

CHEESE BITS



W3CCX

CLUB MEMORIAL CALL



ARRL
Affiliated
Club

SCANNED TO PDF BY BERT, K3IUU, 2013

VOLUME XXXIX

October 1997

Number 10

THE PREZ SEZ

Can you believe its Fall again? It seems like only last week I was taking the cover off the "Queen Mary" and looking forward with eager anticipation to another season of fishing the fertile waters of the Jersey coast. Well that's about over and the leaves are starting to fall and the days are getting really short. The smell of freshly cut aluminum is in the air. Its time for those antenna projects that you have so cleverly procrastinated with all summer. Time to check the feedlines and determine if the braid on that cherished W.W.II RG-8 has achieved the proper patina. Is the dielectric black yet or do you still have another ten years left? Maybe its time to replace and repair some of the antenna hardware you "haven't had the time" to look at lately and open up a whole new world of operating pleasure. The winter snow will be flying soon and the January contest will be upon us before you know it. Contact AA2UK if you need help.

Now would be nice time to try out the VHF logging program and become familiar with some of the features. One of the really useful things that W3KM's program does is allow you to go off and calculate a bearing and distance to a station, on-line, without stopping the logging program. Simply type "SQ" when the log program is up and running. If you haven't looked at "Squares" lately you will find that there is a new provision that allows you to just type the call (rather than the six digit grid square) and get the bearing and distance to that station and the reciprocal bearing for him to point to you (provided the information is in the data base). There is a whole new list of 6 digit grid squares on the Pack Rat WEB page. Most of the data on the web page will be in the latest version of VHF log or you can enter the data yourself. Six digit grid squares really help eliminate one of the critical factors in making contacts on 903 and above: beam or dish pointing.

Keep in mind the bearings from these programs are "true" not "magnetic. So the next time you line up your antenna make sure that you set it for "True" north so that you can use the bearing and distance programs (the magnetic deviation in this area is about 12 degrees west). A real good way of doing this is to calculate the bearing to the beacons and make sure your indicator says what the program calculates. Another way is to look on a Topographic map and either pick out a distant landmark or note the direction that your street is running and use that information to point your antennas in the "true" direction. If you are really, really clever, you can use a compass and compensate for the 12 or so degrees of magnetic deviation. I think the beam pointing to the beacons is the most accurate. Use your highest frequency band.

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
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DEADLINE FOR ARTICLES AND SWAP SHOP IS THE MONTHLY MEETING DATE. NON-COMMERCIAL SWAP SHOP ITEMS-FREE OF CHARGE.

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PACKRAT 222 MHz REPEATER - W3CCX/R

222.98/224.58 MHz, Churchville, PA FN20LE

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AA3GN (2 Yrs) Joe Landis, landis@nad.com
N3ITT (1 YR) Al Sheppard
N3EXA (1 YR) Brian Taylor

MONDAY NIGHT NETS

TIME	FREQ.	NET CONTROL
7:30 PM	50.150 MHz	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	WA3AXV
9:30 PM	1296.100 MHz	WA3NUF
10:00 PM	903.100 MHz	N3AOG

COMMITTEE CHAIRMEN

LADIES' NIGHT: N3AOG 215-443-9965
JUNE CONTEST: N3ITT 610-847-5490
HAMARAMA: N3EXA 215-257-6303
VHF CONFERENCE: KB3XG 610-584-2489

PACK RAT BEACONS - W3CCX/B FM29JW

432.298 MHz 903.071 MHz
1296.262 MHz 2304.034 MHz



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CALENDAR OF COMING EVENTS - OCTOBER 1997

- 1 Rosh Hashanah begins at sundown.
- 4 The 21th Annual Mid-Atlantic States VHF Conference will be held at the Benjamin H. Wilson Senior Center, Warminster, PA. Admission \$18 at the door (includes HAMARAMA). For further info, contact the Conference Chairman, John Sortor, KB3XG, 215-584-2489.
- 5 Hamarama 97 will be held at the Bucks County Drive-In on Rte. 611, In Warrington, Pa.
- 5 Free Breakfast for Hamarama workers at Lancers at 4:30 AM.
- 9 — Board of directors meeting for the Mt. Airy VHF Radio Club will be held at the QTH of Joe, AA3GN at 8:00 PM. All interested parties welcome. Call 215-855-6056 for directions.
- 10 Yom Kippur
- 11-12 Pennsylvania OSO Party. See October QST page 107 for rules.
- 12 Shore Area Hamfest/ARRL NJ State Convention will be held at the Brookdale Community College in Lincroft NJ.
- 13 Columbus Day
- 16 Regular meeting of the Mt. Airy VHF Radio Club at the Southampton Free Library on Street Rd. in Southampton, Pa. All VHFers are encouraged to come and enjoy the evening with us. You need not be a member to attend.
- 18-20 ARRL International EME Competition. See Sept. QST page 120 for the rules. Second weekend on Nov. 15-16.
- 19 Penn Wireless Association Tradefest - 96 at the Bucks County Community College north of Newtown, Pa on Swamp Road. VE exams will be held. Talk-in on 145.52 or 146.25/(-600).
- 22 Predicted peak of the Orionids meteor shower at 0060 UTC.
- 23 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
- 25-26 CQ World-Wide DX SSB Contest. See Oct. QST, page 107 for rules or CQ magazine.
- 26 RF Hill ARA Hamfest at the Sellersville Fire House in Sellersville, Pa. VE exams will be held. TI on 144.710/145.310, 134.28/88, and .52.

SWAP SHOP:

(send all ads to the editor)

WANTED: 6 meter Power Amplifier, commercial prefer solid state, may consider satisfactory tube model. Dennis, N3DG, 215-938-8820.

Wanted: Digital Voice Keyer. Dennis, N3DG, 215-938-8820.

Wanted: CW Keyboard. Dennis, N3DG, 215-938-8820.

For Sale: Yaesu FT727R, 2meter/440 dualband HT, 5 watts with speaker/mike, leather case, mobil adaptor, bracket, antenna and more, asking \$200. Jim, W3FIE, 215-342-9343.

Wanted: Yaesu FT726R with 6,2,432 or 220. Jim, W3FIE, 215-342-9343.

Wanted: 6 meter transverter for Kenwood TS 940 or TS 830. Jim, W3FIE, 215-342-9343.

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)

October 1997 Send to: SUBSCRIPTION/ADVERTISING MANAGER:

Bob Fischer, W2SJ
7258 Walnut Avenue
Pennsauken, NJ 08110

"STRANGER TO VHF+ PARADISE"

By: Jerome, K3GNC

"TAKE MY BANDS, I'M A STRANGER TO VHF+ PARADISE. SO LOST IN COMPUTER WONDERLAND, I'M VHF+ ACTIVE NO MORE".

ON THE BANDS:

The VHF+ bands were hoping the week of 9/22/97 - 9/29/97. Saturday - 9/28/97 was probably the culmination. The following report from Bill - AA2UK is indicative of the action:

AA2UK wrote: The bands were alive and well from FM29QO. Noticed the opening at 8:00 AM Sat. Worked W1AJR, EN91, on 432 & 1296, WA8LKD in EN82. On 432 & 1296, and WA8WZG, EN81 432, 1296 S9 +10, and 2304 S7 w/qs. Had to go to work by 9:00am. At about 12:30UTC heard KD0PY calling CQ on 144 MHz from EN41 HAVE TVI SO WAITED FOR FIRST CONTACT until later. My first contact was WA8WZG again on 432 at 0100 utc on 432 w/59 sigs. Then worked W0GR in EM38 on 432 w/ 57 sigs. Attempted 1296 heard him he did not hear me. Tried 903, he heard me but his plate blocking capacitor arced over before two way was established. Worked him later on 222 MHz 432 worked AA9LT, EN60, WD8BHO, EN80, N8ZJN, EM79, KB9JGF EN70. 222 Stations worked, N8ZJN, EM79, KB9JGF, EN70, WB9UWA, EN50, he was only running 25 watts to a 11 element beam up 27 feet!, W0GR, EM38. Stations worked on 144 MHz., WA0DXZ, EN41, K0TLM, EM29, K4TO, EM77, AG9Y, EN40, NN9K, EN41, KB9MGV, EM59, N8ZJN, EM79, WB9UWA, EN50, W8HOM, EN71, WA9JML, EN51, AND KD0PY, EN41. Finally caught up with Tom, WA8WZG and worked on 2304 for the third time in 24 hrs and ran with him on 10 GHz. we both heard each other but no two way contact was established. Tom had taken his 3456 and 5760 stations down the night before to make improvements. We have been waiting to work on those bands for 2.5 years now. Oh well, Murphy has to get his dibbs in sometimes. This was a very good east - west opening from this Jersey boy's shore location you can't work much further east than here! Hope everybody had as much fun as I did. 73 for now time to catch up on my sleep. AA2UK, Bill.

STATION WATCH:

The often mentioned, never delivered Discussion/Proposal on VHF+ Activity is coming. You can take that to the bank!

LET LOOSE THE DOGS OF WAR:

My "TOP TWENTY-FIVE" January contest predication is coming! If you think you deserve a spot, please send me your station breakdown to: E-MAIL: jbyrdk3gnc@worldnet.att.net or Jerome Byrd, 1530 Locust St., #31, Philadelphia, Pa 19102.

TID BITS

New call on the bands: WA3AXV is now W3RJW.

For you high power amplifier builders: Read Ian, G3SEK's article "Power and protection for Modern Tetrodes" in the October 1997 issue of QEX. You might also want to read G8WRB's article, "Predicting the Performance of Centrifugal fans for Valve Cooling" in the same issue.

New e-mail address for Ron Allen, W2OR : erevan@home.dmv.com

Microwave Update '97

From: "KE8RO", ke8ro@cros.nrt

Just a reminder that the Microwave Update '97 is fast approaching. Tom, WA8WZG is the host and the Update '97 will be in Sandusky, Ohio from October 23rd thru the 26th of this month. If you would like more information or would like to attend, please contact Tom, WA8WZG at 419-732-2944. There is still plenty of time to register.

A schedule of events is posted on Tom's webpage, <http://www.wa8wzg.com> and I also have the schedule of events posted on my page listed below. You can E-mail Tom at, wa8wzg@wa8wzg.com if you have any questions or would like a registration packet sent to your home address. Registration for the Update is also available online at Tom's internet address.

Packrat Web Page Update

By: Ron, W3RJW

The new list of 6 digit grid squares is on the web page. Thanks to all that responded, I think I got everybody. I will still take input, but it will have to wait for the next update to be posted.

Try out the six digit info in the "Squares" program that is part of W3KM's VHF Log. You can either run it from DOS by itself or type "SQ" when the log program is up and running. If you haven't looked at "squares" lately you will find that there is a new provision to type just the call (rather than the six digit grid square) and get the bearing and distance to that station and the reciprocal bearing for him to point to you. Most of the data on the web page will be in the latest version of VHF log or you can enter the data yourself. Six digit grid squares really help eliminate one of the critical factors in making contacts on 903 and above: beam or dish pointing.

Keep in mind the bearings from these programs are "true" not "magnetic. So the next time you line up your antenna make sure that you set it for "True" north so that you can use the bearing and distance programs (the magnetic deviation in this area is about 12 degrees west). A real good way of doing this is to calculate the bearing to the beacons and make sure your indicator says what the program calculates. Another way is to look on a Topographic map and either pick out a distant landmark or note the direction that your street is running and use that information to point your antennas in the "true" direction. If you are really, really clever, you can use a compass and compensate for the 12 degrees of magnetic deviation. I think the beam pointing to the beacons is the most accurate. Use your highest frequency band.

Also, one thing I discovered by accident is that if you have lat/lon in decimal form (ie. 74.035554, 40.78699) just enter the decimal degrees in the "Degrees" entry and zero for the "minutes" and "seconds". This is casier when trying to calculate someone's 6 digit from something like data from "mapsonus". This works in both squares and "BD".

We also have a few new links under 'Phone, Call Signs and Maps', with these sites you should be able to track anybody down. Its sorta like a 'bounty hunters are us' link list.

SB QST ARL ARLB057, ARLB057 Doug DeMaw, W1FB, SK

Acclaimed ham radio icon Milton F. "Doug" DeMaw, W1FB, died September 28. He was 71. One of the most widely published technical writers in Amateur Radio, DeMaw was diagnosed with leukemia earlier this year and had been in failing health in recent weeks.

DeMaw was first licensed in 1950 as W8HHS. An electrical engineer, he was a member of the ARRL Headquarters staff for 18 years—from 1965 to 1983—and served as Technical Department Manager and Senior Technical Editor from 1970 to 1983. During his tenure at HQ, DeMaw served as editor of The ARRL Handbook. In 1970, he engineered the shift in emphasis toward solid-state design in QST and the Handbook. He has hundreds of articles in QST and other publications to his credit. DeMaw also was founder and publisher of VHFer Magazine. (His wife, Jean, W1CCK, also worked on the Headquarters staff.) DeMaw was a life member of the ARRL and a senior member of the IEEE.

After retiring to the family farm in Luther, Michigan, he was elected chairman of the Lake County Board of Commissioners and continued to write books and articles. He also tried his hand in the Amateur Radio business as proprietor of Oak Hills Research. Among his other books, DeMaw wrote W1FB's Design Notebook, W1FB's QRP Notebook, W1FB's Antenna Notebook, and The ARRL Electronics Data Book, which remain popular. In recent years, DeMaw also penned a regular column for CQ magazine.

A former ARRL colleague, Membership Services Manager Chuck Hutchinson, K8CH, counted DeMaw among his friends. "Doug loved to experiment with circuits and antennas. He also loved to encourage others to try their hand at building," he recalled. Hutchinson said DeMaw not only wrote prolifically about ham radio but also about gardening, another of his avocations. "He was an avid gardener and cook," he said. DeMaw also was an outdoorsman and hunter. "He loved to hunt with bow and rifle—both modern and muzzle loader. He was very good at throwing a knife or hatchet," Hutchinson said. Paul Pagel, N1FB, also was one DeMaw's colleagues during his days at ARRL HQ. "Amateur Radio benefited greatly from his work," Pagel said. "He was a multifaceted man. I doubt there was anything he couldn't do if he set his mind to it." Jerry Hall, K1TD, who also worked with DeMaw during his years at HQ, called DeMaw a writer of "uncanny" ability. "Doug could write it once, and it was done," he recalled.

Survivors include DeMaw's wife, Jean, and a son, David, N8HLE, a technical writer who lives in Connecticut.

MAP AND DIRECTIONS TO MY QTH OF JOE, AA3GN (OCTOBER BOD MEETING)

Directions to Joe Landis's, AA3GN, 203 Twining Rd., Montgomeryville, PA. (Lansdale Post office). Look for the cat mailbox. Call if you have problems: 215-855-6056

Directions from Phila, Lower Montco, etc...

Take rte 309 or rte 202 north to Montgomeryville.
At 5 point intersection of 202/309/463, turn right onto Rt 202 North.
Go about ½ mile to Grays Lane. Turn right.
Go about ¼ mile to Twining Rd. Turn left.
Go about ¼ mile. House is on left.

From Upper Bucks County

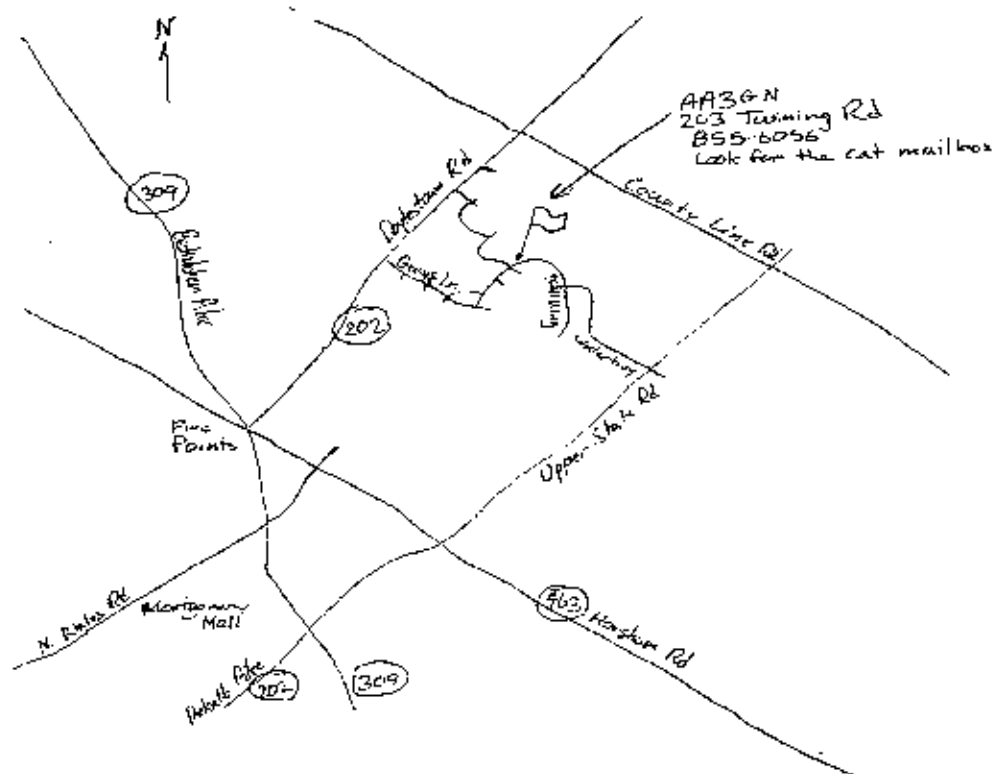
Take rte 309 south to County Line rd in Line Lexington. Turn left.
Proceed several miles to rte 202. Turn Right.
At the 2nd street, Chatham rd, turn left.
At the 1st street, Bedford rd, turn right.
At the stop sign, Bellows Lane, turn right.
At the stop sign, Twining Rd, Turn left.
2nd house on left.

From Central Bucks county, Doylestown:

Take rte 202 South from Doylestown, thru New Britain and Chalfont and pass
County Line Rd into Montgomery county.
At the 2nd street past County Line, turn left onto Chatham rd.
At the 1st street, Bedford rd, turn right.
At the stop sign, Bellows Lane, turn right.
At the stop sign, Twining Rd, Turn left.
2nd house on left.

From Lower Bucks County, Southampton:

Take County line road to Upper State Rd, turn left.
Go about ½ mile to Canterbury Rd. Turn right.
Go about ½ mile to stop sign - Twining rd - turn right.
Follow Twining Rd to 203. (2nd house before first cross street, on right).



SOME SEPTEMBER '97 ARRL VHF CONTEST RUMOURED SCORES

By: Ron, WZ1V

CALL	W2SZ/1	K8GP	K3MQH	N2JQR	K2TXB	W0ZQ	K1WHS	N2WM
GRID	FN32	FM08	FM19	FN12	FN02	EN34	FN43	FN21
CLAS	M/U	M/U	M/U	M/U	M/U	M/U	M/U	M/U
50	495/65	545/82	463/62	239/52	314/62	116/49	304/48	333/36
144	545/46	520/82	761/77	357/61	482/75	357/68	270/37	320/42
222	169/29	150/57	157/53	105/41	77/40	60/29	79/24	68/23
432	292/33	218/64	248/	50/43	131/47	126/49	113/29	83/27
903	82/22	50/28	34/14	37/23	23/19	10/7	17/8	18/12
1.2	104/24	65/30	44/13	40/20	32/23	26/16	33/15	19/12
2.3	63/20	21/16	12/8	15/9	0/0	4/4	10/7	11/10
3.4	46/13	??	0/0	7/5	0/0	2/2	5/3	
5.7	40/14	??	0/0	0/0	0/0	0/0	5/3	
10G	35/9	??	7/2	6/1	3/3	2/1	14/2	
24G	12/8	0/0	2/2	1/1	0/0	0/0	1/1	
47G	4/2							
LAS	0/0	0/0	0/0	5/1	0/0	1/1		
TOT	1887/275	??	1728/283	962/257	1062/269	704/226	851/177	852/162
SCOR	913,000	810,000	665,616	378,561	373,641	223,514	220,896	179,820
CALL	W2SZ/1	K8GP	K3MQH	N2JQR	K2TXB	W0ZQ	K1WHS	N2WM

CALL	WA2TEO	K1RZ	KE8FD	KD1DU	K8TQK	AA2UK	W3OR	WB2DNE
GRID	FN31	FM19	EM89	FN31	EM89	FM29	FM28	FM19
CLAS	S	S	S	S	S	S	S	S
50	221/51	162/43	101/34	104/23	89/34	??	95/32	98/30
144	402/49	322/49	251/64	339/45	146/55	??	187/41	181/40
222	108/31	80/29	74/43	73/24	59/33	??	54/26	72/30
432	151/40	126/35	114/46	117/29	91/40	??	86/34	107/36
903	44/21	44/20	27/18	29/14	27/17	??	20/13	31/18
1.2	49/18	51/22	41/24	38/16	36/23	??	32/17	17/9
2.3	18/11	15/11	0/0	15/8	0/0	??/14	9/6	0/0
3.4	0/0	0/0	0/0	0/0	0/0	??	2/1	
5.7	0/0	0/0	0/0	0/0	0/0	??	0/0	0/0
10G	0/0	0/0	0/0	6/5	0/0	??	0/0	0/0
24G	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
LAS	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
TOT	993/221	754/208	608/229	721/164	448/202	??	485/170	506/163
SCOR	329,732	258,128	213,428	181,712	146,248	140,000	129,540	127,303
CALL	WA2TEO	K1RZ	KE8FD	KD1DU	K8TQK	AA2UK	W3OR	WB2DNE

CALL	WA0BWE	N8UM	K2YAZ	AA9AO	K8MR	KB0PYO	N8ZJN	WB2VVV
GRID	EN34	EM85	EN74	EN64	EN91	EN24	EM79	FN21
CLAS	S	S	S	S	S	S	S	S
50	79/28	98/32	58/27	71/28	125/33	34/13	86/31	48/17
144	170/44	190/55	154/57	208/47	208/50	213/63	103/37	191/27
222	48/20	42/31	39/27	40/25	38/26	27/19	45/28	51/18
432	97/35	73/35	76/43	77/32	84/30	85/44	61/29	59/16
903	18/11	9/7	9/9	6/6	0/0	0/0	0/0	9/8
1.2	29/16	18/13	20/14	22/17	0/0	18/11	17/10	23/10
2.3	2/2	0/0	4/4	0/0	0/0	0/0	0/0	2/2
3.4	8/8	0/0	0/0	0/0	0/0	0/0	0/0	0/0
5.7	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
10G	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
24G	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
LAS	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
TOT	451/164	430/173	360/181	424/155	455/139	377/150	312/135	393/98
SCOR	118,080	103,624	98,645	92,535	80,203	78,750	61,020	58,114
CALL	WA0BWE	N8UM	K2YAZ	AA9AO	K8MR	KB0PYO	N8ZJN	WB2VVV

CALL	WZSD	K5MA	K0KD	N3OPM	WA1MBA	N0LL	KB2ZVP	N6HKF
GRID	EM79	FN41	EN31	FM19	FN32	EM09	FN22	DM14
CLAS	S	S	S	S	S	S	S	S
50	114/46	136/21	33/19	0/0	0/0	50/27	113/28	60/27
144	177/56	175/27	99/42	329/42	145/24	107/44	310/45	112/23
222	24/14	56/20	21/17	0/0	0/0	23/18	0/0	32/14
432	35/19	76/20	51/31	145/32	60/22	45/28	30/12	42/15
903	0/0	0/0	0/9	0/0	17/10	0/0	0/0	0/0
1.2	0/0	0/0	8/13	0/0	32/12	14/11	0/0	0/0
2.3	0/0	0/0	0/0	0/0	10/6	0/0	0/0	0/0
3.4	0/0	0/0	0/0	0/0	6/5	0/0	0/0	0/0
5.7	0/0	0/0	0/0	0/0	4/4	0/0	0/0	0/0
10G	0/0	0/0	0/0	0/0	7/4	0/0	0/0	0/0
TOT	350/135	443/88	232/131	474/74	281/87	239/128	483/85	246/79
SCOR	55,215	50,600	47,160	45,806	44,370	42,880	41,055	25,280

CALL	WA1MKE	WZ1V	N7STU	N9JR	K5LLL	W1COT	KC8CSD	K1LPS
GRID	EN70	FN31	DM07	EN63	EL29	FN31	EN81	FN34
CLAS	S	S	S	S	S	S	S	S
50	24/15	30/12	37/15	31/11	34/13	25/12	35/18	46/16
144	112/40	62/18	110/23	94/26	76/20	62/17	93/32	55/16
222	27/21	26/13	0/0	21/14	9/6	23/11	0/0	23/11
432	34/21	47/13	59/18	35/16	31/11	33/14	36/14	24/9
903	0/0	10/6	0/0	0/0	9/7	0/0	0/0	0/0
1.2	0/0	17/8	20/11	0/0	6/5	17/7	0/0	0/0
2.3	0/0	3/2	0/0	0/0	0/0	0/0	0/0	0/0
3.4	0/0	2/1	0/0	0/0	0/0	0/0	0/0	0/0
TOT	197/97	197/73	226/67	181/67	165/62	160/61	163/64	148/52
SCOR	25,026	24,747	21,775	15,879	15,500	15,250	12,672	10,140

CALL	KD0PY	N3KKM/0	K9PW	W1VT	N8KWX	N0JK
GRID	EN41	EM28	EN52	FN33	EN62	EM18
CLAS	S	S	QRP	QRP	QRP	QRP
50	0/0	13/7	72/20	69/19	35/13	0/0
144	101/37	46/22	166/38	138/25	75/24	42/25
222	0/0	0/0	67/23	75/16	29/13	0/0
432	66/22	25/16	99/31	95/19	42/14	30/20
903	0/0	0/0	31/17	16/9	2/2	0/0
1.2	0/0	0/0	54/20	27/13	9/4	12/9
2.3	0/0	0/0	10/7	13/8	0/0	0/0
3.4	0/0	0/0	0/6	8/5	0/0	0/0
5.7	0/0	0/0	8/6	6/3	0/0	0/0
10G	0/0	0/0	7/5	7/5	0/0	0/0
24G	0/0	0/0	2/2	0/0	0/0	0/0
LAS	0/0	0/0	1/1	0/0	2/2	0/0
TOT	167/59	84/45	527/176	454/122	194/72	138/54
SCOR E	9,853	4,905	171,952	99,064	21,096	7,452

ROVERS	Score	Totals	Grids	Bands
AB4CR/R	253,445	708/159	14	ABCD9EFGIJ Ops AB4CR, W8ULC
ND3FR/R	126,228	656/108	8	ABCD9E
W2FU/R	100,000	???/???	?	?
W3EKT/R	96,051	638/101	4	ABCD9E Ops W3EKT, K3LXD
K7XC/R	70,000	7/98	18	ABCD?
N1MJD/R	50,869	414/80	11	ABCD Ops N1MJD, N1JEZ
KA2CKI/R	48,128	353/87	7	ABCD9E Ops KA2CKI, KV2X
KF9US/R	37,926	298/78	8	ABCD E
N3LJK/R	35,422	266/89	4	ABCD9EF Ops N3LJK, K3YWY
W9FX/R	34,780	270/80	4	ABCD E Ops W9FX, N9BJG
N6DN/R	16,785	373/38	7	ABCD
WB9SNR/R	11,760	108/50	6	BCD9EFGHI
N1MU/R	3,406	72/20	6	B D9EFGH

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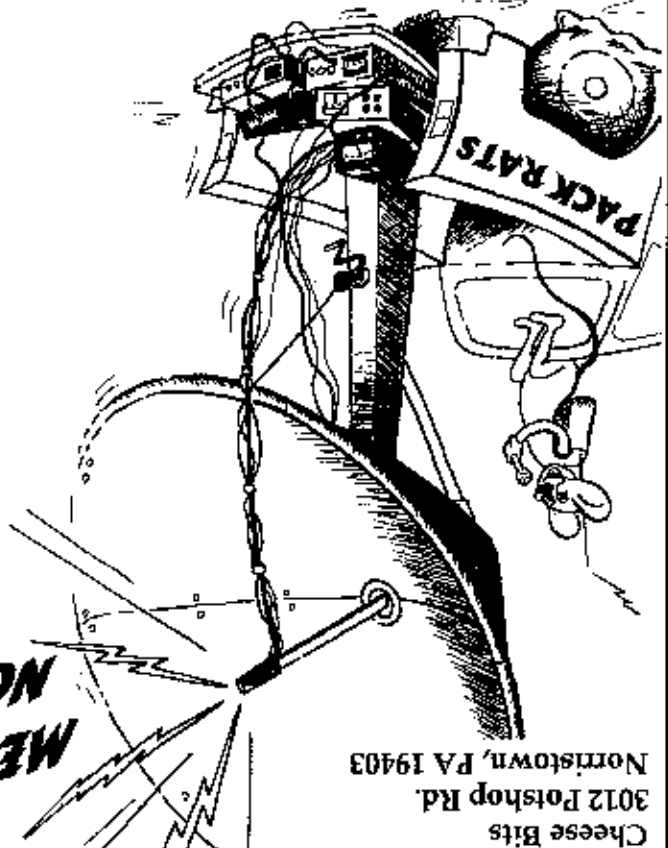
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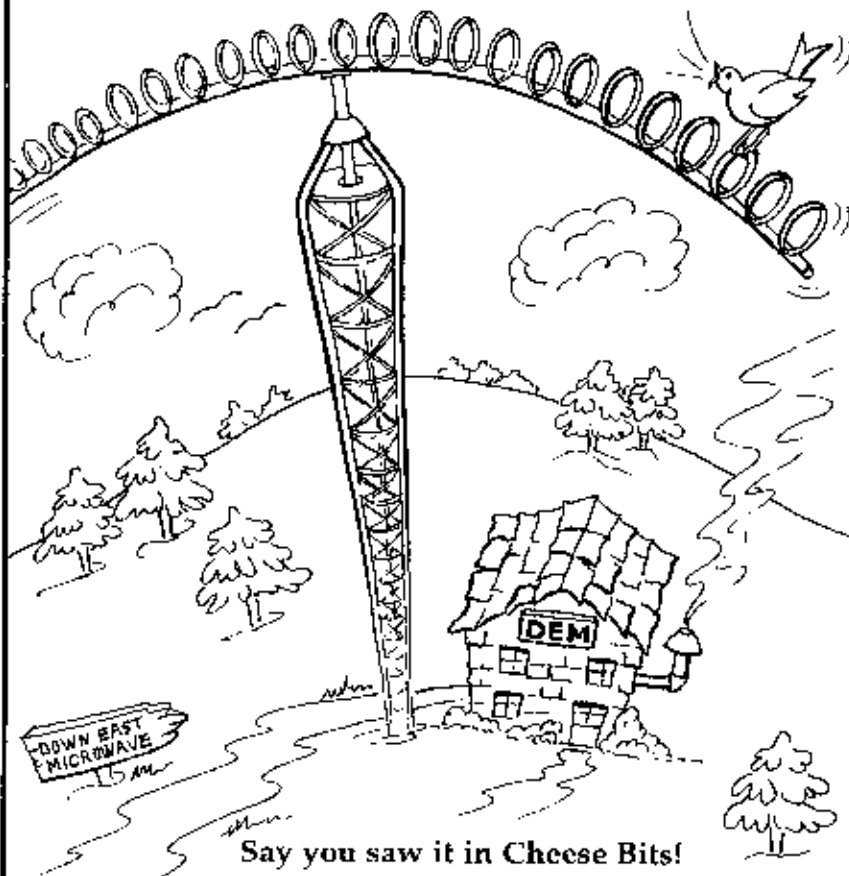
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