

CHEESE BITS



W3CCX

SCANNED TO PDF BY BERT, K3HJV, 2013



CLUB MEMORIAL CALL

ARRL
Affiliated
Club
Number 9

VOLUME XXXX

September 1998

THE PREZ SEZ

I hope those that attended the Pack Rat picnic last month enjoyed themselves. I unfortunately could not attend due to vacation plans. As I said last month, the picnic is an event that may need some updating to generate more interest from the membership. If you have some ideas please let the BOD know so that we can make some changes. The number one thing that is needed is a chairman whom will generate some enthusiasm for what ever changes are made. Maybe it doesn't need changing, I am not sure, but I know it needs revitalized leadership.

The first weekend in October can mean only one thing, Hamarama weekend. John, KB3XG, has done a yeoman job of securing an excellent line up of speakers for this years event. Pack Rat members have an excellent opportunity of attending a premier gathering of VHF and above enthusiast right in your own backyard. These are the kind of events that provide an easy way to expand your horizons and find out where the state-of-the-art of high frequency techniques are right now. Every Pack Rat should attend this event. It is what we are all about. See schedule of events on the Pack Rat web page and elsewhere in this issue of Cheesebits.

The following day is economically the most important day of the year for the club. We really need you to support the club and help Mark, NK8Q and Bob, N3XEM, to run the Hamarama flea market. We will have a list at the September club meeting for you to sign up for the various jobs. Last years turnout was excellent and made the day go a whole lot easier. It is important that that you devote as much time as possible in helping with the various tasks at hand. The day starts early at 0430 with a club financed breakfast at Lancers on Rt. 611 across from the Willow Grove Naval Base. Workers should be at the Drive-in by 0530. I know its early, but it's only one day out of the whole year. You can sleep in the afternoon after the work is done.

The September meeting is the first in door meeting of the season. Steve, N2CEL, is coming from the Corporate Headquarters of Down East Microwave to bring us up to date on what's new and exciting in the way of VHF and above devices and equipment. The short hat summer is behind us and it's time to think about what new bands you are going to get on this year and what improvements you are going to make to your station. This type of meeting is an excellent chance to get some ideas and perhaps start the sap rising. Sugar making season is not far away.

73, Ron, W3RJW

MEETINGS

Third Thursday each month at 8:00 PM
Southampton Free Library
947 E. Street Road
Southampton, PA 18966

Pack Rats' **CHEESE BITS** is a monthly publication of the
- Mt. AIRY VHF RADIO CLUB, INC. -

Southampton, PA

SUBSCRIPTION RATE: \$10.00 PER YEAR (USA)
\$12.00 PER YEAR (CANADA)
\$15.00 PER YEAR (ELSEWHERE)

We operate on an exchange basis with other non-commercial publications. Anything that is printed in **CHEESE BITS** may be reprinted in a not for profit publication, unless otherwise stated, 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
(609) 665-8488
bsf57a@prodigy.com

EDITOR:

Harry Brown, W3IIT
3012 Potshop Road
Norristown, PA 19403
(610) 584-4846
hbrown@voicenet.com

CLUB TREASURER:

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

AWARDS CHAIRMAN:

Bob Fox, W3GXB
(610) 346-8698

TRUSTEE OF CLUB CALL - W3CCX

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

PACKRAT 222 MHz REPEATER - W3CCXR

222.98/224.58 MHz, Churchville, PA FN201.E

OFFICERS: 1998-1999

PRESIDENT: W3RJW Ron Whitsel, W3RJW@aol.com
VICE PRES: WA3UUD Jim Antonacci, antunacc@pacsibm.org
REC. SECR: WA3AQA Walt Zumbach, wzumbach@hellatlantic.net
TREASURER: W3KM Dave Mascaro, dmascaro@gi.com
COR. SECR: N3AOG Dick Comly, n3aog@compuserve.com
DIRECTORS: WA3DRC (2 Yrs) Ed Finn, ed_finn@uste.vlsi.com
N3EVV (2 Yrs) Walt Rauscher
AA3GN (1 Yr) Joe Landis, latudis@mad.com
W2SJ (1 Yr) Bob Fischer, bsf57a@prodigy.com

MONDAY NIGHT NETS

<u>TIME</u>	<u>FREQ.</u>	<u>NET CONTROL</u>
7:30 PM	50.150 MHz	K3EOD/WA3EHD
8:00 PM	144.150 MHz	N3ITT
8:30 PM	222.125 MHz	W2SJ
8:30 PM	224.58R MHz	W3GXB
9:00 PM	432.110 MHz	W3RJW
9:30 PM	1296.100 MHz	WA3NUF/AA2UK
10:00 PM	903.100 MHz	N3AOG

COMMITTEE CHAIRMEN

LADIES' NIGHT:	N3AOG	215-443-9965
JUNE CONTEST:	N3ITT	610-847-5490
HAMARAMA:	NK8Q	610-847-2285
VHF CONFERENCE:	KB3XG	610-584-2489

PACK RAT BEACONS - W3CCX/B FM29JW

50.080	144.284	222.065	432.295	903.072	1296.251 MHz
2304.037	3456.220	5760.200	10368.200		MHz



THE AMERICAN RADIO RELAY LEAGUE

KAY C. CRAIGIE, WT3P
DIRECTOR, ATLANTIC DIVISION

5 Faggs Manor Lane
Paoli, PA 19301-1905
(610) 993-9623

wt3p@arrrl.org



THE AMERICAN RADIO RELAY LEAGUE

Bernie Fuller, N3EFN
VICE DIRECTOR, ATLANTIC DIVISION

17668 Price Road
Saegertown, PA 16433
814-763-1529

n3efn@arrrl.org

STEVEN N. WHITE
Attorney at Law

2217 PALOMINO DRIVE
WARRINGTON, PA 18976

TEL: (215) 343-6902
FAX: (215) 343-6903

CALENDAR OF COMING EVENTS - SEPTEMBER 1998

- 2 Birthday of Hiram Percy Maxim, W1AW, on Sept. 2, 1869.
- 7 Labor Day
- 11 Mt. Airy VHF Radio Club Board of Directors meeting will be held at the QTH of Ed, WA3DRC at 8 PM (174 Orthodox Dr., Near Richboro, PA). W2SJ. Call (215)322-2105 for directions. Directors and all interested parties are welcome.
- 12 Delaware-Lehigh ARC Hamfest at the Schencksville Fire Co. 4 miles N on Rte 22 on Rte 309 N of Allentown, PA. TI on 146.7.
- 13-15 September VHF QSO Party. Starts 1800 UTC Sat. and continues thru 0300 UTC Mon. See Aug. QST, page 101 for rules. Get on and at least give out a few points. Participation Pins available for everyone making 25 or more contacts.
- 17 First indoor meeting of the fall season of the Mt. Airy VHF Radio Club will be held at the Southampton Free Library on Street Road in Southampton, Pa. Steve, N2CEI, will talk on NEW STUFF. All members and interested VHFers are invited to meet and share with us. For directions check <http://www.ij.net/packrats/meetings.htm>.
- 19 49th Annual SJRA Hamfest at the Mt. Holly Armory, Exit 40A off I-295N, E on Rte 38 in Mt. Holly NJ. VE Sessions. Talk-in on 144.69/145.29. Check: <http://www.sjra.org>.
- 19-20 ARRL 10 GHz and Up Contest. See June QST page 87 for the rules.
- 20 42nd Annual York, PA Hamfest and Computercfest at the York County Area Vocational Technical School. VE Exams. Check <http://www.yorkhamfest.org>.
- 24 LEAP INTO THE MICROWAVES with the Packrats! 903 and above. Starting on the 4th Thursday of the month and continuing every 4th Thursday of the month operate from 8 to 10 PM local time on any band 903 MHz and above. For coordination on those difficult long haul contacts 144.260 MHz is the suggested liaison frequency. So here's your chance to fix what broke in the contest and work all those stations you missed.
- 26 Delaware Valley Radio Assn. Hamfest will be held at Tall Cedars of Lebanon picnic grove on Sawmill Rd. in Hamilton Township NJ. TI on 146.67-. Check: <http://www.stac.com/w2zq> for details.
- Oct.
- 3 The 22nd Annual Mid-Atlantic VHF Conference will be held at the Quality Inn in Horsham, PA. Admission \$10 in advance or \$10 at the door (includes HAMARAMA). For further info, contact the Conference Chairman, John Sortor, KB3XG, 215-584-2489. For more info and directions check <http://www.ij.net/packrats/hamarama.htm>.
- 4 Hamarama 98 will be held at the Bucks County Drive-In on Rte. 611. In Warrington, Pa. For directions check <http://www.ij.net/packrats/hamarama.htm>.

RATS AT NEWS CONFERENCE

dc Paul Drexler, WB3JYO

A number of Rats attended the North East Weak Signal conference this past weekend in Enfield, CT.

Rat attendees: WB3JYO, KB3XG, W3HT, N3EXA, AA3GN, KU3T, WA2GFP, N3AOG and XYL Janet, and W2SK.

A hospitality suite was offered Friday night along with a live on the air demonstration of 2m high speed CW meteor scatter in the back parking lot. It was interesting to see what this was all about and how easy it is to get set-up. (I think a few of us are going to seriously consider this mode).

The conference had a number of interesting talks and a simultaneously-run Technical Room for noise figure testing, equipment debugging, and "eyeball" QSO's. Plenty of liquid refreshments were provided.

Saturday evening's banquet was great, as always. I don't know how these guys come up with all the prizes!

Overall attendance for the event was something over 100 people. Hats off to conference chairman Bruce, N2IJV and our friends at NEWS for a fine weekend! Look for more information on the conference in Cheesebits. More Packrats should consider attending this event next year. You'll be glad you did.

HF TRANSCEIVERS WITH TRANSVERTER PORTS?

Compiled by Roger, W3SZ, from the VHF Reflector

Questions frequently come up on the VHF Reflector that can be useful to old and new VHFers alike. The question was what current production HF rigs have provisions for transverters. I have received no recent additional responses to the 'HF rigs with transverter' post. So here is the data I received. Thanks to all who helped. Special thanks to Ev Tupis W2EV who had addressed this before, and sent along a long helpful list of HF rigs, where/when they were reviewed, and whether they have a transverter port. On his list, enclosed as an attachment, the absence of a notation regarding transverter port means that it is unknown as to whether or not a transverter is present. A positive response means one is present. The file from Ev 'Rig List.txt' is present both within Ed's email attachment and as a separate attachment for convenience. I realize there is some redundancy here. Hope this is helpful.

There are a lot of ways to use rigs with no provisions though so this list should not be the sole decision on the HF rig to use with transverters.

<u>Manufacturer</u>	<u>Rig</u>	<u>Yes/No</u>	<u>Comments/Other</u>
Alinco	DX-77T	?	
Collins	KWM-2	No	
	S-Line	?	Got email 2 sources/one says yes, one says no
Drake	TR-7	No	
ICOM	IC-981	Yes	ARRL Product Review
	IC-775DSP	Yes	ARRL Product Review
	IC-765	Yes	
	IC-756	No	ARRL Product Review
	IC-746	No	ARRL Product Review
	IC-743	Yes	W2EV source
	IC-736		
	IC-735	Yes	Low xmit output/may need MMIC amp
	IC-728		
	IC-707		
	IC-706/Mk2	No	ARRL Product Review
Kachma	505DSP	?	
Kenwood	TS-950SDX	Yes	W7HR source K2RTH confirm
	TS-940S	Yes	W2EV source
	TS-930S	Yes	KY0Q
	TS-870S	No	Kenwood Customer Service (Leo Fahmie)
	TS-850S	Yes	W2EV source K2RTH confirm
	TS-830S	Yes	W2EV source; Bob Riese Confirms
	TS-820	Yes	W2EV source
	TS-790A		
	TS-570DG	Yes	Kenwood Customer Service (Leo Fahmie) Bert, NS4W, pointed out to me that the Kenwood TS-570 series of transceivers does NOT have a transverter port. I had listed in the table that it did because of the email I received from Kenwood:
	TS-570SG	Yes	Kenwood Customer Service (Leo Fahmie)
	TS-570D	Yes	Kenwood Customer Service (Leo Fahmie)
	TS-520S	Yes	Kenwood Customer Service (Leo Fahmie); W2EV confirms
	TS-450S		
	TS-430	Yes	"Makes a good 1F" -N8RGR
TS-50S			

Continued on page 8

22ND Mid Atlantic States VHF Conference

Saturday October 3, 1998

Hampton Inn

1500 Easton Road (Rte. 611)

Willow Grove, PA

See Map Below

Hotel Reservations 215-659-3535

Notice: Deadline for Block Room Rate is September 11, 1998

Mention Block Code "VHF" for special rate

- Free Admission to Hamarama Flea Market with Conference Ticket
- Hospitality Suite at Hotel Friday and Saturday Night at 7 PM
- Lunch and Dinner Available Saturday at the Hotel
- Door Prizes at Dinner

You don't want to miss the 1998 Pack Rat Conference. It's packed with lots of great technical presentations. In addition to an interesting speaker lineup, we will be hosting a tech session in an adjoining room. We will have a HP noise figure meter, network analyzers, spectrum analyzers, and power supplies.

All test equipment will be operational up to 10 GHz. This is not a contest. We want to encourage people to bring stuff in just to have it checked. We look forward to seeing everyone on Saturday Oct. 3rd. Registration is at 0800 and the conference starts at 0900 on Saturday.

Hospitality suite will be open Friday (7 PM) and Saturday Night.

Free Ticket to the Hamarama Hamfest the following day, Sunday October 4th.

See the Pack Rat Web page for additional information: <http://www.ij.net/packrats>

Conference Speaker List:

- Dave Olean, K1WHS, "Aurora Detector" Dave uses a homebrew magnetometer to alert him to Aurora openings.
- Chris Fagas, WB2VVV, "Patch Antennas" Chris has designed a multiband patch antenna array for roving. You'll be surprised how much gain you can get out of a single patch.
- Jeff Kuth, WA3ZKR, "Coplaner Microstrip Design" This technique allows you to design a variable width 50 Ohm line independent of board thickness.
- Mike Gaffney, "28 GHz, 10 Watt Solid State PA" Even though you may not see this on the surplus market for a year or so it will give you an idea of current device capabilities.
- Tom Williams, WA1MBA, "EHF Imaging" A video image can be created by scanning an object with 76 GHz RF energy. The system includes LNA's mixers and PA's. Is this the next surplus band?
- Steve Kostro, N2CEL, "New Microwave Devices" All of the new wireless markets have created the need for new devices that drop into the ham band circuits.
- Tom Whitted, WA8WZG, "Andrew Products & EME" Tom will explain how to squeak every last tenth of a dB out of Andrew cable and connectors.
- Maarten Broess, W1FIG /Steven M. Harrison, KO0U, "High Speed Meteor Scatter" HSMS is a fantastic mode for increasing your grid count while still maintaining your CW skill. A live demo is planned.

HAMARAMA WEEKEND 98'
HAMARAMA FLEA MARKET

Sunday October 4, 1998

Bucks County Drive-In

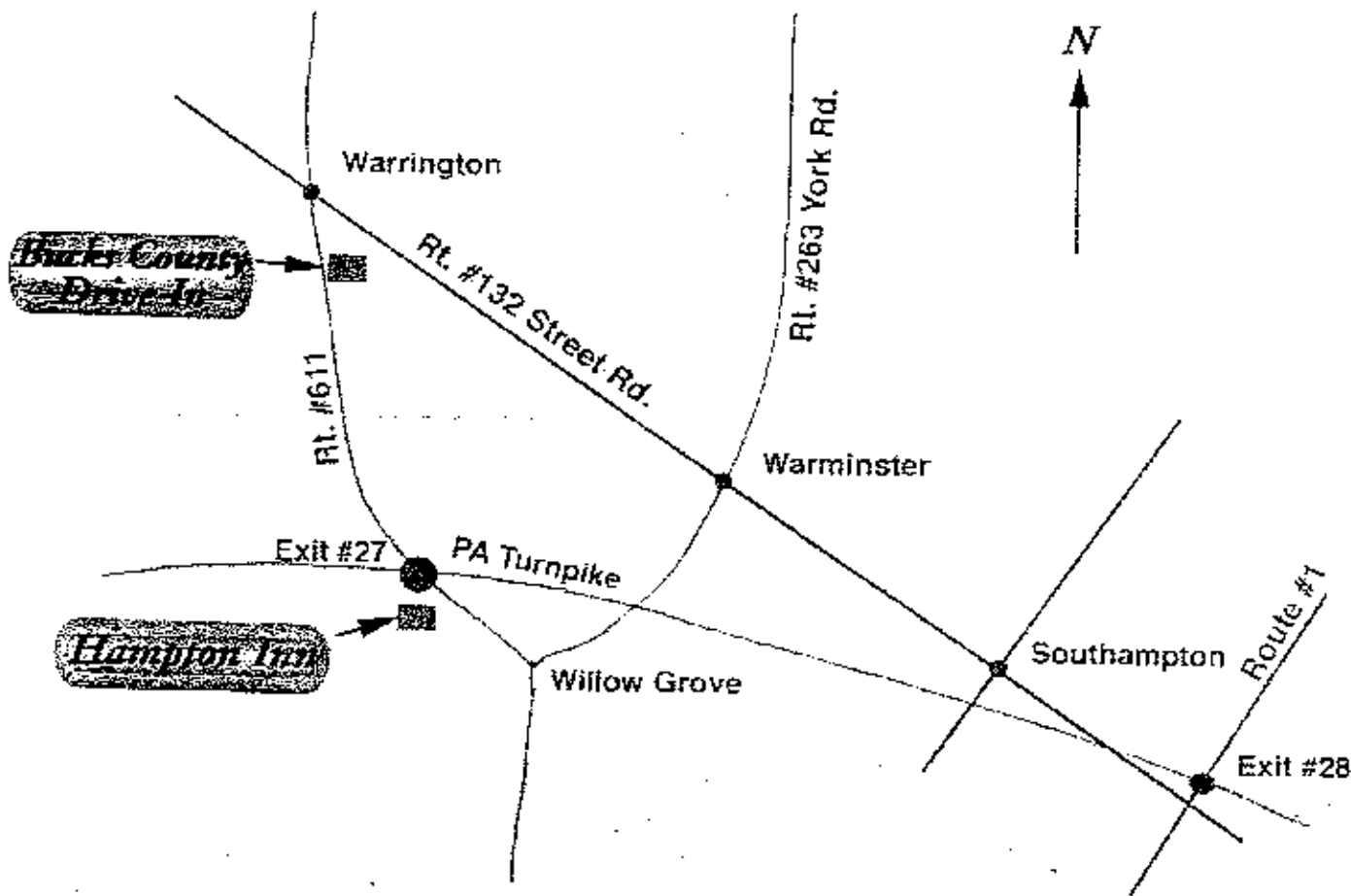
Easton Road (Rte. 611)

Warrington, PA

Food, Beverages and Facilities on Site

Talk-In on 146.52 MHz

Gate Opens for Buyers at 0700 Sellers at 0600



CHEESEBITS SUBSCRIPTIONS

Cheesebits subscriptions are available to everyone interested in activities and information from the VHF through the microwave frequencies. Subscriptions are for 1 year of 12 issues. For a subscription, send the following information:

Name: _____ Call: _____

Street Address: _____

Town: _____ State: _____ ZIP: _____

Subscription Rate: \$10.00 per year (USA), \$12.00 (Canada), \$15.00 (Worldwide)

September 1998 Send to: SUBSCRIPTION/ADVERTISING MANAGER:

Bob Fischer, W2SJ, 7258 Walnut Avenue, Pennsauken, NJ 08110

SWAP SHOP:

(send all ads to the editor)

FOR SALE: For sale: Yaesu FT 736R, vhf/uhf all mode radio. Has the 2 meter and 70 cm modules installed. Has 9600 band modification, cw filter, and tone board. A 9 on a scale of 1-10. Non-smoker. All modifications documented. Asking \$1225 plus shipping or BEST REASONABLE OFFER. Call Rick between 1900-0130 UTC at 302-737-7966 or email.

FOR SALE: CALLSIGN HISTORY. Name and address of each holder since 1912. Cost \$12 plus SASE for printed CERTIFICATE. Wanted Call Books before 1970 and QST's before 1940 will buy or trade. Also looking for 1x2 Ham Radio License Plates for my collection. Ron Allen W3OR, PO Box 73, Bethel, De. 19931-0073 or call 302-875-1100.

FOR SALE: Kenwood TL-922A 10-160 meter HF Amplifier, mint condition with pair new 3-500 Z finals, does 1500+ watts output, with manual. \$1150. 6.5 foot open rack with rollers, excellent condition, best offer or trade. **Hearth HM-15A 2000 watt HF SWR meter,** mint, best offer. **Tempo RBF-1 2000 watt HF SWR/Power meter,** mint, best offer. Contact: Dennis, N3DG, 215-938-8820, N3DG@juno.com

FOR SALE: 222 MHz Microwave Modules Transverter. 28 MHz IF. 25 watt model, \$175. **144 MHz Microwave Modules Transverter.** 28 MHz IF, 10 watts model, \$150.00. Contact Harry, W3IIT, hbrown@voicenet.com, 610-584-4846.

FREE: 14.4 and 28.8 Kbaud external modems. Contact Harry, W3IIT, hbrown@voicenet.com, 610-584-4846.

TID BITS

Pzmi Wade, ex N1BWT, is now **W1GHZ**. Del, ex KD1DU, is now **K1UHF**.

FT-100 Rumors: The FT-100, otherwise known as the "IC-706 Killer", features 100 watts on HF, 6 and 2 meters, and 50 watts on 440, all on all modes (SSB, CW, AM, FM, FSK). Wideband and extended receive and transmit mods will be available for MARS members, however, don't expect to transmit on 220. You may be able to receive on 220 with the mod, however, at reduced sensitivity. (Further, Yaesu has no intention of any new 220 rigs as 220 is unavailable in their largest native Japanese market.) The FT-100 includes Digital Signal Processing and other features the IC-706 does not have at an even smaller package making it ideal for roving, or mobile/portable work. More details when they become available, de Dennis, N3DG.

Unknown Packrat reported to have spent a few hours in a local hospital for some minor surgery. Claims it was for a hernia. Local police say it was for a dog bite.

W3OR worked out to Ill on 903 and 1296 on 8/20/98 grid EN-62. Worked a lot of stuff on 2, 222 and 432. Band was good from 8/20 thru 8/21.

New e-mail address for Don, **KA3MGB**. Now is ka3mgb@juno.com. Mark, **W2UR** also has a new e-mail address: W2UR@juno.com.

The September issue of the **432 MHz and Above EME Newsletter** by Al, **K2UYH** can be found at:

<http://www.nitichawk.com/rasnit/em70cm.html>. Graphics section will be added later. de Rein, **W6/PA0ZN**

The new **SMIRK** Webpage update is at <http://www.smirk.org>

A few photos of the Eastern VHF Conference can be found at <http://www.ql.net/vhfnews/photos.html>. The Conference is noted for it's trivia questions and this year they had a quiz on calls and ex calls from noted VHFers. Packrat, Ron Whitset was one of the operators in the quiz. What calls does Ron hold and has ever held?

EM76 Beacons (New one on 144). I am adding a new 144 MHz beacon to my site in EM76. It is on the bench burning in but I will try to have it on the mountain by the end of the week. Frequencies: 50.070, 0.350 watts to dipole oriented n/s. 144.500, 15.0 watts horizontal omni., 222.070 (CURRENTLY ~068.5, will adjust up) 3.5 watts to horiz. omni. Call: **NS4W/b**. Loc: 3000' a.s.l. near LaFollette, TN. Grid: em76vj, Time: 24 hours / day. 432 beacon coming soon. de Bert - **NS4W**.

Local VUCC News: Harry, **K3HZO** just upgraded his 1296 MHz grid count from 40 to 45 grids and 50 MHz from 125 to 150. Harry has operated from 3 separate locations, sufficiently far apart so he has had to start from QSL card count from zero 3 different times. Craig, **N3YGA**, updated from 100 to 127 grids on 50 MHz and Ron, **W3OR**, got his first 25 grids for VUCC on 903 MHz. See Harry, **W3IIT**, for forms and an appointment to have your VUCC cards checked.

NEW HSMS REFLECTOR

A new reflector dedicated to High Speed Meteor Scatter has been established. The focus of the list is to discuss and encourage the use of HSMS. Aspects concerning software, techniques, rig mods, new advances, and op style are all welcomed. Hams wishing to use the list to solicit MS skeds, or to pass DX news, propagation, and reports are welcome as well.

To subscribe, send a message to: majordomo@tree.net

In the body of the text write: subscribe hsms

You will get a message saying you have subscribed and also instructions for sending messages, unsubscribing, rules and regulations, etc.

(HF TRANSCEIVERS Continued from page 4)

Ten-Tec	Omni V	Yes	W2FCA source
	Omni VI Plus	Yes, for \$150 extra	W2FCA source
Yaesu	FT-1000MP	Yes	W3ZZ reports "IMHO there is...nothing better"
	FT-1000D	No	
	FT-990	No	
	FT-980	No	Has Separate RCV/ANT so Can be used with AITEN on TX/ANT(10W min)
	FT-920	No	
	FT-900AT		
	FT-902	Yes	W2EV source
	FT-901DM	Yes	W2EV source
	FT-847	No	
	FT-840		
	FT-707	Yes	W2EV source
	FT-200	Yes	W2EV source
	FT-107M	Yes	W2EV source / N0UK confirms
	FT-101B	Yes	W2EV source
	FT-101E	Yes	W2EV source
	FT-101ZD	Yes	W2EV source
	FT-100		
FT-One	Yes	KC5FLJ source / QST review confirms	

ARRL CAC NEEDS INPUT

Tim Duffy, K3LR, tduffy@sygnel.com

Here are several agenda items that the ARRL Contest Advisory Committee (CAC) is working on. Please send your comments on any or all of these topics via EMAIL to cac@arrl.org. This will allow every member of the CAC to read your ideas.

Please feel free to publish this request for input in club newsletters, etc. The CAC will vote on these topics in mid October. It will then send its suggestions to the ARRL MSC for further review and consideration.

1. Should the CAC suggest to the ARRL MSC (Membership Services Committee) that the time period be increased (at the end) for the 10 GHz and up cumulative contest?
2. Should the CAC suggest to the ARRL MSC that ARRL contests with single band categories allow multiple single operator (different operators) unassisted single band operations (separate log entries) from the same QTH with the same callsign?
3. What should be the CAC recommendation to the ARRL MSC concerning the issue of all CW QSOs for mixed mode entries (single op and multi-op) in the 10 meter contest being made below a specific frequency and or requiring a specified time on a mode before switching to the other mode?
4. Should the CAC recommend to the ARRL MSC that a low power (a maximum of 200 watts of transmitter output) category be added to the VHF/UHF contests?

URLS FOR HIGH SPEED METEOR SHOWER INFO

Shelby Ennis, W8WN, w8wn@ne.infi.net

Procedures, FAQs, Technical information, Links to other sites.

Download MS DSP Software from: <http://ham2.irb.hr/9a4g1/msdsp.html>

Primary information on High Speed CW Meteor Scatter for North America http://www.nitehawk.com/rasmit/ws1_15.html

Introduction to MS/HSMS, Circuits and alternate methods for HSCW, North American HSMS active stations directory <http://www.mint.net/~nlhug/>

Overview of HSCW, Information, tutorial, and transmit files for using CoolEdit for HSCW, HSCW sound files, Simple interface and station block diagram, Links to other sites: <http://www.qsl.net/k0sm/>

MS/HSMS links, Email lists of active stations (NA and Europe), sound files, etc. <http://www.illc.de/sites/gap/>

Sound files for HSCW practice and more <ftp://ftp.qsl.net/pub/kd5bur/>

Latest version of K7CA's CW keying program, sound files <http://www.qsl.net/n7stu/hscw.html>

For the North American Procedures paper: <http://www.nitehawk.com/hscwsop.doc>

For the flowchart on what to send: <http://www.nitehawk.com/rasmit/flowchrt.jpg>

For the contest log, with its chart on what to send: <http://www.nitehawk.com/contlog3.doc>

ARRL VUCC AWARD APPLICATION FORM

Please print or type clearly and use a separate application for each award.

Call sign: _____ Ex Call signs: _____

Name: _____
Print exactly as you want to appear on certificate

Address: _____

City: _____ State: _____ Zip Code: _____

Membership ID Number: _____ Expiration Date: _____

Initial Application Endorsement

Band: (please check only one) Use One (1) Application Per Band

<input type="checkbox"/> 50 MHz	<input type="checkbox"/> 144 MHz	<input type="checkbox"/> 222 MHz	<input type="checkbox"/> 432 MHz	<input type="checkbox"/> 902 MHz	<input type="checkbox"/> 1296 MHz
<input type="checkbox"/> 2.3 GHz	<input type="checkbox"/> 3.4 GHz	<input type="checkbox"/> 5.7 GHz	<input type="checkbox"/> 10 GHz	<input type="checkbox"/> 24 GHz	<input type="checkbox"/> 47 GHz
<input type="checkbox"/> 75 GHz	<input type="checkbox"/> 119 GHz	<input type="checkbox"/> 142 GHz	<input type="checkbox"/> 241 GHz	<input type="checkbox"/> Laser	<input type="checkbox"/> Satellite

Initial Applicants _____ Number of Grid Locators _____

Endorsements

Previous Total	Number added with this endorsement	New Total
----------------	---------------------------------------	-----------

I affirm that I have observed all the VUCC rules as well as all pertinent government regulations established for Amateur Radio in my country. I agree to be bound by the ARRL Awards Committee (Decisions of the ARRL Awards Committee are final).

Signature: _____ Call sign: _____ Date: _____

VHF Awards Manager Verification:

I have verified these contacts as set forth by the rules of the VUCC Program.

Signature	Call sign	Verification Number	Date
-----------	-----------	------------------------	------

***** Application Directions *****

- 1) Complete all fields above and read MSD-261 detailing program rules
- 2) Enclose award fees (\$10.00 for each new award)
- 3) Enclose \$2.00 or a 9 X 12 SASE for return postage (Endorsements only) (\$4.00 foreign)
- 4) Sort cards alphabetically by field and numerically within the field from 00-99
- 5) Contact your VHF Awards Manager before sending cards to assure they are available to make arrangements for checking
- 6) Give Awards Manager all fees and mailing costs. They are responsible for sending paperwork to ARRL
- 7) DO NOT SEND CARDS TO ARRL HEADQUARTERS

Field:
(first 2 letters
of locator)

--	--



Field:
(first 2 letters
of locator)

--	--

SQ.	Callsign	SQ.	Callsign
00		50	
01		51	
02		52	
03		53	
04		54	
05		55	
06		56	
07		57	
08		58	
09		59	
10		60	
11		61	
12		62	
13		63	
14		64	
15		65	
16		66	
17		67	
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29		79	
30		80	
31		81	
32		82	
33		83	
34		84	
35		85	
36		86	
37		87	
38		88	
39		89	
40		90	
41		91	
42		92	
43		93	
44		94	
45		95	
46		96	
47		97	
48		98	
49		99	

ARRL VUCC AWARD

CALLSIGN: _____

- 50
- 144
- 220
- 432
- 1296 MHz

DIRECTIONS: This side of tally sheet good for two fields. 1. Enter your callsign and check band. 2. Enter two-letter field. 3. Enter callsigns of stations worked in appropriate grid square. 4. Total grid squares for each field.

TOTAL number of grid squares worked in this field =

SQ.	Callsign	SQ.	Callsign
00		50	
01		51	
02		52	
03		53	
04		54	
05		55	
06		56	
07		57	
08		58	
09		59	
10		60	
11		61	
12		62	
13		63	
14		64	
15		65	
16		66	
17		67	
18		68	
19		69	
20		70	
21		71	
22		72	
23		73	
24		74	
25		75	
26		76	
27		77	
28		78	
29		79	
30		80	
31		81	
32		82	
33		83	
34		84	
35		85	
36		86	
37		87	
38		88	
39		89	
40		90	
41		91	
42		92	
43		93	
44		94	
45		95	
46		96	
47		97	
48		98	
49		99	

TOTAL number of grid squares worked in this field =

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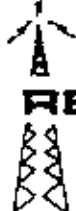
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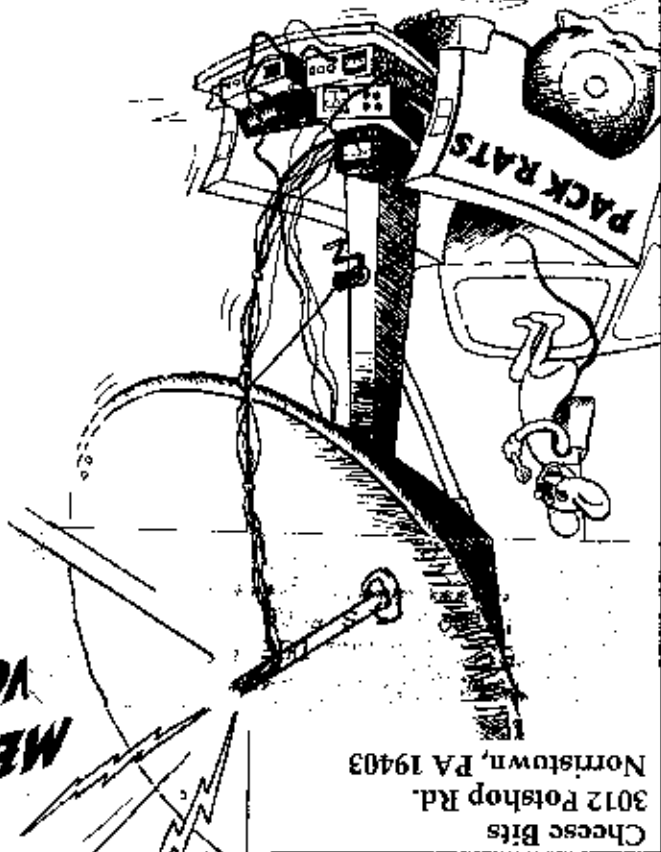
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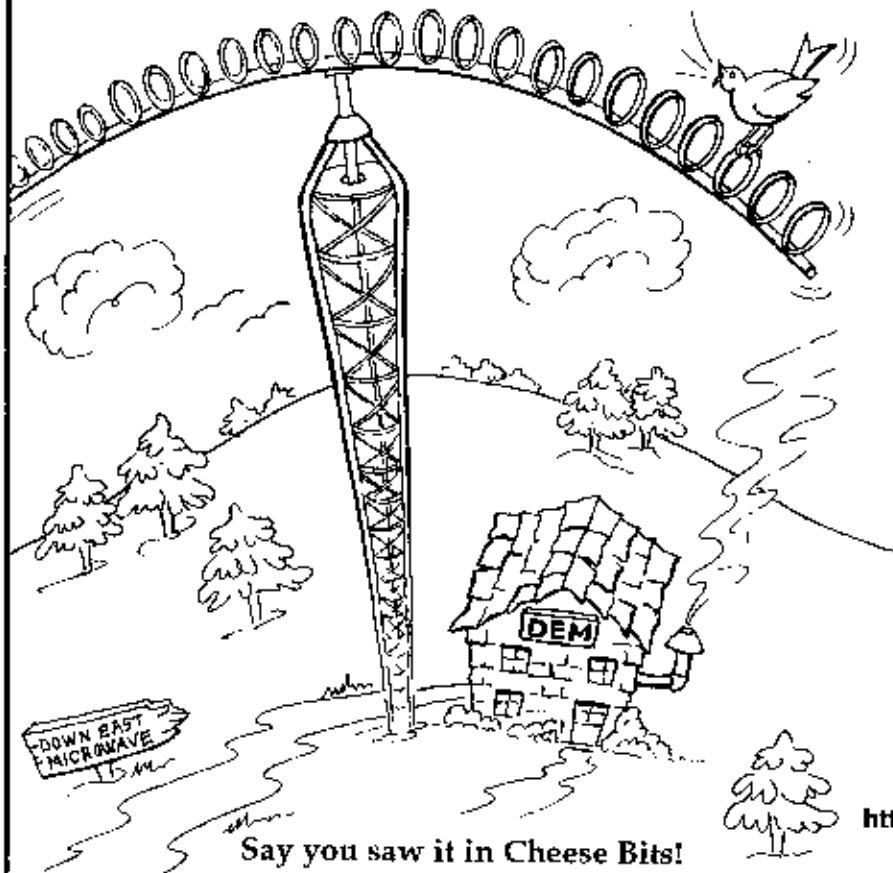
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