

ZERO BEAT

The Hampden County Radio Association, Inc.

40th VHF Sweeps

Its January and that means its time again for the annual running of the January VHF Sweepstakes contest. The next HCRA meeting will be dedicated to VHF/UHF and above, and to the January contest. In addition, you'll note that this issue of *ZERO BEAT* is jam full of useful things for your participation in the Sweepstakes.

~~Hampden County~~ has been active for many years in VHF/UHF activities and contests. Many HCRA members were pioneers in these very short wavelength bands, and the HCRA has taken many awards through the years. Maybe you had a chance to see some of these on display at the December club meeting.

To continue with the tradition, we are looking for your support in the January contest. So get out that seldom used equipment and make plans to be on the air the weekend of January 10th, 1987.

W1NY Activity

The HCRA club station W1NY will be active on all bands throughout the contest. The W1NY operators would sincerely appreciate a contact from you to boost their score. Last year the club scored 4th nationally; where will we place this year?

If you are interested in participating in the W1NY effort, we'd be glad to hear from you. Please contact and of the following hams: W1KK, N1DPM, AC1T, NC1I, KA1KPH.

Affiliated Club Competition

In addition to the HCRA club station effort the January contest also has an aggregate entry. All HCRA members are urged to submit a log, even if you only work two contacts, to the ARRL to help with the club score! Fred, N1DPM, has arranged for a number of awards to be issued to club members who participate.

These awards will be presented at the annual meeting in June.

Your Operation

Participation in this contest is easy and fun. QSO as many stations as you can on as many bands as you have equipment for. Even if all you have is a pair of HT's: one for 2m and one for 70cm, you can work TONS of people!

If you don't like contesting you can still help in our effort to take first place nationally! By spending a few minutes or even an hour on the air giving out contacts will increase the scores of those who are logging for contest points.

If you have the time to log your QSO's you can help with our combined club score by sending in your logs — its that simple! Now for the details:

Contest Period

The contest starts at 1900 UTC on Saturday January 10, 1987. For those of you who don't usually deal with UTC (GMT) that's 2PM local time. The contest runs through 0400 UTC Monday January 12, 1987, which is really Sunday night at 11PM. There are many national and local activity times during the contest. See the complete list below!

Exchange

This has to be the easiest contest for exchanges. All you have to pass along is your grid square. For those of us who reside in Western Massachusetts the grid square is FN32. To the south in CT the grid square is FN31. The exchange of signal reports is optional. So using any voice mode you may say: fox november thirty-two. And on CW it would be: well, its pretty hard to do on paper, but you know!

Logging

Hopefully you can log your contacts, and turn in your score for inclusion with the

club's effort. Included in this issue of *ZERO BEAT* is a log sheet, which holds 30 contacts per page. You only have to write the date and band info when it changes. For each contact jot down the time, the call of the station you worked, and the grid square of the other station. The Mult column can be used to keep track of those QSO's where you work a new grid square. And the small column with no heading can be used to check for duplicates. Of course, at the top of each page you would fill in the boxes with your call, your grid square, and sequentially number your log sheets. This log page also has some free space to the right (called notes) where you can scribble down calls, etc.

Reporting

When the contest is through you should fill out the VHF Sweepstakes form, also included in this issue of *ZERO BEAT*. As with the log sheets, indicate your call, grid square, and ARRL section in the boxes at the top of the form. Then check which station category you fall into: most of you will check the single operator station category, and if you work more than one band, the multiple band selection.

Then count the number of QSO's you made on each band and fill in the boxes in the QSO's column. As you can see, the higher in frequency the more points a contact is worth. Compute the QSO points by multiplying the QSOs times the multiplier on the form. Then count the number of different grid squares you worked for each band, and fill in the boxes in the grid² mult column. Finally compute your score for each band you worked by multiplying the QSO points by the grid squares.

Then figure your total score: this is what counts! Add up all the numbers in the following columns: QSO's, QSO Points, and Grid² Mult. Then multiply the Total QSO Points by the Total Grid² Mult to get your Total Score!

continued on page 2

And of course, sign and date the form, fill in your return address (you may win an award from the HCRA or the League), and note any comments about the contest on the reverse side.

Send Us the Logs

All entries to the League must be postmarked no later than 30 days after the end of the contest. So if you make an effort to log your contacts please don't forget to send in the materials!

You have two choices on submitting your logs. You can either send them directly to the League, or you can send them to the club mailing address: P O Box 482, West Springfield, MA 01090-0482. If you send your material directly to the League and would like to be considered for a club award, please send us a copy of your VHF Sweepstakes form, being sure to note that you sent your material directly to the League. The other method is to send us your material, and we will forward it to the League, after we check it for accuracy, and include your efforts in the club award program.

Help?

Further information can be found in the December 1986 issue of *QST* on page 79, where the complete rules for the 40th January VHF Sweepstakes can be found. Or any of us would be glad to help you with the forms, or any other questions you may have. Either visit us at the next club meeting on January 9th, or contact one of the individuals above for more assistance.

Winning!

Winning is a club effort — one that we hope you'll participate in!

Thanks

This issue of *ZERO BEAT* was brought to you by: The *ARRL Letter*, K1BXE, KA1KPH, AC1T, N1DPM, YCCC *SCUTTLEBUT*, CQ.

Happy New Year!

HCRA *ZERO BEAT* January 1987

Contests

Thanks to Billy Lunt, KR1R, YCCC *SCUTTLEBUT* and Frank Anzalone, W1WY, CQ for the following contest dates:

1987	
Jan	1 Straight Key Night
	3-4 73 10m SSB
	10-12 January VHF SS
	10-11 73 15m & 20m SSB
	17-18 73 160m SSB
	23-25 CQ WW 160m CW
	24-25 73 40m & 75m SSB
	24-1 Novice Roundup
Feb	20-22 CQ WW 160m SSB
	21-22 DX Test CW
Mar	7-8 DX Test SSB
	28-29 CQ WW WPS SSB
Apr	13 144 MHz sprint
	21 220 MHz sprint
	29 432 MHz sprint
May	8 902 MHz sprint
	14 1296 MHz sprint
	23-24 50 MHz sprint
Jun	13-15 June VHF contest
	27-28 Field Day
Jul	11-12 IARU HF contest
Aug	1-2 UHF contest
Sep	12-14 September VHF contest
Nov	7-9 Sweepstakes CW
	21-23 Sweepstakes SSB
Dec	4-6 160m contest
	12-13 10m contest

Please consult CQ or QST for more information on the above listed contests and events.

ARRL Awards

The HCRA, as a Special Service Club, now provides local verification of your WAS and VUCC QSL's. Doc Webb, W1HOD, is our ARRL awards coordinator, and will be glad to hear from you. You can write him at 4 Bullard Ave, Holyoke, MA 01040.

Are you in need of a rack cab? The HCRA has obtained two six foot rack cabs that are in need of a home as soon as possible. If you are interested in further information please contact Bob KA1KPH at the club address for more information.

FCC Exams

As we go to print there is still no firm date for when the FCC 610 form change will be put into place, allowing you to take and get credit for FCC written exam elements without the need to pass a code element. It is expected that this problem will be resolved shortly, and maybe even by the time you read this article. See last month's *ZERO BEAT* for more information on this license program change.

The fee for FCC exams taken after 01-Jan-1987 through the ARRL/VEC will be increased to \$4.35. Please remember to make your check out to the ARRL/VEC in this amount for any exam session you attend in the new year.

Don't Be Blue...

Please check the mailing label on this issue of *ZERO BEAT*. If your name/call is blue then your dues are overdue! We appreciate your support, and hope that you will want to continue on as a member throughout 1987 and the years to come. So make a new years resolution to get that check in the mail as soon as possible, as dues are due by November first!

Your comments about the club and our programs and offerings are always welcome! Please write to the club address, which is on the back page. Thank you!

Book Review

As we all know, the ARRL publishes a yearly radio handbook. The *ARRL Handbook* contains a considerable amount of worthy information for the radio amateur. But what handbook do you turn to when the League's handbook is deemed lacking in certain areas of technical knowledge?

Alas, enter *Reference Data for Engineers*. Radio, Electronics, Computer, and Communications, by Edward Jordan, Editor in Chief. This handbook is considered by many to be the bible, the one-book library for electronics. The new 7th edition has been completely updated, revised, and enlarged to cover many of the

continued on page 3

This month's 6m & up column is devoted to the 1987 VHF Sweepstakes contest on the weekend of January 10-12. Specially designed logs, contest forms, and a grid square map is included in this issue of *ZERO BEAT* for your contesting pleasure. I hope that you have time to get on the air and rack up points for the club score.

The following is a table of activity times you may want to consider operating. These are divided into two categories: local and national.

The national activity hours are valuable for single operator stations who want to make the most of a multi-band operation. Most of this activity occurs on SSB and CW, although many of the larger contest stations will also be readily available on FM during the national activity hours.

The local activity hours have been called FM activity hours; in this way the majority of the HCRA members who only have FM equipment can participate in the contest and rack up loads of points. These periods have been designed not to conflict with other contest operating events, local nets, etc and other activities. Certainly you'll find W1NY as well as a number of other local stations active during these periods.

Suggested local FM frequencies are: 146.49, 146.55, 146.58, 223.50, 446.00 all mhz. Remember that 146.52 mhz is off limits to contesting!

Contest Schedule

2:00PM	Sat	The contest starts!
7:00PM - 8:00PM	Sat	Local FM activity hour
8:00PM - 9:00PM	Sat	220 mhz national activity hour
9:00PM - 10:00PM	Sat	432 mhz national activity hour
10:00PM - 11:00PM	Sat	1296 mhz national activity hour
8:00AM - 9:00AM	Sun	220 mhz national activity hour
9:00AM - 10:00AM	Sun	432 mhz national activity hour
9:30AM - 10:30AM	Sun	Local FM activity hour
10:00AM - 11:00AM	Sun	1296 mhz national activity hour
12:01PM - 2:00PM	Sun	Local FM activity hour(s)
7:00PM - 8:00PM	Sun	Local FM activity hour
8:00PM - 9:00PM	Sun	220 mhz national activity hour
9:00PM - 10:00PM	Sun	432 mhz national activity hour
10:00PM - 11:00PM	Sun	1296 mhz national activity hour
11:00PM	Sun	The contest concludes!

latest techniques and innovations in radio, electronics, computer, and communications engineering.

I originally purchased one of these handbooks about seven years ago while studying for my BSEE degree. Back then this book was essential for finding information on items like filter design, properties of materials, and conversion factors between various measurement systems. For as much useful information was present, my major dislike was that the book was poorly organized, making it hard to put your finger on the information when

you needed it the most.

Having reviewed about half of the book (its an easy two inches thick) I can say that the 7th edition has indeed been improved. Much of the useless information has been deleted. More practical examples of problem solving are given. It is really hard to put years of technology in one handbook, but the various authors have certainly made a very serious effort at covering more than just fundamentals of electronics.

I can't recommend this handbook for everyone, as the writing style and format

used assumes some knowledge of electronics. But for people who are serious about homebrewing, or otherwise into electronics, it is well worth the investment. There are about fifty chapters covering just about all aspects of electronics.

The book can be purchased for just \$69.95. *Reference Data for Engineers* can be ordered from: Howard W. Sams & Company, Inc., 4300 W. 62nd Street, Indianapolis, IN 46268, or by calling 800-428-3602. A 15 day free review period was offered at the time of my purchase. 73 de John Balboni AC1T.

Tech Talk

Protection From Out of Band Signals

(What you don't see can impair your receiver performance)

by John Balboni, AC1T

I originally set out to write this article about filters which could be used to prevent cross-band interference when trying to simultaneously operate two VHF bands from the same location. It became apparent that a culprit exists in today's RF polluted environment which can unknowingly degrade the receiver performance of even some of the most expensive VHF and UHF amateur radio equipment. Measures which the typical amateur takes to improve his receiver's sensitivity and lower its noise figure can even further degrade performance.

What is this culprit, you may ask? High power commercial FM radio and TV transmitters. The scope of this problem cannot be fully appreciated until you realize that the effective radiated power (ERP) of many FM broadcast stations is 50,000 watts. TV broadcast stations can have ERP's as high as several mega-watts! And the power is usually radiated in both vertical and horizontal planes.

This personal experience serves as backup. Fred N1DPM who lives two miles line of sight from Provin Mountain recently put up an H frame of four 12 element N1DPM yagis (see the October issue of *ZERO BEAT* for more details) for 2m SSB. The antennas seemed to be working correctly, however he wasn't hearing things as well as he expected. Fred uses a tower mounted GASFET preamp, for reduced noise figure, and a Drake SC-2 receiving converter, with J-FET front end on 2 meters.

FM radio station WAQY at 50kw ERP is located on Provin Mountain. Fred became suspicious that this signal at 102.1 mhz might be desensing his receiver. Both a CATV field strength meter, and a spectrum analyzer were used to measure the level of signals coming down the 2m feedline after the preamp. The signal strength of WAQY was measured at -15 dbm (decibels referenced to 1 milliwatt power level) which is 40,000 microvolts!

The type of GASFET which Fred is using (the ARR P144 VDG) goes into gain compression at +10 dbm (700,000 microvolts) of input signal. Since the signal coming out of the preamp was

considerably less than the input compression point, it was assumed that the preamp was NOT in gain compression. This is important to know, as it determines where in the system to insert filtering to remove the WAQY signal.

If the preamp was determined to be into gain compression, then any type of filtering used to remove WAQY would have to go ahead of the preamp, and be mounted up at the antenna, where the preamp is located. Since the preamp was not in gain compression, the filter could be installed anywhere after the preamp output. The best place for this is in the shack, where the temperature is stable, and the filter can be easily protected from the elements.

In the case of Fred's installation, we decided to try using a simple quarter wave stub, cut to 102.1 mhz. A calculation was made, based on the velocity factor of the 75 ohm RG11 coax used (actually, the stub was made from an old Cushcraft supplied 2 meter balun - they were cut to the wrong length for the antenna - rather than throw it away). The stub, left slightly longer than what was calculated for length, was connected to the 2m receive feed line from the tower mounted preamp using a "T" connector.

The spectrum analyzer was connected to the "T" connector for tune up. The stub was trimmed for maximum attenuation of the 102.1 mhz signal with better than 30 db of attenuation resulting. As an added measure, a second stub was cut for WMAS at 94.7 mhz. It was separated from the first stub by roughly a half wavelength of coax (1/2 wave at 144 mhz). This second stub further reduced the WAQY signal by an additional 10 db, while reducing WMAS by 30 db. Overall, both stubs reduced all FM broadcast band signals by 20 to 50 db, depending on frequency.

Final verification that all this work did any good was needed. The conglomeration of quarter wave stubs and "T" connectors were connected to the 2m input of the Drake receive converter. A weak signal was tuned in at 144.200 mhz. While observing the signal, the stubs were connected and disconnected from the receive line to the converter. Signal strength increased by 6 db when the stubs were in place, and the background noise level also dropped! This was particularly evident when the 2m antennas were aimed north west looking right at Provin Mountain. The stubs made all the difference between

hearing and not hearing weak VE2, VE3, western New York, and Ohio stations.

In summary, strong out of band signals from commercial broadcast stations can cause desense to occur in amateur VHF and UHF receivers. The desense usually goes unnoticed, as the commercial stations may operate 24 hours a day, or when they go off the air late at night there are no amateur signals on for comparison. Each receiver or receive converter will handle strong signals differently, depending on such factors as front end selectivity, front end dynamic range, mixer spurious responses, and mixer overload. All of this is complicated by adding a high gain, broadband preamp ahead of the receiver front end. One also has to know what the preamp is doing, too. It takes very careful system design to pull 0.1 microvolt signals out of the noise when you have a 40,000 microvolt signal that is only 40 mhz away!

Desense from out of band signals may not be an easy problem to solve. It requires a degree of patience, which is helped by having test equipment available to make the necessary measurements. If you think that the manufacturer has published all the information about his equipment to solve this problem, guess again! Most manufacturers of amateur equipment design for high in-band sensitivity and receiver performance. Knowledge about what happens due to strong out of band signals is rare. In subsequent articles I will try to present information on both commercially purchased and homebrew filters, which can be used to reject undesired signals, as well as more specific data on preamps.

Congrats!

Congratulations to new HCRA member Barb Shutt, KA1OUR, for upgrading to General and passing the 20 wpm code test. Barb has been licensed since August and earned her WAS as a Novice in less than three months!

Latest Calls

Novice: KA1OZZ
Tech/General: N1ELK
Advanced: KC1AM
Extra: KI1A
as of 01-November-1986

W1NY-1 Status

A significant performance upgrade has been made to the W1NY-1 digipeater. The Ringo Ranger antenna, which has had serious VSWR problems, was removed from the top of the 100 foot tower on 26-Dec-86. Removal of the antenna was very difficult and required several hours of diligent effort by Frank NC1I and Fred N1DPM. The antenna is mounted at the top of an H frame of four Cushcraft 2m Boomers which are used for SSB and moonbounce work. The antenna presented a greater than 3 to 1 VSWR before its removal from the tower, causing the digipeater to output only 20 watts.

Once on the ground, N1DPM and AC1T worked several hours to modify and rebuild the ringo. Although most of the hardware is stainless steel, that which wasn't was badly corroded and needed replacement. Other hardware was found to be loose. A new cable was made from quality RG-213U to replace the lousy Cushcraft coax with its associated crimp-on type connectors. This particular Ringo Ranger has a decoupling stub located one wavelength below the base of the antenna. A Cushcraft supplied barrel connector is used to connect the feedline to the decoupling stub. This fitting, being poorly designed and very loose, was replaced. All connections were sealed with Coax-Seal, and the SO-239 connector at the base of the antenna was sprayed with Krylon to keep water out.

The antenna was set up on a 15 foot mast at ground level. A VSWR of 1.3 to 1 was found at 145.000 mhz. Further checks determined the antenna resonance to be below 144.000 mhz. All antenna dimensions were reset per the manufacturer's instructions. After careful tuning, a VSWR below 1.1 to 1 was obtained at 145.000 mhz, which was flat up to 148.000 mhz. The VSWR did not change regardless of where in the feedline the VSWR bridge was inserted. Additional tests showed that the three radials associated with the decoupling stub did nothing to the VSWR, so they were removed (a Cushcraft gimmick?). Instead, the length of the stub was changed to 1/2 wavelength, and a solid ground to the mast was made at this point. Lock nuts were added to the clamp which holds the antenna to the mast (lock nuts are not supplied with the Cushcraft mounting hardware).

NC1I re-installed the antenna in its previous location on 27-Dec-86. The VSWR at the input to the 7/8 inch hardline in the shack measured identical to that when the antenna was checked on the ground. A 2m FM radio was connected, and repeaters in the New York and Long Island area could be worked full quieting with only 25 watts! Mount Ascutney (VT) was full scale. Signals like this were never heard before with this antenna!

The digipeater was reconnected, and due to proper impedance matching, the output power came up to 50 watts. On the air packet checks have not been made as of this writing, however, it is assumed that the FM voice results should be duplicated on packet, depending on activity levels and frequency congestion.

As a reminder, the digipeater will be off the air during the January VHF contest, as the antenna and feedline will be used by the W1NY effort during the contest. It is planned that at some time in the next few weeks the digipeater transmitter frequency and deviation levels will be verified, along with receiver sensitivity, so an outage of a few hours may occur when this happens. Happy packeting de John, AC1T.

VE Exam Results

An ARRL Volunteer Exam Session was held on December 13, 1986 at the Hampden-Wilbraham Regional High School (Minnechaug) in Wilbraham, MA. Fifteen candidates took the exams. Carlo Grassetti KA1LGI, passed the 20wpm code test. Richard Puffer KA1HAB, upgraded to Technician. Donald George KA1IXT, and Larry Lemoine KA1O1Y, upgraded to General. Kenneth Doerpholz KA1FIZ, Richard Frost K1JVM, Chester Szydowski KA1MZX, and James Williams KA1MTK upgraded to Advanced. Bob Bassette W1DKY upgraded to Amateur Extra. Congratulations to all and to the fine job done by the Hampden County teaching staff during the three months training courses.

The VE team consisted of Ned Carpenter NB1R, Greg Stoddard N1AEH, Bob McCormick KA1KPH, Shawn McCormick NC1B, Betty Phillips WB1FIQ, and Yorke Phillips K1BXE.

Support the
HCRA

Amateur TV

The greater Springfield area has seen a recent increase in amateur fast-scan TV activity. A good part of this renewed interest is due to the recent completion of the ATV repeater, W1HGJ/R 439.250 input, 426.250 output. The ATV repeater is located in East Hartland, CT, at the home of WA1IAO. For coordination of ATV activity, please monitor KA1JJM/R on 147.105 virtually any weeknight.

Several area hams have recently become active on ATV, joining the group that has been on for the past several years. Steve WA1HFF in Springfield recently got his receive converter working, and purchased a KLM 14 element UHF antenna. He has been able to receive reasonable pictures from most everyone in the area.

John AC1T in Agawam has been able to receive pictures for over a year. He has experimented with a simple modulator, which connects in the 28 mhz drive line to a Microwave Modules 432 transverter, providing about one watt out. This crude method (using two transistors) produced a watchable color picture at WB1HAB, KA1JEB, W1HGJ, and WA1HFF. John recently purchased a Hamtronics ATV transverter kit (model XV4-9 for \$79.00) which will convert the channel 3 output from a VCR up to 439.250 mhz. Since the VCR output is vestigial sideband, with subcarrier audio, the transverter method should be free of some of the problems associated with double sideband techniques. A future article will be presented once the kit is assembled and tested.

Jack WB1GTR in Springfield has a portable ATV setup. It is self contained on a transportable cart, including a heavy duty 12 volt battery for power. The transmitter is 40 watts and both color and black and white cameras are used. Jack recently moved to Springfield, and was off this mode for a period of time. Since he currently rents, he does not have a permanent antenna installation. Jack has used this equipment for brief tests, and plans to try and set up an antenna that is more permanent in his backyard. He is in a reasonably high location, in Forest Park, and should not have too much trouble with signals.

Check into KA1JJM/R on 2m for more information! SEE YOU on the air de John AC1T.

In this issue:

This is the special January VHF Sweepstakes issue. Included inside is the contest entry form and a log sheet, a grid square map. Also included is a breakdown on those sometimes confusing calls from the USSR.

This month's articles cover the contest operation, solving WINY-1 digipeater antenna problems, how to rid desense from FM and TV broadcast stations, results from the last VE session, ATV is alive an well in Springfield, and more!

Next Meeting: January 9th 1987

Most of our meetings fall on the first Friday of the month. Since the first Friday would be January 2nd it was decided that we would move our meeting up to January 9th so that those of you who have a long weekend can relax after New Years Day. Best wishes for the new year from the Hampden County Radio Association!

New Pilot Program

The ARRL has chosen the HCRA to pilot test a new code training tape. We are looking for a number of individuals (a few dozen!) who may be interested in obtaining a Novice license, and partake in the pilot code program. The requirements are that they have not attempted to learn the code, and can devote fifteen minutes a day for about four weeks. We will combine this pilot test of new ARRL code materials with a Novice license class, and expect this to begin mid to late January. We will also accept anyone who is interested in this program who has already started with the code, although we can't use them for the pilot's evaluation. Write to the club address for more information!

HCRA Meetings:

Feeding Hills Congregational Church
Center of Feeding Hills
Intersection of routes 57 & 187
Doors open at 7:30 PM
Meeting starts promptly at 8:00 PM

All hams are welcome to attend!

HCRA January Meeting

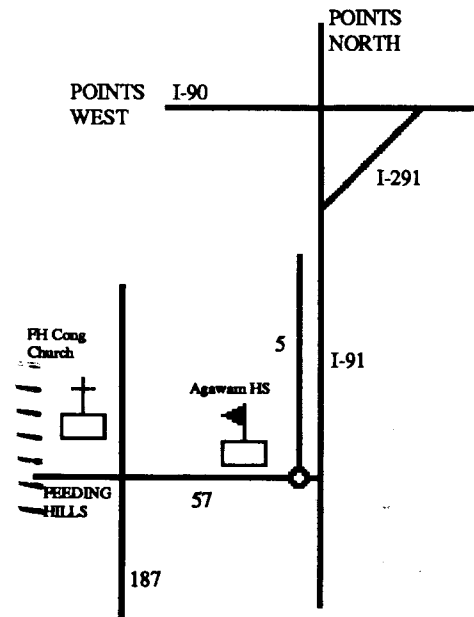
The January 9th meeting will be dedicated to the topic of VHF activity and the ARRL January Sweepstakes. Please stop by and see the presentation, pick-up any additional log sheets, etc you may need, and see you on the air!

January VHF Sweepstakes

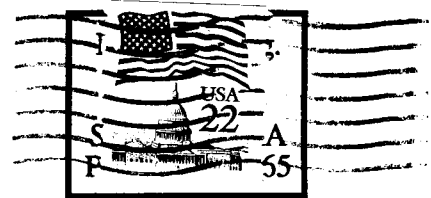
1900Z 10-Jan-87 Sat thru
0400Z 12-Jan-87 Mon
2:00 PM Saturday thru
11:00 PM Sunday

HCRA Repeaters

KA1JJM/R 147.105 mhz
KA1KPH/R 449.175 mhz
WINY-1 145.010 pkt
W1HGJ/R 426.250 atv



Hampden County Radio Association, Inc.
P O Box 482
West Springfield MA 01090-0482



*If your call is blue you're overdue!
See inside.....*

10/87 AC1T

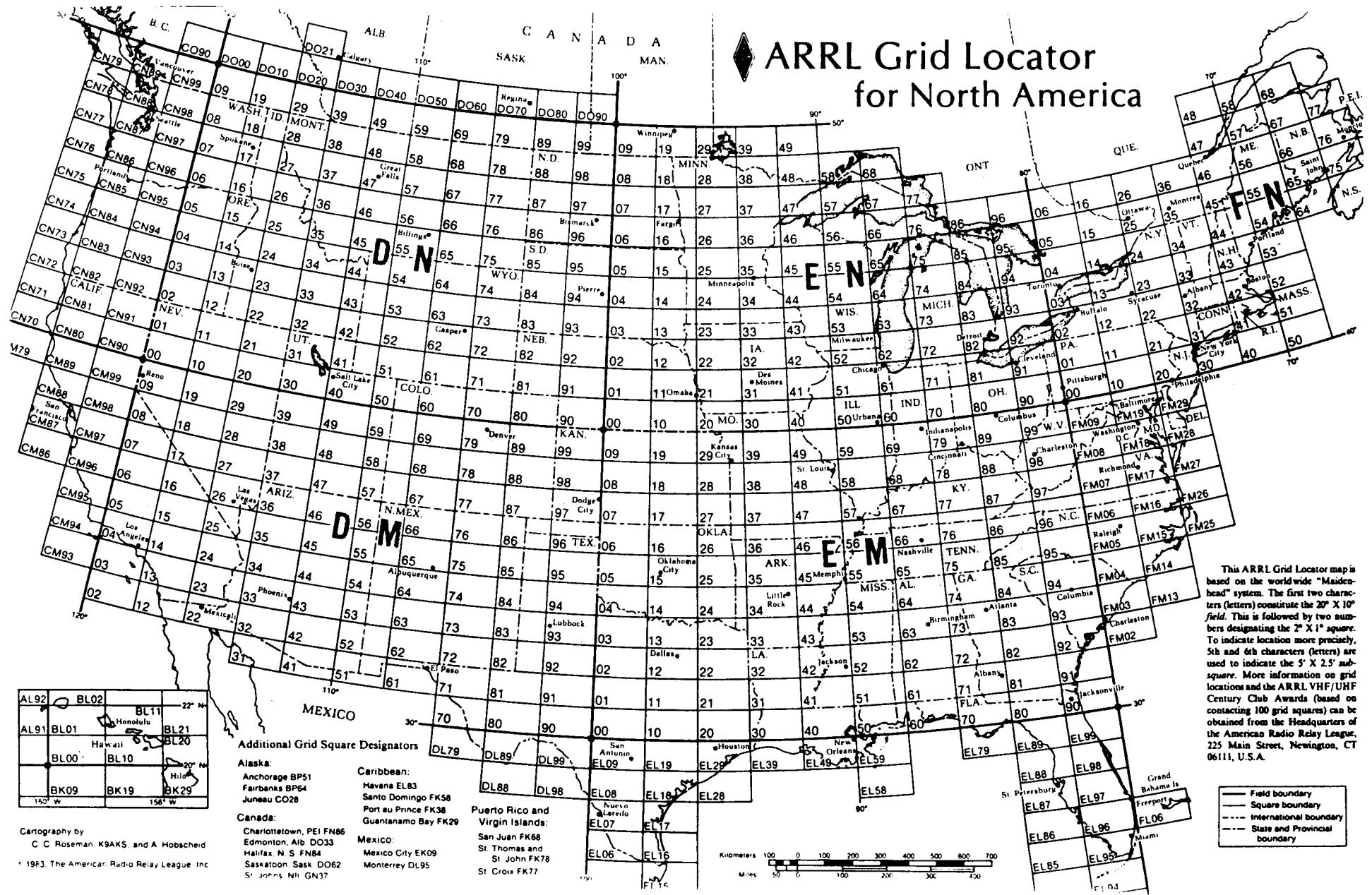


U
◇
R

	<i>Prefix</i>	<i>QTH</i>
A	1 - 3 - 4 - 6	European RSFSR
N	1P	Franz Josef Land
V	2	Kaliningrad
W	9 - 0	Asiatic RSFSR
Z	Club Stations	Asiatic RSFSR
B	<p>1 thru 0</p> <p>3 Letter Suffix Ending in WA - ZZ Indicate club stations: UB4IZZ UP1BZA</p>	Ukrainian SSR
T		Ukrainian SSR
Y		Ukrainian SSR
C		Byelorussian SSR
D		Azerbaijan SSR
F		Georgian SSR
G		Armenian SSR
H		Turkmen SSR
I		Uzbek SSR
J		Tadzhik SSR
L		Kazak SSR
M		Kirghiz SSR
O		Moldavian SSR
P		Lithuanian SSR
Q	Latvian SSR	
R	Estonian SSR	
4K1		Antarctica

Soviet Calls

ARRL Grid Locator for North America

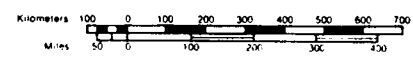


AL92	BL02	BL11
AL91	BL01	BL21
BL00	BL10	BL20
BK09	BK19	BK29

Cartography by
C C Roseman, K9AKS, and A Hobscheid
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- Additional Grid Square Designators**
- Alaska:**
Anchorage BP51
Fairbanks BP64
Juneau CO28
- Canada:**
Charlottetown, PEI FN86
Edmonton, ALB DO33
Halifax, N.S. FN84
Saskatoon, SASK DO62
St. John's, Nfld. GN37

- Caribbean:**
Havana EL83
Santo Domingo FK58
Port au Prince FK38
Guantanamo Bay FK29
- Puerto Rico and Virgin Islands:**
San Juan FK68
St. Thomas and St. John FK78
St. Croix FK77



This ARRL Grid Locator map is based on the worldwide "Maidenhead" system. The first two characters (letters) constitute the 20° X 10° field. This is followed by two numbers designating the 2° X 1° square. To indicate location more precisely, 5th and 6th characters (letters) are used to indicate the 5' X 2.5' sub-square. More information on grid locations and the ARRL VHF/UHF Century Club Awards (based on contacting 100 grid squares) can be obtained from the Headquarters of the American Radio Relay League, 225 Main Street, Newington, CT 06111, U.S.A.

- Field boundary
- Square boundary
- - - International boundary
- - - State and Provincial boundary

VHF Sweepstakes

Call Used

Grid²

ARRL Section

Station Categories

Multiple operator stations are not eligible for single-band awards.

Check Only One

- Single Operator Station – Single Band
- Single Operator Station – Multiple Bands
- Multiple Operator Station

List multiple operator calls here:

Your ARRL Affiliated Club:

Hampden County Radio Association

Band	QSO's	X	QSO Points	X	Grid ² Mult	=	Score	Band
6m	<input type="text"/>	X 1 =	<input type="text"/>	X	<input type="text"/>	=	<input type="text"/>	50mhz
	+		+		+			
2m	<input type="text"/>	X 1 =	<input type="text"/>	X	<input type="text"/>	=	<input type="text"/>	144mhz
	+		+		+			
125cm	<input type="text"/>	X 2 =	<input type="text"/>	X	<input type="text"/>	=	<input type="text"/>	220mhz
	+		+		+			
70cm	<input type="text"/>	X 2 =	<input type="text"/>	X	<input type="text"/>	=	<input type="text"/>	432mhz
	+		+		+			
33cm	<input type="text"/>	X 4 =	<input type="text"/>	X	<input type="text"/>	=	<input type="text"/>	902mhz
	+		+		+			
23cm	<input type="text"/>	X 4 =	<input type="text"/>	X	<input type="text"/>	=	<input type="text"/>	1296mhz
	+		+		+			
2.3ghz ↑	<input type="text"/>	X 8 =	<input type="text"/>	X	<input type="text"/>	=	<input type="text"/>	2.3ghz ↑
	=		=		=			
TOTAL	<input type="text"/>		<input type="text"/>	X	<input type="text"/>	=	<input type="text"/>	SCORE

I have observed all contest rules, as well as all regulations established for amateur radio in my country. This report is true and accurate to the best of my knowledge. I agree to be bound by the decisions of the ARRL Awards Committee.

Date: _____

Signature: _____

Call: _____

Name: _____
 Address: _____
 City/State: _____
 Zip: _____

Your comments and soapbox are welcome! Please use the reverse side of this form for your feedback.

N1DPM · KA1KPH · Hampden County Radio Association, Inc.

VHF ∞ UHF ∞ SHF Contest Log

Call Used Grid² Log Sheet of

Date	Band	Time	Call Worked	Grid ²	Mult	Notes

30 Contacts per page *Totals*