Mt. AIRY V.H.F. RADIO CLUB, INC.

CHEESE BITS

W3CCX

CLUB MEMORIAL CALL

ARRL Affiliated Club

Volume XLIV **May 2002** **Number 5**

PREZ SEZ

It's time to think about how to improve your station, plan now and get going. Antenna projects are best done in warm weather and with lots of proper planning; let's not wait till this fall or winter.

We had a very successful ARRL Night Thanks to Zach Lau W1VT his wife Mary N1VH, Also Kay Craigie WT3P and Eric Olena WB3FPL. It's great to see what it takes to go though and set up a portable operation. It seems overwhelming for one person but Zach does a super job. We should all be thankful as a club we have each other to help set up stations in June, and well even our home stations we are not alone, one of the reasons for our club as stated in its constitution: Objectives "To promote an interchange of ideas and technical information between members and assist each other in design, construction, and adjustment of radio equipment." So don't be afraid to ask for help or to offer help when needed.

As you may know our hamfest, ***Hamarama*** will be on Sunday, October 13th. Usually we have our technical conference on the Saturday prior. Well, this year Microwave Update is being held on October 24th thru October 27th in Enfield CT. It is sponsored by the N.E.W.S Group. For this reason we will not hold our conference this year, but we will be back for 2003. The N.E.W.S. Group and others from the northeast came and attended Microwave Update when we sponsored MUD. The board feels it is only right to show the same support. John Sorter, KB3XG, never at a loss for ideas, recommended that we hire a bus, fill it with Packrats, Packrat friends and good cheer and make it a FUN outing for a weekend at Microwave Update. If your interested in taking the bus with us, there are 56 spots available. Drop me or John an e-mail or phone call if your interested. Remember, you don't have to be a member, just a weak signal enthusiast like the rest of us.

In May we will be having our Awards Night, Paul WA3GFZ has been working very hard at getting awards sponsors and getting the awards made. I just realized I might not be at the May meeting due to the annual trip to Dayton. Well maybe I can figure out how to be in two places at the same time. SEE YOU ON THE BANDS **73 BRIAN**

Griff, NE3I proudly shows off his "Homebrew" pint flask to share with the judges H. P. Drexler, W3ICC, Bob Fox, W3GXB Mike Sabal, KB3GJT, in hopes of being an award recipient during Homebrew Night last month. He even brought along several cups to share the project! All in fun and left over from April Fools!

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PACKRAT 222 MHz REPEATER - W3CCX/R
222.98/224.58 MHz, Churchville, PA

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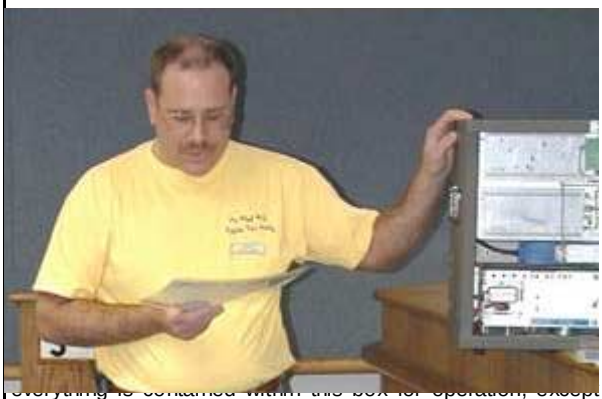
January Contest	AA3GN	215-721-4286
June Contest:	N3ITT	610-547-5490
HAMARAMA:	W3KJ	215-256-1464
VHF Conference:	KB3XG	610-584-2489
Awards Chairman	WA3GFZ	215-884-3116

PACKRAT BEACONS - W3CCX/B
FM29jw Philadelphia, PA
50.080 144.284 222.065 432.295 903.071 1296.251 MHz
2304.037 3456.220 5763.190 10,368.140 MHz (as of 3/1/01)

MONDAY NIGHT NETS

TIME	FREQUENCY	NET CONTROL
7:30 PM	50.150 MHz	WA3EHD/K3EOD
8:00 PM	144.150 MHz	N3ITT
8:30 PM	222.125 MHz	W2SJ/N3EXA
8:30 PM	224.58R MHz	W3GXB
9:00 PM	432.110 MHz	W3RJW
9:30 PM	1296.100 MHz	WA3NUF
10:00 PM	903.100 MHz	N3AOG

THURSDAY NIGHT NETS (1st & 4th of the month)
9:30 PM 2304.100 MHz W3KJ, & go to 3.4G & up after



N3FTI, Steve, shows off his homebrew project as he applies for club membership. This 5&10GHz transverter combo uses a TWT for both bands, and everything is contained within this box for operation, except the 2m IF. Steve operates from portable locations, using generator 115VAC power.

Editor's Column

It was a frosty morning, but awoke after 5AM to meet Ed, WA3DRC and Paul, WA3GFZ and we carpooled to the Timonium Hamfest. Met several other Packrats there and Ed was able to get a load of 5gHz waveguide parts (info in next edition) for further construction use. It made for a good lesson in what's useful for what applications for me. Now I can appreciate why we use circulators! The size of the Timonium Hamfest allows one to spend all weekend there perusing computer hulks, vintage gear, dealer displays, and the usual array of slightly used ham gear. A mini-version of Dayton, we had our fun and left about 5 hrs after arrival, our mission accomplished. I didn't even have to sneak back into the house, as I quickly unloaded the Spider Antenna and resonators into the van in the garage, and then entered the house with only a small bag of cables, connectors and a few rolls of tape, and a low-band G5RV wire antenna kit. Hopefully those purchases will help me round out my band capabilities for times when we're not on VHF and up.

The next day I saw the Brother HL-1440 Laser printer on sale at another store for $250, and I took the ad to Staples, where they applied their 110% guarantee, so I got an extra $5 off the price, and as those who get hard copy of the newsletter can see, the annoying vertical lines down the left hand side of the sheet have been eliminated. Keeping the desk-top printing in top shape is a priority, but I still hope that the rest of the hard-copy gang will convert to electronic copy by PDF—simply send me your preferred email address—rick1ds@hotmail.com

The Spring Sprints are about half done, and I was in town only for the 2m outing, fairly content with the results of about 50 contacts in 20 grids, similar to what most from this area did. Most reports of activity showed average conditions, and everyone got to have a shakedown run with their gear in anticipation of June. Al, N3ITT is the tireless June Contest Chairman. There appears to be a remaining opening for a 432 band captain, and hope that you will fill it by notifying him asap at 610-547-5490. The support crew for the chuck wagon, currently Doc, W3GAD and Don, N3OZO, is also seeking some new recruits, and any and all assistance is welcomed in that department.

And now on to the more controversial topic: ARRL Contest results being published on the web. Despite a flurry of comments about the potential change of these features in QST, there are many of us that are excited about the possibility of seeing a better detail of the activity in a band-by-band breakdown of the scores, and an expanded picture set and soapbox (see page 7 for the abstract from the ARRL Bulletin). It appears that the ARRL Board will take this to a vote in July, and I want to add support for this change, as it will enhance contest reporting and hopefully stimulate even greater activity with additional pictures and stories. As this publication has become electronically distributed over the past year, the feedback has been increasingly positive, and I am certain that the ARRL will hear it that way too. If you have any thoughts, feel free to share them in an email to me for future publication in CheeseBits, or let your thoughts be heard to your league representatives now. Sample it: http://www.arrl.org/members-only/contests/scores.html?con_id=1

73, Rick, K1DS

As a relatively new member of the Packrats, receiving my first contest participation certificate in 2000 made me feel a part of the team. Recognition within the organization is an important activity and needs to be continued. In light of budgetary concerns this year, we are attempting to have the awards activities financially sponsored. The campaign has been successful so far, but we could use some more help. We are also restructuring some of the awards to give more people an opportunity to receive one. The presentation ceremonies are scheduled for the May meeting. Here is a list of the present sponsors:

Bill Murphy	W0RSJ	$100
Brian Taylor	N3EXA	$100
Owen Wormser	K6LEW	$ 75
Joe Taylor	K1JT	$ 50
Paul Sokoloff	WA3GFZ	$ 50
Rick Rosen	K1DS	$ 25

This is a terrific show of support. **Please join us in this effort. Any amount would be appreciated.**

73s, Paul Sokoloff AWARDS Chairman

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Gents, We've been in Innsbruck for 3 weeks now. The weather has been gorgeous, temperatures mainly in the 60's and we watched the snow melt on the mountains. Alexandra has been frustrated since all the ice rinks have closed and she can't go skating. This morning we woke up to about a foot of snow on the ground. The temperature is close to 32 so the roads are wet. It looks like a winter wonderland outside. We had originally decided to drive to Salzburg, since Alexandra's Easter vacation is this coming week and the University is also closed for the holidays. We decided to wait until Tue or Wednesday to go. Although I have the radio set up, I have not yet put up an antenna. I have my 706 with an Astron switching power supply and a LDG tuner. I also have my T81A handheld. I programmed the T81A for the local repeaters and made 2 QSO's on a German repeater. The stations were a YO and OZ driving in Munich (airline Munich is about 70 miles away, although by car or train it is 2.5 hour through the mountains. A DO then came on and commented it sounds like 20 M with a WA-YO-OZ qso. Listening on 20 I heard quite a few south Americans, but not many W/VE at 1200Z. I hope to put an antenna up during the week. 73, Lad OE/WA3EEC

(Lad is a PhD low-temp Physics researcher who was a VHF contester with me in RI in the 80's and helped me get access to the roof of the Physics Bldg at Brown U.for contesting...Ed)

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Warminster Radio Club Annual HAMFEST (flea market for Ham Radio, computer, & Electronic Equipment). It will be held on Sunday May 5th , 2002 at the Middletown Grange Fairgrounds, Wrightstown, PA. Open at 7 A.M. (Vendors at 6 A.M.)

Talk In on 147.09 and 443.950

- Gate donation only $5 per person
- Unlimited outdoor tailgating space at $10 per space
- 80 indoor spaces at $15 per table
- Food available
- W.A.S. field checking
- Equipment checkout table
- VE Testing - Registration 10:30 AM / Testing starts promptly at 11 am. Questions? Call Tom Michaud, WA3TQJ (215) 343-3494 or mail to tomtqj@worldlynx.net

Radio Action May 2002

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4 **Microwave Sprint** 6AM-1PM 903 & up
5 Warminster Hamfest Wrightstown Grange-details above p3	6 **Microwave Activity PM 7P-11P**	7	8	9 Board of Directors @ QTH WA3EHD 8PM	10	11 **6m Sprint** 2300Z-0300Z
12	13 Mondays are Net Nights. See P2 for times and freqs and net control starting 7:30pm	14	15			
19	20 Mondays are Net Nights. See P2 for times and freqs and net control starting 7:30pm	21	22			
26	27 Mondays are Net Nights. See P2 for times and freqs and net control starting 7:30pm	28	29			

Thursday, May 16, 8PM

AWARDS NIGHT

Come to honor the awardees and perhaps get an award yourself!

Southampton Free Library

47 E. Street Road

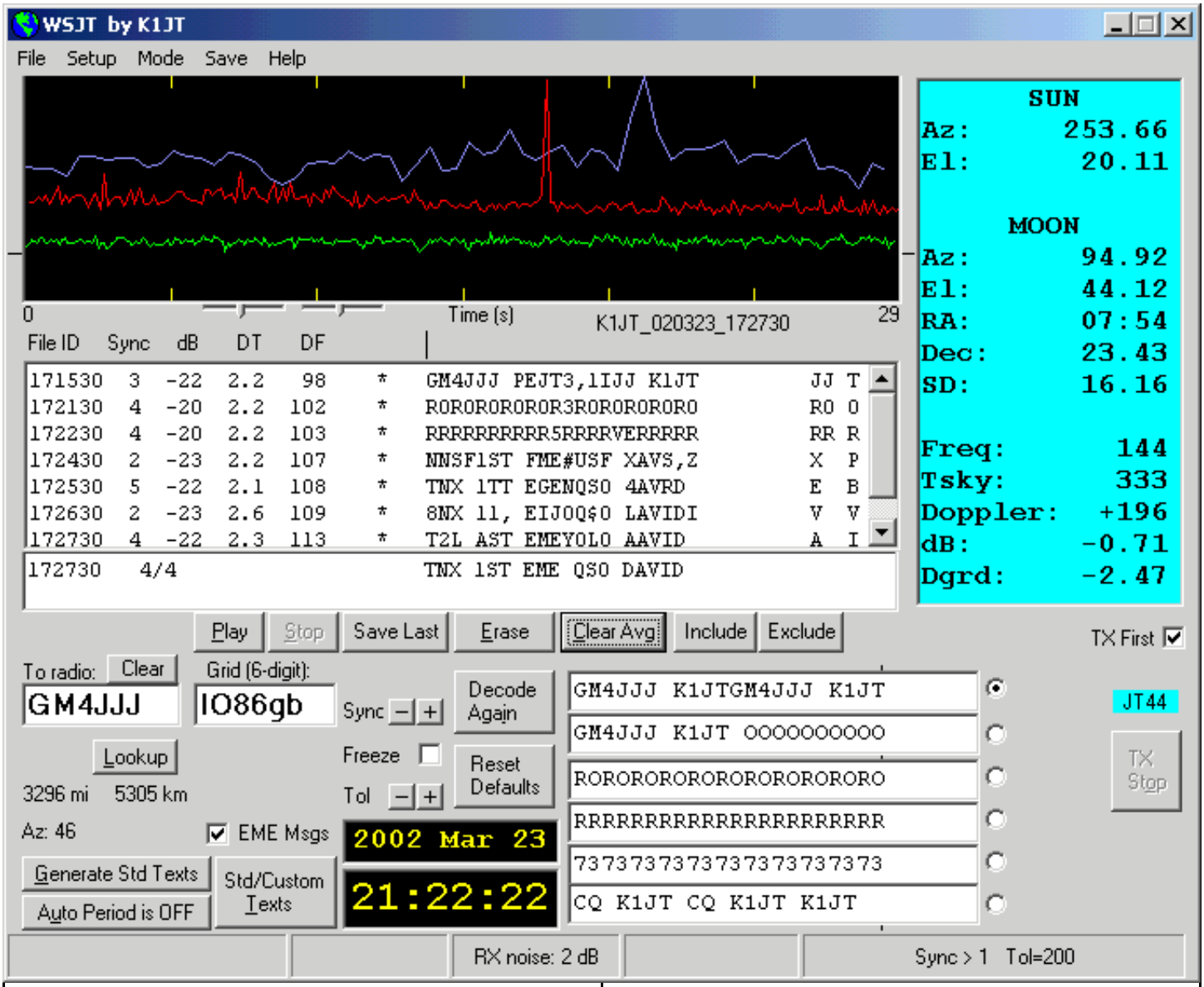
Easy EME with WSJT

Joe Taylor, K1JT

Version 1.0 of WSJT (for "Weak Signal Communication, by K1JT") was described in detail in the December 2001 issue of QST. It enables one to use a personal computer running the Windows operating system to control an SSB transceiver and communicate digitally, using weak-signal propagation modes, with other similarly equipped stations. The computer is interfaced to the radio through the sound card and a serial port. The program's modes of operation are quite different from the set-and-forget modes of packet radio, for example. WSJT requires operator skills not unlike those needed for any other sort of marginal, push-the-envelope, weak-signal communications. It lets you make contacts that would be quite impossible using more traditional modes, and is especially well suited for VHF and UHF extended tropo, meteor scatter, ionoscatter, and EME communications. The current revision of WSJT is v1.9.4, a beta release of code that will soon become a major new release: Version 2.0. In addition to the program's highly successful FSK441 mode, designed for meteor-scatter work, the program now includes a new mode called JT44. JT44 is designed for communicating with signals that are very weak but more or less steady in amplitude. Using this protocol at both ends of the path, WSJT can copy signals that are 10 dB or more below the weakest CW signals that can be copied by ear. This sensitivity makes the program extremely attractive for extended tropospheric scatter, ionospheric scatter, and EME propagation on the amateur VHF, UHF, and microwave bands. Already during the first two weeks of JT44's availability, a number of 2-meter EME QSOs have been made with it. In addition, numerous contacts have been made on all of the VHF bands in the 400-800 mile range, often using QRP power levels. One of the early EME QSOs was my own first-ever contact off the Moon on March 23, 2002. This contact took place on 144 MHz, with GM4JJJ at the other end. It was quite a thrill for me, and, surprisingly, was also quite easy: less than ten minutes elapsed from moon rise in New Jersey to reception of final RRRRs by both stations. Although I am hardly QRP, my station is not what is generally considered to be in the EME-class: about 400 Watts to four 9-element yagis, without elevation control.

The new signaling mode is called JT44 because it encodes messages using 44 distinct tones. Moderately tight synchronizing is required, with both computer clocks being set to within about +/- 1 second of the correct time. Transmit and receive periods are computer controlled and last for 30 seconds each, starting on UTC half-minutes. Transmitted audio starts at 1.0 second into the half-minute and lasts for about 25 seconds; the remaining four seconds of the 30-second period provide idle time for T/R switching, EME propagation delay, and compensation for computer clock errors. The JT44 message format involves 135 equal intervals of time, each about 0.19 seconds long, in which a single tone is transmitted. In 69 of the intervals the tone frequency is 1270.5 Hz, used as a synchronizing frequency. The remaining 66 intervals transmit tones at any of the frequencies (N+120)*10.7666 Hz, where N is an integer between 1 and 43. Different values of N correspond to the digits 0-9, letters A-Z, and special characters .,/#?$ and <space>. The 66 character intervals are used to convey a 22-character fixed-length message, which is repeated three times over. The 69 sync-tone and 66 character-tone intervals are interleaved according to a pseudo-random sequence that has the desirable mathematical property of allowing the receiving station to synchronize in time, as well as in frequency, with the transmitting station. Detecting and aligning the sync-tone pattern is the principal "secret weapon" of JT44; in practice, it allows the software to accommodate frequency offsets between transmitting and receiving stations as large at +/- 600 Hz, and relative clock errors in the range -2 to +4 seconds. An asymmetrical time range was chosen to enable WSJT to readily accommodate the extra 2.5 seconds of EME propagation delay. Using slightly more than half of the transmission time for the synchronizing tone costs approximately 1.5 dB in signal-to-noise ratio. This turns out to be an excellent trade-off, in practice. It means that transmissions will "sync up" reliably at the receiving end, even when the S/N is around -25 dB relative to the received noise power in a 2500 Hz bandwidth. Note that by comparison, the minimum CW signal strength that can be copied is about -11 dB relative to same noise level. JT44 can get through with solid copy when you cannot even hear the other station's signals. Single letters in the 22-character message will have worse signal-to-noise ratios than that of the sync tone by a factor equal to the square root of 69/3, or 6.8 dB. However, that loss can be made up by averaging the received character-tone spectra over many 30-second reception periods. For such incoherent averaging, each doubling of the number of periods buys you 1.5 dB in S/N. Four periods gets you 3 dB improvement, 16 periods gets 6 dB, and so on. If the signal strength remains fairly steady, these numbers mean that good copy of any reliably synchronizable message can be achieved in about 15-20 minutes.

So much for theory. How does JT44 do on the air? I have already given a few examples of the kinds of contacts that are being made by the (as of this writing) hundred or so hardy souls who have been actively using and helping me to debug the beta-release software. To elaborate with a specific example, let me describe the information presented in the accompanying screen shot, made a few hours after my EME QSO with GM4JJJ on March 23, 2002. The picture corresponds closely to what David would have seen in real time at his station, as the QSO progressed. I reconstructed the screen appearance by having the program open and read selected audio files from the complete set that he recorded during our contact and emailed to me afterward. The picture shows the main screen of WSJT when it is running in JT44 mode. Useful information about the Sun, Moon, and galactic sky background is presented in the blue panel at the upper right. The graphical display at the top shows the signal strength received over the 30-second interval (green line); the spectrum of the best candidates for the JT44 synchronizing signal over a +/- 600 Hz range relative to the nominal 1270.5 Hz (red line); and the amplitude of the decoded synchronizing signal over the time-delay range from -2 to +4 seconds (blue line). All of the graphs apply to the most recent 30-second receiving interval. The large text box in mid-screen displays WSJT's attempts to decode the very weak received EME signal.



Each line corresponds to a different 30-second reception period. The various columns give the UTC time, synchronizing quality, signal strength in dB, time offset DT in seconds, frequency offset DF in Hz, and the decoded message. The first line shown, for example, was recorded at time 17:15:30 UTC. The sync quality was 3 (anything above 1 is likely to be valid, and more is better). The signal strength of K1JT at GM4JJJ was -22 dB, and the measured clock offset was 2.2 seconds. (The true EME propagation delay is about 2.5 seconds; the remainder is the difference in clock errors at the two stations.) The measured frequency offset is +98 Hz, in this instance a combination of the two-way Doppler shift and calibration errors in the two radios. Finally we see the decoded 22-character message, which in this case had been transmitted as "GM4JJJ K1JTGM4JJJ K1JT". The first GM4JJJ and the second K1JT were both copied perfectly. The second and third lines in the text box show the exact messages received by GM4JJJ a few minutes later, at 17:21:30 and 17:22:30, and show that our QSO was completed in just a few minutes. Over the next several minutes my signal faded by 2 or 3 dB, but it continued to synchronize properly anyway. The received message is somewhat garbled in each individual line, but the smaller text window below the first one shows that an average message was perfectly decoded, in which I am thanking David for my first-ever EME QSO. For the record, my signal was never audible in the headphones at GM4JJJ, nor was his at my station. We most assuredly would not have made the contact on CW.

I know that Len, N3NGE, also completed an EME QSO using JT44 the day after I did. Maybe by the time this appears in print, other 'Rats will have done so as well. Many of our stations are quite capable of it. Come and join the fun! The WSJT software package has been under continued development for about a year. The code now being tested as version 1.9.4 will probably be openly released as Version 2.0 very soon. Go to the WSJT home page: (http://pulsar.princeton.edu/~joe/K1JT/) to look for details. If you want to try it out right away, you should first install Version 1.0 (see web page for instructions) and then download files http://pulsar.princeton.edu/~joe/K1JT/BETA194.TXT, http://pulsar.princeton.edu/~joe/K1JT/BETA194.ZIP, and http://pulsar.princeton.edu/~joe/K1JT/TSKY.DAT. Then follow instructions in the TXT file.

(see more on the new WSJT version 2.0 release on p6)

WSJT, Version 2.0

A major new release of WSJT, Version 2.0 is now available for free download. Instructions for upgrading and for new installations can be found at:

http://pulsar.princeton.edu/~joe/K1JT.

What's new in Version 2.0? The JT44 mode for extreme weak signal work was first introduced in WSJT beta release v1.8.0. The JT44 mode has now matured, the program is stable, and tons of EME QSOs (among others) are being made with it. New features and fixes in Version 2.0 (compared to v1.9.4) include the following:

1. Full monitor mode with separate averaging of 1st and 2nd sequences.
2. Mouse-selected value of DF for decoding when "Freeze" is checked.
3. Program is much faster at certain critical points, and now runs reliably on a 75 MHz Pentium with 24 MB of RAM.
4. The peculiar "always starts minimized" bug has been fixed.
5. Certain dates (such as "2002 VIII 21" now display properly in machines configured for European format.
6. A number of other small niceties have been added.

An all new 35-page manual in PDF format. As always, please send your suggestions and bug reports to me at **k1jt@arrl.net. -- 73, Joe, K1JT**

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From the reflectors: Several guys have asked me recently about using SMA connectors and relays at 24 GHz. It works! I have tested over a dozen or so relays including SP2T and transfer, and they all work acceptably. The Transco SMA relays are clearly the best, showing over 70dB isolation, in all cases. Other brands are useable, with less than 1dB insertion loss, and isolation usually over 30dB. Sure, SMA connectors have some VWSR, especially the .141 type. The .085 SMA connectors I have seen were all FB. If you get more than 10W, you're probably getting in trouble, and should consider waveguide. But if you're that lucky, you will probably luck into some K-connector parts too. GL es 73, **Bill W3IY** p.s. when in doubt...TRY IT OUT!

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This year's **CQ World Wide VHF Contest** will be the THIRD weekend in July starting at 1800Z July 20, 2002 and ending at 2100Z July 21, 2002. Note that this is ONE WEEK LATER than it has been in past years. The change in dates is in response to numerous requests by the participants and potential participants. The old weekend, the second weekend in July was in direct conflict with the IARU contest/WRTC and occurred only 1 week after the European Field Day. Rules can be found in .pdf format at http://www.cq-amateur-radio.com/VHFRUl02.pdf You will need Adobe Acrobat Reader to read this file. If you do not have this program already on your computer - and you should - it is available free at http://www.adobe.com/products/acrobat/readstep2.html I am aware that the 6 Meter World Wide DX Club (http://6mt.com) holds its second sprint on the Saturday of that weekend but that should be no conflict. The exchanges are the same so you can enter both if you so choose. Results of last year's contest will appear in June 2002 CQ magazine. Results are not available on the Web. Certificates for last year's contest should be sent to the winners in the next few weeks. Conditions last year were super - let's hope conditions this year are just as good. See you all in July. 73 **Gene W3ZZ** Director, CQWW VHF Contest

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I thought there might be some interest beyond Northern California in a 10 GHz linear translator (repeater) we just put up. If so more details can be found at:
http://home.pacbell.net/val_gary/ad6fp.html **Gary AD6FP**

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Al, **K3EOD** writes that he had 34 QSOs in 16 Grids for the 222 Sprint. 27 QSO's and 8 grids for 432 Sprint.

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I thought activity was good on the 432 Sprint I worked 55 Q's and 24 grids from FM29PN. **73 AA2UK**

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ARRL OFFERS MEMBERS EXPANDED CONTEST COVERAGE ON THE WEB

ARRL has expanded its on-line coverage of ARRL-sponsored contests. A new membership service supplements contest coverage in QST and enhances what's already available via the ARRL Web site. The augmented coverage premiered April 19 with the results of the 2001 ARRL November Sweepstakes (CW). Among the new features is an interactive, searchable database of contest line scores. "Contesting has come a long way since the old paper logs, broken pencils, and hand-scored results," said ARRL Contest Branch Manager Dan Henderson, N1ND. "The addition of expanded ARRL contest results on our Web site takes contest reporting to the next level." Access to the new services is limited to ARRL members, who must first be logged onto the ARRL Web site with user name and password. All expanded coverage is linked from the ARRL Contest Results page <http://www.arrl.org/contest/results/>. In addition to the information normally presented in QST, the new searchable database will include band-by-band QSO breakdowns for all participants, as well as hours operated and any club affiliation. The database will be searchable by call sign and entry class as well as by ARRL section, division or club. Results can be sorted by several criteria. Another new feature is a more extensive Soapbox for each contest that will allow entrants to share their observations and photographs right after a contest. Largely freed of the limitations of print media, the upgraded Web-based coverage will treat ARRL members to a contest narrative that includes more detailed analysis, more sidebar stories and more visual images than what typically appears in QST. Updated contest category records also will be part of the expanded coverage, with details for each entry category and ARRL division and section plus overall category records. ARRL continues to offer members and nonmembers a downloadable Adobe PDF of the QST article for each contest as it becomes available, plus contest rules and forms, the ARRL contest calendar, and the "Contest Corral" from QST. ARRL members also may subscribe to the ARRL Contest Rate Sheet <http://www.arrl.org/contests/rate-sheet/>, the new biweekly e-mail newsletter for contesters that debuted in March. Initially, the ARRL's expanded Web coverage will be a "work in progress," Henderson said. "Formats of the on-line portion of our contest coverage will be flexible, allowing us to improve its presentation as we try to keep it as user-friendly as possible." The Contest Branch welcomes feedback from members via e-mail, contests@arrl.org, or telephone, 860-594-0232.

ARRL NIGHT HIGHLIGHTS

Zach Lau, W1VT and Mary Lau, N1VH from ARRL HQ joined several club members and Eric Olena and Kay Craigie for dinner at Pippo's Fantastico Restaurant prior to the meeting. We had a nice chat about the full spectrum of operating, the fantastic band conditions this past summer and fall, and our recent hamfest acquisitions.

We zipped over to the library at 8PM to get the business taken care of, have a Mario Raffle, and then hear Zach's potpourri of VHF experience and construction, illustrated with his carousel of 35mm slides. We all enjoyed the several versions of his portable (rover-like) set-up of his Saturn, which has gone from the carry-all with antennas set-up on several independent masts, to the "Ghostbusters" appearance of having all but the dishes mounted on a single roof-centered mast and rotor. As most of us well know, he was a perennial winner of the QRP class, operating with less than 10W on all bands through 10G. Some of the pearls included: 12VDC rotators, avoiding the use of an inverter; band equivalency of capability for ease of being able to run the bands and not be stuck with a weak link; four hours of sleep; spending all day Friday getting everything set and running; having everything idiot-proof and ruggedized (KB3XG spotted the "oops" LED on the panel of one of the pictured transverters—it was the reverse voltage polarity indicator that complemented the protection circuit). My favorite comment on his strategy for January: don't try a serious effort in New England in the winter from a car, as there are no accessible mountaintops.

There were several slides of some modest construction projects, including a 10G slot antenna from waveguide, miniature hardline coaxial filters and baluns, milled knobs and microwave filters, and other multi-component boards. It was an interesting and stimulating presentation, which was followed by a social hour and lots of eyeball QSOs.

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ARLS004 **SaudiSat 1-A (SO-41)** now available for amateur use SaudiSat 1-A (SO-41) now is reported open for Amateur Radio communication. According to information received by AMSAT-NA President Robin Haighton, VE3FRH, SO-41 has been configured for FM voice repeater operation. Turki Al Saud, director of the Space Research Institute in Riyadh, Saudi Arabia--the satellite's sponsoring agency--told AMSAT-NA that SO-41 will automatically enable its UHF transmitter over Saudi Arabia and the US for approximately 20 minutes each pass. The spacecraft reportedly is configured for Mode J, with a VHF uplink of 145.850 MHz and a UHF downlink of 436.775 MHz. The spacecraft will
operate in this mode intermittently, as power and spacecraft experiments permit, the announcement said.
SO-41's downlink RF power is 1 W with left-hand circular
polarization. The uplink antenna--located atop the spacecraft--is linear in polarization. Experiments and software development continue with SaudiSat 1-B (SO-42), and that satellite is not yet available to amateurs.
SaudiSat 1A and 1B were launched along with TIUNGSAT-1 on September 26, 2000, from the Baikonur Cosmodrome, aboard a converted Soviet ballistic missile. Both satellites have been in various stages of commissioning since then.

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Cheese Bits is looking good! Great actually. I especially enjoyed KB3XG's and K1JT's articles! Very nice. John, did you put on a technician's hat and take all that data yourself? Rick, very nicely done issue with the pix etc. 73, **Dave, W3KM**

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Spring is in the air and hopefully everyone is getting fired up for the **June Contest** , thanks to all who heeded the "call to arms" and signed up to help out this year with the club effort on Camelback Mountain!! Unfortunately so far we are still quite short of the number required to make this a serious effort without anyone overdoing it. I'm hoping to hear from more of you soon , so please try to find some time to join the gang , help put W3CCX on the air and have some fun!!
PLEASE CONTACT ME ASAP IF YOU WOULD LIKE TO DO ONE OF THE FOLLOWING: 432 Band Captain
Truck driver -I have reserved two 24ft. trucks in Quakertown. We may be able to make other arrangements more convenient for anyone willing to drive.
Also looking for someone to take over food for next year. W3GAD and N3OZO have agreed to feed us (in style as usual!) again one more time, but are looking for an "apprentice" to take over next year. Thanks Doc and Don for all the time over the years in the galley working to keep the crew going!!
The club is still accepting contributions to help fund this event. Although the expenses for the June contest have been fairly steady over the last few years , the Club's income has dropped dramatically. Therefore this activity (and others) can no longer be supported in total by the general fund. If you feel the W3CCX June multi-op effort is worthwhile , feel free to make a donation , of any size to the club treasury earmarked "for June Contest". I personally plan to contribute $50 to at least cover my expenses. Thanks to all who have helped out so far. Hpe to hear froom you soon!! CUL ES 73 **Al N3ITT** alitt@epix.net

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Here's to the power of JT44! This morning at my moonset condx were decidedly not good for EME. But for a test I ran JT44 with Mark, W7MEM. In addition to 4000+ degrees of sky temperature, Mark was reporting 5 s-units of local noise, and I had about 5 db of noise compared to a 50 ohm load.
Mark has 4 x 5WL and 1.2k, I was running 1.4k into a single 8WL on horizon (at 100'). In addition to noise and fairly small antennas (for EME), declination is -25 and degradation at -13 db. So the cards were stacked firmly against us.
Never the less, Mark started copying my signal when my moon was at 6 degrees, and I copied him soon after. We exchanged full calls, ooo from Mark, RO from me, rrr's and 73's both ways, finishing when moon at .2 degrees above horizon here. W8WN was on frequency and continued to copy my 73's until moon at -.25 degrees here. So, NOW no more waiting for perigee or low noise conditions - we can work EME anytime! So, WHO wants to be next? **73, Russ K2TXB** - FM29PT

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The original site of the W1GHZ 10 GHz webpage is going away at the end of April. www.tiac.net will be no more, so the URL will no longer work. Please update your bookmarks and links on other pages to: www.w1ghz.org and my email to: w1ghz@arrl.net
73 Paul **~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~**

VHF+ Operators Directory listed by grid, VE2PIJ homepage
see http://pages.infinit.net/ve2pij/

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See what the new ARRL web-based contesting scores will look like at:
http://www.arrl.org/members-only/contests/scores.html?con_id=1

Homebrew night is gaining in both technical expertise and showmanship. The story and spin appears to be as entertaining as the project is stimulating. Here are a few additional pictures, thanks to the excellent photography of Doc, W3GAD, and his efforts to package them in a fashion suitable for this edition. To the left is Griff, NE3I, trying to understand where to put the mopstick to idealize the operation of this new farming tool, er, rover loop for 432. On the right, Joe, K1JT reviewing his JT44 program for the judges. K1DS demonstrating the ease with which he can mount his 5&10G dishes on the rover van, with the 10G xvrtr and amp mounted behind the dish. Len, N3NGE explains how he did the component transplants into the SB-220 to convert it to a KW on 6m while Jim, WA3EHD listens on. There have been requests for Len to document his modifications for others to duplicate, with the availability of these Heathkit amps at swapfests and on eBay.

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I found a neat software (Polarization Tutor) that give 3D views of various polarization. You can even play with vector magnitude and phase difference, and see the result ! http://www.agilent.com/cm/rdmfg/lpa/downloads/8509tutor.shtml
From the web via VE2UG


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Paul, WA3GFZ, (left) explains the parts used to operationalize his 903 transceiver, and all the fine hunting he did on eBay to collect components. Chris, N3PLM, (right) gives the run-down on his 1296 amplifier.

W3HMS on 24 gHz

The shot with a person at the mike is Joe, WA3PTV talking on my rig with Bernie W4SW in FM08us Hogback site on the Skyline Drive, VA from FN10ff west of Carlisle, PA, a distance of 107.5 miles. Bernie was full quieting and lit all the bars on my FT 817 using 80 mw and the same Procom dish. Copy in NFM was like a studio.....rag chewing was fun....and on 24 GHZ!!! 24 Ghz SSB/CW 1 watt System with principal units by DB6NT.

My system uses the following components/assemblies:

Interconnecting cables=.085 semi rigid with SMA connectors

PROCOM of Denmark 19 inch parabolic dish with Penny type of feed…close to 40 dbi gain!. Wave Guide to SMA transitions also made by PROCOM.Transco 18 GHz relay, using + 12.6 VDC

7 db attenuator to reduce signal from mixer to linear MKU 243 DB6NT Rx amp as LNA…NF=2.0 db W2PED/Packrats 1 watt project amp s/n 3 mounted on approximately double sized heat sink

Transco 18 GHz relay, second relay on the schematic, using +24 VDC via DEM "booster" . DEM "booster" circuit to provide brief 24 VDC spike to "kick "relay on BPF=one stage band-pass filter from SSB Electronic filter. DC Control Box, home brew, provides fuzed and relay sequenced voltages to units DB6NT Transverter Model MKU24 G with .39 mw out and 144.1 Mhz IF out DB6NT 12 GHz oscillator Model 12LO IF=Ten Tec 6N2 or FT 718 Multiband/multi mode transceiver .

My sequencer is a simple relay- delay unit. The complete unit less IF and battery is built on a brass plate reinforced in the back with aluminum strips. It is beautifully simple to solder to the brass plate with a 250 watt Weller iron for grounding and for strength in mounting components . The Procom units are available from Eisch in Germany and the DB6NT units from SSB Electronics in PA.

73, **John W3HMS**
W3HMS@aol.com

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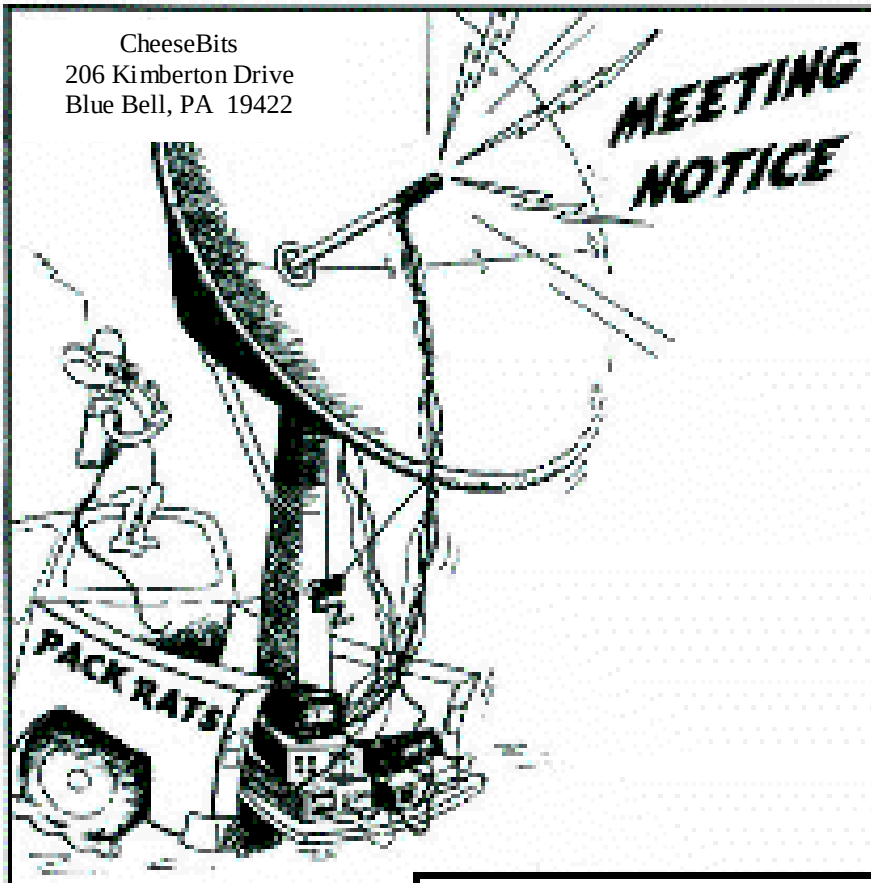
Blue Bell, PA 19422



Board of Directors Meeting
Thursday, May 9th, 8PM

At the QTH of Jim Antonacci
WA3EHD
1427 ARLINE AVE
ROSLYN PA 19001

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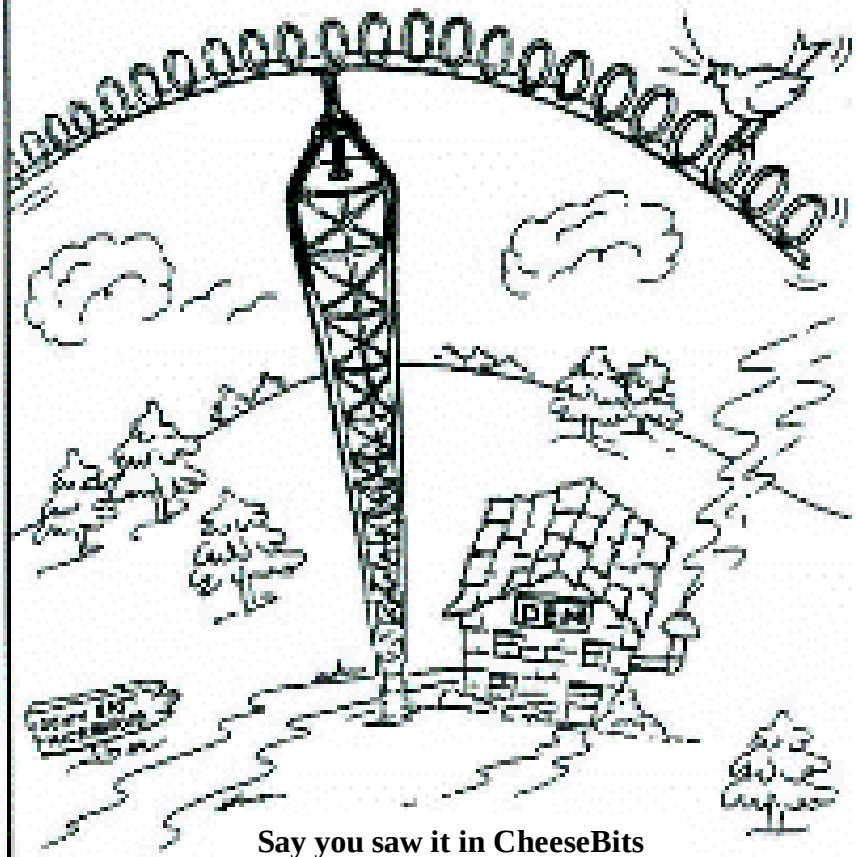
Awards Night
Thursday, May 16th, 8PM

Southampton Free Library
47 E. Street Road

Honor and be honored

FIRST CLASS

MT. AIRY VHF RADIO CLUB, INC.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