

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



CHEESE BITS



W3CCX
CLUB MEMORIAL CALL



ARRL
Affiliated
Club



Volume XLIV

December 2002

Number 12

Prez Sez: Call Them, They Will Come, Maybe

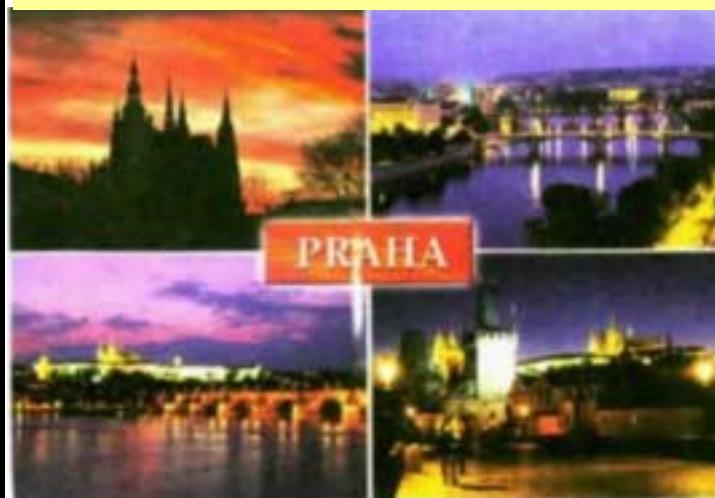
It is good to see so many members come out for an important issue as the one we settled at the meeting. As one person put it, "It's good to see the PACKRATS take a progressive step." This will strengthen our club and bring us into the 21st century. And by no means will it weaken the high standards expected of our members and of the club. The Board of Directors thank you for coming out and not letting this issue fester any longer. Now let's get back to what we are about, like getting on the air! Dust off your gear, does it still work? Do you need help? We are the best VHF/UHF CLUB around let's show it, not by words but by ACTION. The January contest is right around the corner, last year we won the unlimited category by default and we were beat in points by a 30 member entry club in the medium category.

I know our modern world pulls at our time, but you know this contest date comes around only once a year. Please let's get back on track, no excuses. We have some members that don't have stations set up, there is no reason you can't multi-op with one of the multi-operator stations or ask a single op if you can multi-op with them. We have some new members that have not sat behind a high power station that could use mentoring.

Thanks to Russ, K2TXB, for the excellent EME talk. Boy, as I plan my garage addition, an EME set-up off the back would be just the ticket. Our next meeting is our CONTEST MEETING this also is a must attend event. Bill AA2UK will be present to get us motivated along with the rest of your fellow rats. If you have extra transverters, antennas, fm boxes, amps and power supplies bring them to loan out. if you need anything let it be known on the nets or on the rat reflector or call me or any of the board we will find someone that has what you need, after all that's what we are about. Come get your contest packet, 2003 directory, motivation and other useful stuff. didn't it do you good seeing all the gang last month? how about two in row. Come on, how about some action?

73 and Happy Holidays to all—Brian N3EXA

EME 2002: views of Prague, K1DS with Tycho Brahe and Johannes Kepler at the Prague Technical Museum



Pack Rats **CHEESE BITS** is a monthly publication of the
Mt. AIRY VHF RADIO CLUB, INC. -Southampton, P.A.
SUBSCRIPTION RATE: \$16.00 PER YEAR (USA)
\$20.00 PER YEAR (CANADA)
\$10 PDF only \$24.00 PER YEAR (ELSEWHERE)
We operate on a .PDF exchange basis with other non-commercial publications. Anything that is printed in CHEESE BITS may be reprinted in a not for profit publication, unless stated otherwise, provided proper credit is given. Deadline for articles and swap-shop is the monthly meeting date. Non-commercial swap-shop items free of charge.

Pack Rat Web Site: <http://www.ij.net/packrats>

SUBSCRIPTION/ADVERTISING MANAGER:

Bob Fischer, W2SJ 7258 Walnut Avenue, Pennsauken, NJ 08110
(856) 665-8488 bobw2sj@prodigy.net

EDITOR:

Rick Rosen, K1DS 206 Kimberton Drive Blue Bell, PA 19422
(610)-270-8884 rick1ds@hotmail.com

CLUB TREASURER:

Dave Mascaro, W3KM 1603 Mink Road Ottsville, PA 18942
(215)-795-2648 dmascaro@motorola.com

TRUSTEE OF CLUB CALL - W3CCX

Ron Whitsel, W3RJW
(215) 355-5730 W3RJW@aol.com

PACKRAT 222 MHz REPEATER - W3CCX/R

222.98/224.58 MHz, Churchville, PA

OFFICERS: 2001-02

PRESIDENT: N3EXA Brian Taylor n3exa@enter.net
VICE PRES: WA3GFZ Paul Sokoloff dogfaces@home.com
CORRESP. SEC: WA3EHD Jim Antonacci, Antonacci@worldnet.att.net
REC. SEC: WA3AQW Walt Zumbach, wzumbach@bellatlantic.net
TREASURER: W3KM Dave Mascaro, dmascaro@motorola.com
QUARTERMASTER: K3IUV, Bert Solt off, soltoff@uscom.com
DIRECTORS:
K1JT (1 Yr) Joe Taylor joe@puppsr1.princeton.edu
WA3NUF (1 yr) Phil Miguelez
WA3DRC (2 Yr) Ed Finn
AA3GN (2 Yr) Joe Landis

COMMITTEE CHAIRMEN

January Contest	AA2UK	
June Contest:	N3IT	610-847-5490
HAMARAMA:	WA3DRC	
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	N3IT
8:30 PM	222.125 MHz	W2SJ/N3EXA
8:30 PM	224.58R MHz	W3GXB
9:00 PM	432.110 MHz	W3RJW FN20le
9:30 PM	1296.100 MHz	WA3NUF FN20le
10:00 PM	903.100 MHz	AA3GN FN20ig

THURSDAY NIGHT NETS (1st & 4th of the month)

9:30 PM 2304.100 MHz W3KJ, & go to 3.4G & up after FN20hg

Editor's Column-Back to Basics

With my now completed radio room, I have set up my TS850SAT and started back on the low bands to get my DXCC from this QTH. Not that I ever had DXCC from my previous QTH, as I never bothered to chase the cards, but with a few great DX contests and a 10m dipole, I have added many of the rarer prefixes to the log. But enough about non-VHF topics, let's get on to the acquisition of small antennas for 50, 144, 222 and 432 and get them set up in the attic in order to enjoy some of those bands from the comfort of the new shack. I have everything ready except for some nice new runs of coax—being ordered as I write from one of our returned advertisers, The R. F. Connection.

Basics include getting more QSL cards, more log pages and computerized logging for non-contesting! Basics include posting a list of all those new prefixes, so I don't get over-excited by working yet another variation of a Russian prefix. And basics includes those RF choke filters for the phone lines, a low pass filter for the rig, and a good ground. Good lighting, a cushy seat, rig and key placement, a comfy headset and boom mike.

And speaking of basics, how many of you are running a PC? DOS 3.1? A Pentium I @ 75MHz? (I do as a laptop for the rover, and hopefully the new WSJT will be fine on it, according to K1JT—see p7) Now is the upgrade season!

You can get CheeseBits emailed to you as an Adobe Acrobat PDF. If you are still getting the snailmail version, but do have a computer and can download a 400Kb PDF file, you'll want to send me an email {rick1ds@hotmail.com} to confirm your capability, and for all of 2003, you can be among those who get CheeseBits the fastest, and in color! If you are a novice at this and need some help in understanding how to get the e-mailed version of CheeseBits, I'll be glad to give you advice by phone (610-270-8884).

You need to be ready now for the January Contest. Make your needs known to the club members—I have seen several bands added to capabilities, power upped and antennas improved all for a simple phone call to discuss your needs. Put a message on the reflector, or ask at the meeting. Don't be shy—there are also multi-op stations who could use a hand of relief operating or just support for the ops. We are out again to capture the unlimited class, and need **EVERYONE** to participate and submit a score.

At year's end, let's take time to count our blessings for this past year, and thank those who have been of help to the club and to each other. There are prominent players, and behind-the-scenes folk. There are technical talents, organizers, and social supporters. There are experimenters, programmers, and construction mavens. There are writers, callers, and on-the-air communicators. There are contestants, ragchewers and just plain listeners.

Spent a few hours this year doing the CW and Phone SS. Also had a few hours in the CQWW CW. That G5RV antenna in the attic is doing great, as I worked 78 of 80 sections in the SS, and spanned the globe on the DX contest. Wish the VHF rover could do stuff like that! I also spent most of a night at the QTH of K2UYH, observing and listening in on the International EME contest. Many of you are familiar with Al's exploits, but a first hand look at his shack and antennas was an eye-opener and an exciting event for me. I certainly understand how digital processing can lend a hand pulling through those phase-shifting and librating signals off the moon. It'll be a while more til I consider mounting any effort on my own, but how about a club EME station again? I know we have the collective gear and know-how, just wanting for the group desire and a QTH!

Having the room full of members at this month's club meeting was a real event! Business was transacted, old and new friends had a chance to meet, and the speaker, Russ, K2TXB had a great EME talk with pictures!

73, Happy Holidays and Healthy New Year, Rick, K1DS



Bruce, N2LIV welcomes attendees to the Microwave Update 2002 in CT, attended by many Packrats
See p4

January VHF SS 2003

Well guys guess what time of year is approaching us fast? The annual ARRL January Sweepstakes. This is the ham radio equivalent of the iron man triathlon. Last year we won the unlimited category by luck! We had no competition, that's no way to win an award. We need to dust off those radios and start checking into the Monday evening Packrat nets. This should give you an idea what needs to fix before the contest. Wouldn't it be great to have everything working ahead of the contest? The "W3IY 1st Saturday of the month Microwave Activity Day" is also a great way to check out your microwave gear with the guys in the Baltimore-Washington area. The stations that participate in this event are well-equipped and good operators.

I would like to call on all the members of the club to pitch in and help in any way they can. We will be distributing a questionnaire to all members asking if they need help or what help they can provide. This in turn will create jobs for volunteers. I will be happy to match helpers to the members in need. I encourage all members to add an additional band or mode. This is a sure way to increase your individual effort that in turn increases the Club's overall score. I would like to see every member participate this year. If you don't have a station get in touch with one of the multi-ops or rovers. If you have a station get it tested early and in tiptop shape.

I would like to see the club's past enthusiasm surpassed in this contest. This is in my opinion our main event, this is what the club is all about. We need to show our competitors that we will not take a back seat and we won't settle for second place in points or categories. Winning the contest requires dedication, preparation and the will to compete. Are you up to the challenge?

Take care your 2003 Contest Chairman Bill AA2UK

Mark Your Calendar Now!

- **Saturday, December 7, 6A-1P, Microwave Activity Morning, 432 & up, 144.260 liaison**
- **Monday, December 9, 7:30PM, nets starting on 50 MHz, then up one band every half-hour.**
See details on P2. This is also Microwave Monday Evening Activity Night 7P-11P
- **Thursday, December 12, 8PM, Board of Directors – watch reflector for QTH**
- **Mondays, December 16, 23, 30-7:30PM, nets starting on 50 MHz, then up one band every half-hour.**
- **Thursday, December 19, 8PM, ALL MEMBERSHIP & Guest Club meeting**
Southampton Free Library. AA2UK and AA3GN will lead the program on January VHF SS
Contest strategy and preparation
- **Saturday, January 4, 2003, 6A-1P, Microwave Activity Morning, 432 & up, 144.260 liaison**
- **Monday, January 6, 7:30PM, nets starting on 50 MHz, then up one band every half-hour.**
See details on P2. This is also Microwave Monday Evening Activity Night 7P-11P
- **Mondays, January 13, 20, 27- 7:30PM, nets starting on 50 MHz, then up one band every half-hour.**
- **Thursday, January 9, 8PM Board of Directors - watch reflector for QTH**
- **Thursday, January 16, ALL MEMBERSHIP & Guest Club meeting—WA3RLT contest analysis**
- **Saturday-Sunday, January 18-19-20: January VHF SS 1900G Sat-0400G Mon**

Microwave Update 2002 A Packrat Experience

I drove to Doc's house (W3GAD) on Thursday afternoon and we meandered our way through Bucks County and Northern New Jersey taking the scenic route to 287. Arriving in Enfield at 9:00pm we met everyone at the DEMI suite and enjoyed the munchies and liquid refreshments.

The vendor's room was partially set up so we checked out the goodies. Owen K6LEW's 10 Ghz transverter and TWT was the first thing that caught my eye. The compact mounting of the SSB Electronics transverter in the stainless steel housing was really nice. I was now ready to heat up the neighbors with some real power.

The proceedings started at 8 am the next morning with a talk by Kent Britain WA5VJB on the design of stealth military technology. Roger W3SZ's talk covered software DSP solutions for weak signal work and had all of us wanting to change our operating systems to Linux. The rest of the talks that day dealt with such diverse subjects as Roving, Oscillator Stability, Phase locked Oscillators, and How to get on 241 Ghz. (Don't try this at home). There was auctioning throughout the day as well as the vendor's room to party off from your money.

Friday evening was a feeding frenzy of hungry microwavers gobbling up some great deals. I picked up some 24 Ghz parts to assemble a transverter next year. There was the usual test equipment, waveguide components, connectors etc. I spent some time with Bill, W3IY/R as we discussed his roving adventures and I thanked him for all the points and grids he's provided for all of us.

Saturday's talks were great and included one by our own Joe Taylor on the latest WSJT developments. Microwave Update shared the morning with the NEWS group's conference speakers in another room. After lunch, the MUD activities took over and continued until 5 pm. A more detailed synopsis can be found at www.microwaveupdate.org. The noise figure measurement sessions were held in the afternoon and I learned quite a bit from John WB2VVV about network analyzers. He also ran the antenna measuring range on Sunday morning.

The banquet was a lot of fun and there were more door prizes given out. We heard some interesting stories about England from Sam G4DDK, who was seated with us. Next year's MUD was promoted with a slide show. The NEWS group deserves commendations for putting on such a first rate event. Their hard work showed.

Sunday morning's flea market was your last chance to get that hard to find equipment. I was lucky enough to score a 10 Ghz TWT amplifier and a backup for my 5.7 PA. The antenna testing range proved very helpful as I was able to focus the feed on my 5.7 Ghz two foot dish and get an extra 6 DB out of it.

By the time we left, I was exhausted. Learning and purchasing are very tiring. Arriving at Doc's at about 6:30 pm, I was introduced to the horse, the goat, the dog and the cat as it was feeding time. As you can tell, I had a great time and can't wait until MUD comes to the east coast again.

73s Paul WA3GFZ

Joe Taylor, K1JT,
presents his JT44/
WSJT programs at
the MUD 2002



A Night on the Moon The K2UYH EME Event

With the experience fresh in my mind, and caught up now on my sleep, I wanted to relate my experience at the QTH of Al Katz, K2UYH, a devoted EME'er. Since we have corresponded over the years, and attended the recent EME conference in Prague together, Al invited me to increase my experience with this mode during the EME contest weekend. I had a conflict with a scheduled visit to my mom in Florida during the first weekend, that also coincided with many of you at the MUD. The second weekend opportunity came up, I elected to try this out for the Friday night moon window. Armed with driving directions, it was easy to find, and I got there about 1 hr after moon-rise, and was immediately struck by the size of the antenna arrays in Al's yard.

Our XYLs met each other at the EME spouse's program in Prague this summer, and when I got there, the first thing that Sally asked was if I brought my wife along to spend some time with her as the guys did the dish thing...well, not this time.

Although I wasn't surprised to see a large (20-24') dish in the back yard, standing next to it is a bit of a dwarfing experience. Amid the multitude of cables for powering the motors to drive azimuth and elevation, TV camera cables for dish positioning, and the thick bundles of hardline, it was quite a sight. And that was just one of two dishes, and they are accompanied by two towers. Most all of the antennas are protected from view with trees and the house, but I didn't get to discuss with Al the reaction of his neighbors to all of this hardware.

Heading down to the shack was reassuring—looks quite familiar, with various stacks of parts collected over the years, new projects on tables and desks close to the operating position, and then a host of racks and various vintage radios and computers for operating and control. For contrasts, there is an Altair 8080 which Al uses as a dedicated computerized Morse Code keying system, and then there is a large screen waterfall display to view the radio spectrum and the echoes and signals off of the moon, run through a Rigblaster connected to a TS-2000. Throw in a few additional laptops for info storage, a few additional VHF multiband rigs to be able to have multiple listening positions, and we're about half-way there. I say half-way, because then there are the hefty power supplies and amplifiers, along with all the cooling apparatus, including the water-cooling for a 6-tube ring on 1296. I started out the evening with a fleece pull-over, but within a few minutes had it off and was comfortably toasty in the basement shack, despite the fall chill outdoors.

So what does the contest sound like from here? I have never heard so much activity on the low ends of 432 and 1296 before. Virtually every 2-3 KHz there was a station calling CQ, and when Al called CQ, inevitably there was a response from a new station, not previously worked in the first weekend. Signals were far better on 1296 than 432, with all first responses clearly identified, and rather shorter exchanges due to greater signal intelligibility. There were many callers on 432, but the fading seemed to scramble the info. I can now understand why the usual EME schedule is 2.5 mins each way, and lasts 30-60 mins. It is also apparent that the advantage of DSP enables those signals to pop out of the background and be clearly decoded. I was also impressed on how much manipulation Al made of the feed polarization rotor and how effective this was in peaking signals.

Bottom Line: I like the idea of EME, but the only way I'll be able to participate will be in a group project, or at someone else's multi-op QTH. My thanks to Al for this experience. WSJT/JT44 is a great advantage for the small station. Clearly, having an EME station on the air requires diligent dedication, accompanied by lots of time, experimentation, parts accumulation, and solving unique problems. The dollar investment is also substantial, although a good Packrat may find less expensive components toward the effort through judicious search and horse-trading. Anyone else wanna try? Rick, K1DS

Digital EME Communication

From the discussions at the EME meeting in Prague

The complete results of the Forum on Day 2 of the EME Conference are also available at:
<http://www.emecz.cz/convent/convention.htm>

One of the most frequently discussed topics among the EME community is the digital communication. The topic has its technical, operational and ethical proportion. We often witness very emotional statements regarding the value of contacts etc. However the fact is that the contacts have been made and the digital EME traffic is increasing specially on the VHF bands. There has been some protocols introduced and they are applied in practice and used by growing amount of EME stations. The efficiency of EME communication has undoubtedly increased using sophisticated computer software. And what is most important, the operators who cannot manage the space or the expense of huge antennas or legal-limit amplifiers, can still enjoy this most fascinating aspect of Amateur Radio by taking advantage of modern DSP technologies. Using digital communications in DX traffic like EME needs some general rules to be set in order to avoid confusion and consequent trouble. This document is a draft of recommendations for the digital EME Communication.

Frequency allocation

One of the most important topics is the proper frequency allocation. We are not talking about digital modes, in correct interpretation we employ digital protocols (JT-44, PUA -43). In different IARU regions, the band plans are not the same. Sometimes the frequency allocation is over-regulated. It looks practical that the DX digital communications can be allocated in the segment from the first 100 to 150 kHz from the beginning of the particular band (e.g. 144.100 – 144.150, 432.100 – 432.150 etc.). Let's try to keep it that simple.

Sequencing

Sequences for digital EME communication should follow the usual EME convention, i.e. the Eastern Station starts first period. These conventions keep all modes consistent in concept.

Acknowledgements

The solution looks to be very simple. Let's try to distinguish ANALOGUE (CW, SSB contacts) and DIGITAL (contacts using digital protocols). This can be the case of Awards with available endorsements. In Initial contacts there could be DIGITAL, ANALOGUE and MIXED achievements recognized. The HF operators have applied this without any problem. The above mentioned recommendations is a compilation of many opinions exchanged with active EME operators. The problem is more complex and will be a further regulated. But there has to be something to start with in order to avoid unwanted conflicts. It is important to say in open that digital contact is different in the applied technology of coding and decoding the signal but it is still a contact done by the operator. It would be a retrogradation to degrade contacts which use digital communication to a kind of machine communication (data exchange). For some of us it can be the only way to make EME QSO due to limitations of administrative regulation (power, antennas etc.).

LEONIDS 2002

The four-revolution dust trail of Comet 55P/Tempel-Tuttle was somewhat late in encountering the Earth on Tuesday morning, November 19. Revised predictions by Rob McNaught and David Asher gave 10:34 UT as the time of the peak. Esko Lyytinen and Ton Van Flandern forecast the peak for 10:40 UT. It appears that the peak actually came within a minute of 10:48 UT, or 8 to 14 minutes later than expected. Interestingly . . . a prediction issued only several weeks earlier by Jeremie Vaubaillon, at the Inst. de Mecanique Celeste et de Calcul des Ephemerides (France), indicated that the 4-rev. peak would arrive at 10:47 UT -- apparently just one minute earlier than what actually happened! The four revolution trail apparently consisted chiefly of very small particles which produced a meteor display much fainter than what was observed with this same trail in 2002.

There were far fewer fireballs and bolides reported in 2002 and it appears that many of the meteors were of second and third magnitude. This sharp peak apparently lasted no more than 15 to 20 minutes in duration, centered on 10:48 UT. As such . . . moonlight, radiant altitude, local sky conditions and twilight all played key roles in what observers saw . . . or did not see. Those blessed with excellent seeing and transparency conditions, along with a very high radiant position and with the moon low in the west and little or no twilight to contend with, saw a burst of 10 to 20 Leonids per minute (on average). I've received many such reports from the Carolinas down through Florida of people seeing just such a Leonid display. Along other parts of the US East Coast, a scattered-to-broken layer of mid-to-high level cloudiness likely obscured a number of the fainter streaks. Also, in other parts of the country, similar adverse sky conditions (combined with the bright moonlight) cut in significantly to the overall numbers that were seen.

In addition, the 8 to 14 minute delay in the predicted peak time meant that twilight conditions had advanced enough over the East Coast of the US, to allow the sky to brighten -- in some cases, as in the Northeast States -- to a considerable degree. As a result, many of the fainter meteors were lost in the brightening dawn glow. Those who had to deal with such weather problems, as well as the increased twilight effects, probably came away feeling that the "big meteor shower" that had been heavily promoted in the media never came off! In reality, however, the Leonids pretty much came off as anticipated. During the 15 to 20 minute peak, those observing with very favorable conditions saw meteors falling at the rate of 600 to 1200 per hour! Again, the only drawback was the fact that many of the meteors were relatively faint . . . at least compared to the dazzlers that were observed in 2001! Those who heard reports in their local media that " . . . up to 6,000 meteors per hour" would be visible with this year's Leonids, did not listen carefully enough to the disclaimer (if it was mentioned at all) regarding the nearly full Moon; and that almost certainly only a fraction of those promised high rates would be visible thanks to the brilliant moonlight!

This factor was stressed several times in my Leonid article in the November 2002 S&T. While a number of people saw an excellent Leonid show, the numbers of those who were disappointed or dissatisfied (or just downright angry) seem (at least to me) to be much larger. Hell . . . even David Letterman complained ("Any of you guys wake up to see that big meteor storm they were predicting? Well . . . I fell for it too.") Yet, when the final analysis of this year's display are made available by the IMO, I would not be the least bit surprised to hear that the final ZHR tally (after all the suitable "corrections" are made) will be somewhere in the 2,000 to 5,000 range. No doubt, this will go down in astronomy annals as "The Leonid Meteor Storm that almost nobody saw!" -- joe rao (as forwarded to us from the web)

December 2002 North American Meteor Scatter Contest

We seem to become the unofficial "trustees" charged with making sure that a VHF/UHF meteor scatter operating event will take place, timed to coincide with the Geminids meteor shower in December. Rules for the event were worked out on a sort of consensus basis, adopting many ideas that appeared on the HSMS reflector after the informal Rally held last May. Rules for the December event are appended below. This MS Contest is scheduled for December 14-16, a weekend that includes the peak of the Geminids shower. (You can warm up with the Leonids, which are predicted to be spectacular this year and expected to show several peaks at "storm" levels between 0300 and 1100 UTC on November 19.) We hope that you will be active in the December 2002 North American Meteor Scatter Contest. If you do make some QSOs then, PLEASE send in your log or at least your summary sheet! We would like to have a reliable record of the activity level in the event. With best wishes, -- 73 from Joe, K1JT, and Tip, WA5UFH

1. PURPOSE: to promote activity using meteor scatter propagation on the amateur VHF/UHF bands.
 2. CONTEST PERIOD: starts on Saturday, December 14, at 0000 UTC and ends on Monday, December 16 at 0700 UTC (Friday evening through late Sunday evening, North American time.) The dates have been selected to make good use of the annual Geminids meteor shower.
 3. ENTRY CATEGORIES: You must specify Low Power or High Power, Single Band or Multiband, and Assisted or Unassisted operation. This means that there are a total of eight categories in all. Low power means less than 200 Watts output was used at all times. "Assisted" stations may use the internet, email, telephone, or other non-meteor-scatter communication to make schedules or solicit contacts. "Unassisted" stations must make their QSOs by calling CQ, answering a CQ, or tailending on another QSO. There are two exceptions to this rule. It is permissible for a Multiband Unassisted station to move a QSO partner to another band. For example, if you are working someone on 6 meters you might send "QSY 144.113" instead of "73". In addition, an Unassisted station may make schedules with other stations so long as the schedule is arranged before the contest has begun and the other station is at least 1300 miles distant (as determined by the six-digit grid locators of the two stations). This rule is to encourage efforts to push the envelope of meteor scatter communication. Entrants in the Assisted categories may make any normal use of email, Ping Jockey, or other scheduling aids during the contest, but of course they must not exchange any significant QSO information by non-meteor-scatter means while a QSO is in progress.
 4. EXCHANGE: full callsigns, four-digit grid squares, and final rogers must be exchanged. Any communication by non-meteor-scatter means during a contact invalidates the contact.
 5. MODE: any transmission mode (for example, CW, SSB, HSCW, FSK441) is permitted. QSOs with the same station count only once per band, regardless of mode.
 6. OPERATING PROCEDURES: QSOs will be much easier to make if everyone adopts conventional procedures. In general, the westernmost station should transmit in the first sequence. On a directly north-south path, the southern station goes first. You may find it desirable to use 15 second sequences in FSK441 mode rather than the conventional 30-second sequences. All participants are encouraged to listen for "tailenders" after completing QSOs, and to listen on the standard FSK441 calling frequencies (50.270 and 144.140 MHz) for CQs. The preferred method of calling CQ is the form "CQ U5 W1ABC", "CQ D13 W1ABC", or "CQ 113 W1ABC", indicating that W1ABC will be listening for replies "Up 5 kHz" or "Down 13 kHz" from the CQ frequency, or, in the third example, on 144.113. In each example the subsequent QSO would take place on the reply frequency, NOT the CQ-calling frequency. For example: W1ABC in FN42 beams southwest and calls "CQ D10 W1ABC" on 144.140, transmitting in the second half of each minute. W4XYZ replies on 144.130 and thereafter listens 144.130. As soon as W1ABC hears a reply, he QSY's to 144.130 to send "W4XYZ W1ABC FN42", and the two stations complete their QSO on that frequency. When the contact is complete W1ABC can go back to CQing on 144.140, knowing that a tailender might call him on 144.130 as well as someone answering the new CQ. If the preferred CQ frequencies become too busy, move up or down by 5 or 10 kHz. As a further aid to stations operating in the Unassisted categories, all participants are encouraged to look for requests to QSY to another band. After receiving RRR from W4XYZ, instead of sending "73" W1ABC might send "QSY 50.265". When W4XYZ receives this request she immediately QSYs and starts calling on 50.265. W1ABC moves over to 6 meters when he hears no further pings on 144.133, and the pair then complete a QSO on 6.
 7. SCORING: each QSO counts 1 point on 50 and 144 MHz, 3 points on 222 MHz, and 10 points on 432 MHz. QSOs originating by any of the permitted methods -- pre-arranged schedule, real-time schedule, calling CQ, tailending, or requesting a QSY to another band, are all scored the same way. Your final score is the sum of all QSO points multiplied by the total number of unique 4-digit grid locators worked, per band.
 8. REPORTING: Log information must contain the following data: Date and time of QSO, callsign of station worked, frequency, grid square, claimed QSO points, and new grids by band. For example:
- | Date | UTC | Call | Band | Grid | Points | Mult |
|--------|------|-------|------|------|--------|-------|
| Dec 14 | 0103 | W1ABC | 144 | FN42 | 1 | 144-1 |
| Dec 15 | 1237 | N4XYZ | 50 | EM83 | 1 | 50-1 |
| Dec 15 | 1252 | N4XYZ | 222 | EM83 | 3 | 222-1 |
| Dec 16 | 0203 | W9JKL | 144 | EN62 | 1 | 144-2 |
- The following information should be contained on the summary sheet accompanying the log: Callsign used, Grid Locator, Power Category, Assisted or Unassisted, Single or Multi-Band, Name, Address, and Email Address (if available). Callsign used: K0ABC Grid Locator: EM48 Power (High or Low): Low Power Assisted or Unassisted Assisted Single or Multi-band: Multi-band Name: John Doe Address: 1234 Main Street My Town, State, Zip Email address: k0abc@isp.com The summary sheet should include a table of the following form:
- | Band | QSOs | Points | Grids |
|--------------------------|------|--------|-------|
| 50 | 1 | 1 | 1 |
| 144 | 2 | 2 | 2 |
| 222 | 1 | 3 | 1 |
| 432 | 0 | 0 | 0 |
| Totals: | 4 | 6 | 4 |
| Total Score = 6 x 4 = 24 | | | |
- Logs must be postmarked or email dated no later than January 15, 2003. Email logs should be sent to wa5ufh@ykc.com; paper logs should be sent to: Louis R. Tipton 778CR123 Edna, Texas 77957 Please, please send in your score! It's very easy to do, and we want to have a good record of the level of activity in the event!
9. RESULTS will be posted on a pre-announced web site. Scores will be listed in rank order of total score, and there will be an indication of the entry band (50, 144, 222, 432, or M for multi-band) and category.
 10. Certificates? Would anyone like to volunteer to do this?

73 from Joe, K1JT, and Tip, WA5UFH

WSJT Version 2.9.0

I am pleased to announce the availability of an upgrade to WSJT Version 2.9. The upgrade provides most of the features of the soon-to-be-released Version 3.0; I am releasing it now as Version 2.9 because many users have asked for early access to its new capabilities. A full release of Version 3.0 must await some updating of the Users Guide and Reference Manual. Probably a few additional features will be added by then, as well. Please be patient! Version 2.9 is available only as an upgrade. As usual, it can be downloaded from the WSJT web site, <http://pulsar.princeton.edu/~joe/K1JT>, or from the European mirror site <http://www.dk5ya.de>. New features of the program include the following:

1. EME Echo mode now works on certain computers (generally older, slower ones) that previously refused to run Echo mode properly. The new version runs fine under Windows 95 on my ancient 100 MHz Pentium with 32 MB of RAM.
2. A new feature known as "Measure" can be selected from the main screen in EME Echo mode. Click the Measure button and your system will record the received audio for one second, compute the level of the noise and display the result in units of dB relative to the nominal WSJT "0 dB" level. The program will repeat this measurement cycle every 2 seconds and plot the results as a green line in the graphical screen area. You can use this mode to measure Sun noise, antenna temperature, ground noise, preamp gain, and a host of other useful quantities, relative to a chosen reference level.
3. A pop-up utility labeled "EME Calc" can be selected from the EME Echo screen. It provides an easy way to predict whether you should be able to detect your own echoes from the moon, as well as your ability to work another station by EME. Boxes are provided to enter your TX power, TX feedline loss, RX noise figure, RX feedline loss, antenna gain, ground gain, ground noise, and sky temperature. Similar quantities can be entered for a second station, and you must also specify the operating frequency. When you click "Compute," the program will calculate the maximum expected echo strengths for the "Home Station" and the "DX Station" individually, as well as the maximum expected signal strength of each station at the other location. The program also estimates the averaging time that would be required to detect echoes at the predicted signal level. Signal strengths are quoted relative to the WSJT standard, the noise power in a 2500 Hz bandwidth. If the computed result for your echo exceeds about -38 dB, you have a chance of being able to detect your echoes using WSJT. In comparison, echoes are detectable by the human ear only if they exceed about -14 dB on the same scale, or equivalently +3 dB in a 50 Hz bandwidth. Note that the estimated signal strengths are supposed to be the maximum values expected for the specified conditions. There are many reasons (Faraday rotation, ionospheric scintillation, libration fading, ...) why the actual signal strength may be different, and deviations are much more likely to be downward than upward. The predicted echo strength for my present 144 MHz station at a reasonably good time of the month is around -25 dB. My experience has been that the predictions are fairly good if enough time is spent to be sure of catching a Faraday rotation peak. A number of smaller enhancements have been made in the EME Echo mode of WSJT. These include the following:
4. The program is much better behaved when operating at higher frequencies, in particular 1296 MHz and above. If you fail to enter an RIT setting or specify one that would make the return echo fall outside the audio frequency range 900 - 2100 Hz, the program will suggest a better RIT value for you to use.
5. The amount of programmed frequency spread of your transmitted signal (the "Dither" magnitude) can be set to any value in the range 0 to 500 Hz. It defaults to 50 Hz.
6. Instead of accumulating average echo parameters indefinitely, you can set a parameter "Tavg" that specifies a time constant for averaging. The default value is 5 minutes; at this setting the average echo spectrum will build up as before for the first 5 minutes, but thereafter it will track the signal characteristics over the most recent 5 minutes. In other words, the average gradually "forgets" the signals received more than Tavg minutes ago. Setting Tavg to a large number, say 999 minutes, will closely approximate the program's previous behavior. If you can detect your EME echoes easily and want to see how they vary with time, you might set Tavg to 1 minute, start a "Measure" sequence, and take down the signal level readings at one minute intervals.
7. Information sent to the main text window every 6 seconds now accumulates, with the text window scrolling as necessary. The output is also (optionally) written to file DECODED.CUM so that you can study the data later. Other miscellaneous improvements and bug fixes include the following:
8. In JT44 mode, if the "Grid" box is left empty then no EME Doppler shift will be displayed.
9. The minimum "Dsec" increment has been reduced from 1 second to 0.5 second. This will permit more precise on-the-fly correction of the Windows clock for use by WSJT, should that be necessary.
10. JT44 messages are always exactly 22 characters in length, and any additional characters are ignored. To make this behavior more obvious, any excess characters are now visibly removed from the screen when transmission of a message begins.
11. In Version 2.3.0, hitting the F4 key while in echo mode would cause the program to crash. Fixed.
12. Switching between modes could cause the Auto Period button to be stuck in the disabled or "grayed out" state. Fixed.
13. The last character in a manually edited FSK441 message was not sent if the default trailing blank and "<" character were erased. Fixed.

Joel Knoblock W3RFC

www.therfc.com

The R.F.Connection

213 N. Frederick Ave. #11WWW

Gaithersburg, MD 20877 USA

World wide shipping via FED-EX or US Post OFFICE

Tech Line 301/840-5477

Order Line 800/783-2666 All major credit cards taken

Fax Line 301/869-3680

Hours: Monday-Friday 9:30am-5:30pm Eastern

Robert A. Griffiths

Attorney at Law

KLETT ROONEY LIEBER & SCHORLING
A PROFESSIONAL CORPORATION
12th Floor, Two Logan Square
2737

(215) 567-7857
FAX: (215) 567-

Bits from the Web

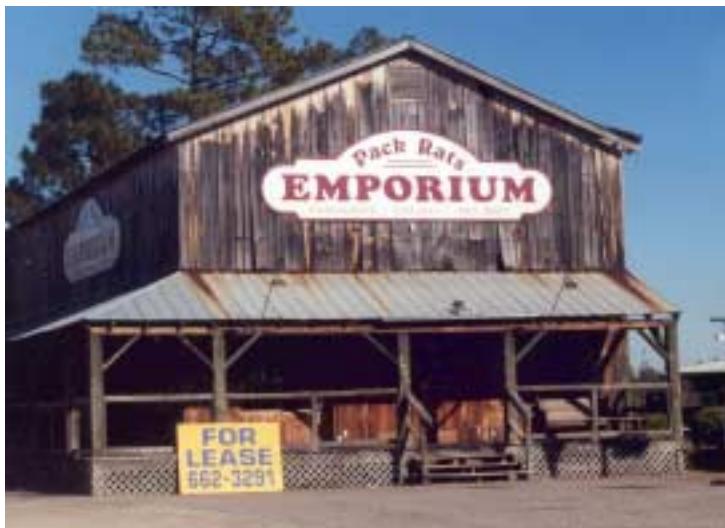
* The ARRL Letter Vol. 21, No. 46 November 22, 2002

Transatlantic VHF contact a no-go: Groups of amateurs from Germany, Canada and Ireland had no luck in their attempt to make the first two-way transatlantic VHF contact in conjunction with this week's Leonid meteor shower. The effort was, in part, a quest for the Brendan Trophies <<http://www.irts.ie/brendan.htm>> offered by the Irish Radio Transmitters Society <<http://www.irts.ie/>>. One group was on the Irish coast, while the other operated from Society of Newfoundland Radio Amateurs (SONRA) <<http://www.sonra.ca/>> club station VO1AA, located at Signal Hill National Historic Site of Canada. That's the spot where Marconi received the first transatlantic signal almost 101 years ago. "It's been quite an adventure," said Paul Piercy, VO1HE, who was at the Newfoundland end. "We never made the contact because the meteor shower didn't seem as big as predicted, he said." The Brendan Trophies will go to each of the operators of the two Amateur Radio stations that first establish two-way communication between Europe and North or South America on 2 meters. The teams in Ireland and Newfoundland attempted to use the ionized meteor trails to reflect FSK441 signals across the Atlantic. A 1999 effort to complete a transatlantic 2-meter contact between Newfoundland and Scotland on CW also was unsuccessful. The group conceded that bridging the more than 1920-mile gap between Newfoundland and Ireland via meteor scatter probably would require "an unusual kind of propagation."--Paul Piercy, VO1HE

Hello All, Looks like it will be a go for January from FN10vh. Signals were good from all I worked, the site owner said he did not hear any interference on any of his commercial systems, and the trailer made the trip in fine shape! I also found out that the entire drive to the tower site is plowed as soon as snow starts falling, and the site is backed up with a generator. What more could I ask for! Hope to have all bands through 10GHz in January with at least 100w on 50-432Mhz, 70W on 903, 18w on 1296, 10W on 2.304 GHz, 50W on 3.456GHz - 10.368GHz. Thanks to all who helped out with the site test today! 73 Steve, N3FTI

The Cabrillo template has been changed from letter band designators to number designators, and the League would like the changes made before the Jan SS. ie: A -->50 9 -->903 E -->1.2 etc. VHFLOG v2.10 reflects these changes. Run this self-extractor and put the updated files in your logging folder. If the logger's .exe name is different, just change it in the shortcut(s) 'Properties'. 73, Dave, W3KM

Thanks to Harry, W3IIT for this interesting photo he snapped during one of his travels in the South...or was this a club-member's shack?



Thanks to the generosity of Larry, K1CA, the K1TR 903 beacon has a new home. It was installed on Larry's 100' tower in FN42IV, 29 miles northeast of the original location in FN42FM (K1EA). Details and pictures are available at: <http://www.qsl.net/k1tr/> A big thanks to Dave at Directive Systems for providing the new 1296 beacon antenna! Please listen for these beacons and send me signal reports. It is found on 903.060. Both antennas are 100' above ground, with the tower base 550' above sea level. The 1296 beacon that accompanied the 903 beacon had to be deactivated 3 days after installation due to a unique service.

Tnx and 73, Ed, K1TR

A rover may not have two signals on any one band at the same time. There is nothing in the rules that prohibits a rover from having simultaneous operations on several bands.

73 Dan Henderson, N1ND ARRL Contest Branch Manager

Want to buy a Cushcraft A220-11 beam. Ed, K3ZCY >724-628-2833 erbarb@juno.com

I knew I wasn't going to have much time to spend on the Leonids. Returned home from a public appearance at New York's Hayden Planetarium* slightly after midnight EST, set the alarm for 0410 EST (0910 UTC), and went straight to bed. (It helps a great deal to have an extremely understanding spouse!) [No, the event was not about the Leonids, it was about the Museum's terrific new exhibition on Albert Einstein. See <http://www.amnh.org/programs/hayden/index.html#einstein>.] About five minutes later, or so it seemed, alarm went off and I groped my way to the shack. Found 144.200 a zoo, as expected. Plenty of burns, and good signals from stations south and west of me, more or less wherever I pointed the antenna. Had the impression that a single yagi with 30-50 degree horizontal beamwidth -- or perhaps a stacked pair of those -- might have been better for this than my rather sharp 4x2M9 array. Had a couple of SSB QSOs on 144.200, adding to the seething mess there; and then QSYed down 10 kHz and called a few CQs. Worked several more stations there. Checked Ping Jockey Central for stations from needed grids or in the 1300-1500 mile range; ran a couple of quick skeds and easy completions using FSK441. PJC was incredibly busy: no sooner I clicked "Go" to post a message, and already ten messages were there following mine! Hooked up with KA9UVY on PJC and agreed to run a sked on 222 MHz. Completed easily there in 15 minutes using 15-second sequences -- finishing up with a one-minute burn in which we each had a couple of nearly solid transmissions and switched to SSB to exchange 73s and thanks by voice. Probably should have tried 432 with someone, but instead checked 6 meters. Many good signals there, but I didn't transmit. Went back to 2 meters and worked a few more on 2-meter SSB. Headed back to bed at 1050 UTC for another two hours sleep, since I had a full day ahead. In the 1.7 hours I was on, the Leonids seemed good but hardly "once in a lifetime exceptional". Not as good as last year, but part of the difference may be that last year it fell on a weekend, which helped a lot. (Last year, too, six meters opened for F2 DX as soon as the sun came up -- I spent most of the day working 6m DX including states #49 and 50 and a number of new DXCC entities, returning to 2 meters from time to time to work a few more SSB randoms on good Leonids burns.) See you in the Meteor Scatter contest in December! -- 73, Joe, K1JT

I have AM6155 parts and I would like to have an amplifier repair, conversion session at my house on a Saturday before or right after New Years. Anyone with AM6155 amps in need of repair and any one with expertise willing to contribute is welcome. Please contact me if you are interested—
Brian N3EXA n3exa@enter.net



K1WHS Rovers

Continuing the saga of how to run up a million points in the VHF contest, you need a few rovers, especially where the VHF ham density is thin, like in Maine. You saw the picture of KB3XG in the October issue, here are the other three: N1JEZ (top L), K1OR, bottom L) and WB2ONA, (top R)—what's that, a rover being pulled by a rental van? Well, when the transmission goes bad, but you need to make those grid appointments, anything goes! The WB2ONA rover van has a short tower section on the rear, which hinges forward over the van when all the antennas are pointed to the East for travel. N1JEZ uses tripods for three dishes on 5, 10 & 24G, and another for yagis, while K1OR uses a mast attached to the spare tire carrier on the rear of his van for the rover duties. Appears that a looper has met a low hanging tree at this location in FN66.

C3i®

**Top Quality, Performance, Durability, Cost
Others make claims, C3i® Delivers**

Call, FAX, or E-mail or Order from our Web Site

**Our K1FO and K1JX VHF and UHF Antennas are proven
Performers in Contest after Contest @ K8GP / FM08fq**

GO WITH THE WINNERS

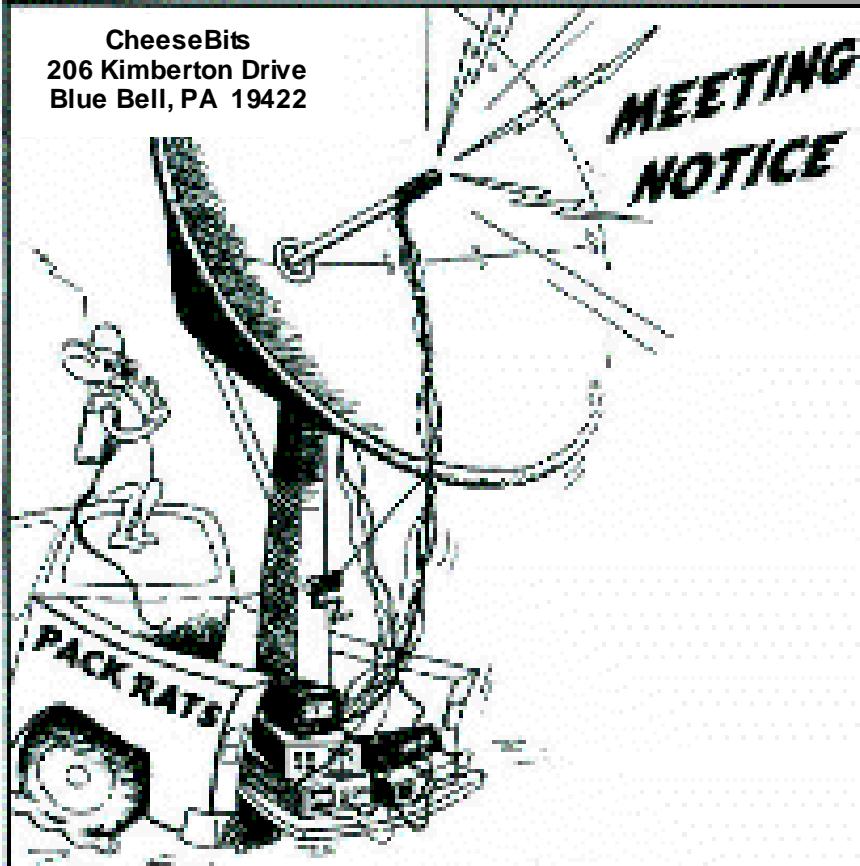
VISIT OUR HOME PAGE TODAY FOR MORE DETAILED INFORMATION
<http://www.c3iusa.com>

1-800-445-7747 Antennas

owormser@c3iusa.com sruffin@c3iusa.com



CheeseBits
206 Kimberton Drive
Blue Bell, PA 19422



Thu Dec 12-Board of Directors

Thu Dec 19-Monthly Meeting-
Members and Guests
AA2UK and AA3GN-Contest Prep

Thu Jan 9-Board of Directors

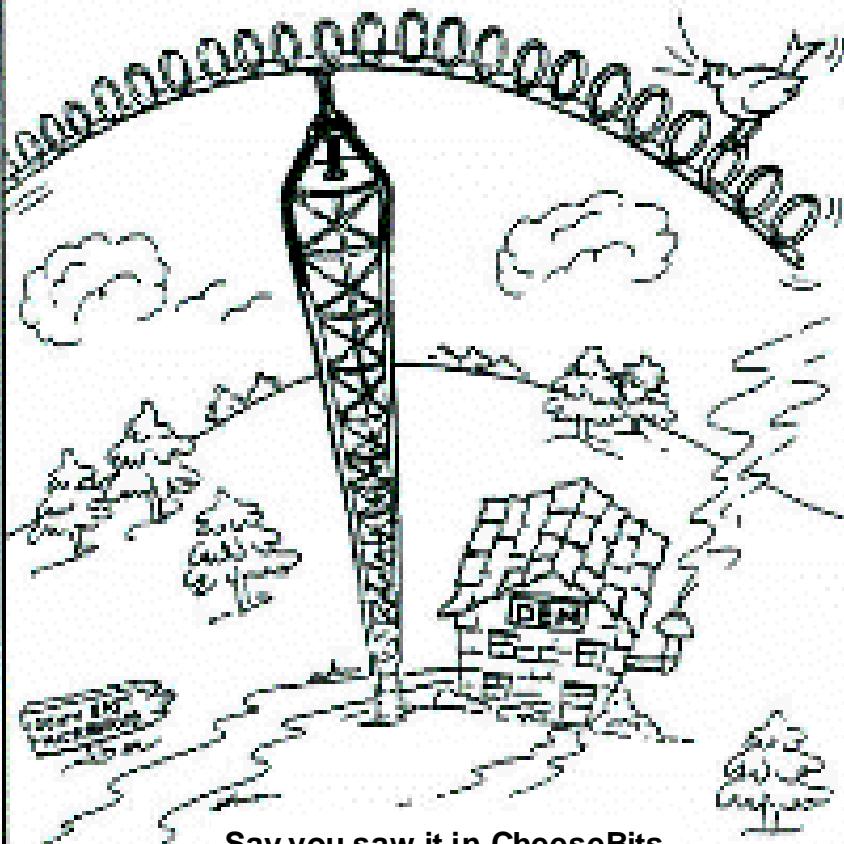
Thu Jan 16-Monthly Meeting
Members and Guests
WA3RLT Contest Analysis

**Sat-Sun Jan 18-19-20
VHF SS 2003**

It is your Packrat duty to
participate, operate and submit a
log toward the club effort. Make
your needs known at the meeting,
call or email.

FIRST CLASS

MT. AIRY VHF RADIO CLUB, INC.



Say you saw it in CheeseBits

DOWN EAST MICROWAVE

Manufacturers and Distributors
Of VHF/UHF/SHF Equipment and Parts
50 to 10,368 MHz

- Microwave Loop Yagis
- No-Tune Linear Transverters
- Linear Power Amplifiers
- Low Noise Preamps
- Coax Relays, Coax Cable, Connectors
- Crystals, Chip Capacitors, MMICs, Transistors, RF Modules

For All Equipment and Antennas:
Steve Kostro, N2CEI
954 Rt. 519
Frenchtown, NJ 08825
Tel. 908-996-3584
Fax. 908-996-3702

<http://www.downeastmicrowave.com>