Be sure to use the CW filter in the transceiver's IF strip!

* Use a horizontally polarized antenna for receiving on 40 and 80M. To minimize wind and rain (and snow) static, best is an antenna that is a closed loop, such as a folded dipole, or quad loop. It prevents an accumulative static charge from collecting on the antenna. I'm sure most of you have heard that maddening zapping, ticking, variable speed racket during a rain or snow storm. Check your transceiver manual for details on how to hook up a separate antenna for receiving. While transmitting, its input to the radio should be shorted, and/or grounded to help prevent the receiver front end from frying. On my Kenwood TS-930S I use the Transverter receptacle (pin 5), along with a very fast SPDT DIP relay for input grounding (500 micro-second pick time). The receiving antenna does not have to be high off the ground. Ten feet is enough. It should be placed away from your transmitting antenna. Also, away from pesky man-made noise radiators, such as TV antennas (they can radiate the 15 kHz flyback transformer RF), and leaky power lines.

* Try the noise blanker on static crashes. If your transceiver has a good noise blanker, give it a try. Don't expect miracles, but experiment with different settings while monitoring the incoming garbage. Mine certainly works well on power line noise leaks and ignition QRM, which I don't have much of around here in the Sierra foothills.

* How about a "rotary null" antenna? Those with a bent toward antenna tinkering might just be challenged by designing such a gadget for the low bands. The need is to be able to point a null right at the source of the static or interference. It would require deep sharp nulls and a very slow and accurate rotating mechanism, like string-driven pulleys and a crank wheel. Or perhaps geared selsyn motors. The antenna could be a multi-turned loop or ferrite rod. An attic location would be ideal because there could be no wind, rain, or snow static.

* Try "Force Letters" or "Force Numbers" while watching the garbage. I've found that when a static crash knocks the RTTY out of sync, causing numbers and letters to be swapped, like "RST 599 TOO," just hitting the "Force Numbers" key combo usually flips it back to right-side-up.

It is surprising how a truly weak RTTY signal - I mean right down into the noise level - can be read. It's almost as good as CW, and much better than SSB. Improving the signal-to-noise ratio is a kind of witchcrafty subject that doesn't seem to get much attention. During these lean years, this challenge should be tackled. These suggestions are only a start. There's more than one way to cut the mustard - or is it pork? Hm-m-m... Guess I'll have to ask my congressman about that!

((73))... See you in the pileups, *Rich, N6GG*

P.S. Drop me a line with an idea to share, Or, drop me a line with an item to air. Drop me a line with anger to bare... But don't drop ME... 'cause I care!

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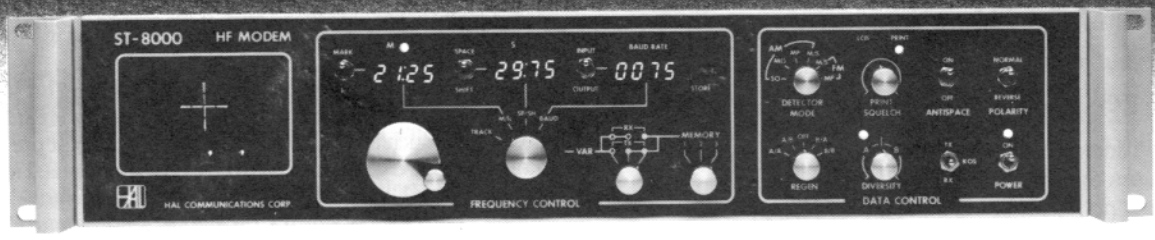

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