

Zero Beat

Hampden County Radio Association, Inc.

Our 44th ARRL affiliated year
Special Service Club

Serving Greater Springfield, MA

President's Comments

Happy 1991!

I just got used to writing 1990 and now it's changed again. I predict this is going to be a spectacular year. It has been 110 years since we last had a year with inverted first and last double digits: 1881. The next inverted double digit year will occur in 2002, or 11 years away. Maybe that means we will jam 99 extra years of technology into the next 11. Oh well, enough of this nonsense. Everyone knows that January 1 is the time for new year's resolutions. I know most of you have already achieved perfection but for those who haven't, maybe some of my radio resolutions will hit home.

We recently had company and they wanted to see what ham radio was all about. I found the basement but had trouble finding the shack. All of my great fleamarket finds were scattered across the bench. I hurriedly threw the junk into a box, tried to fire up the rig, and discovered nothing was wired up. I had never put things in order from Field Day. Apologies were given to the guests and resolution number 1 was born. **Keep shack clean and in operating condition.**

Earlier this month my wife woke up to our outside dogs barking. Bo kept it up until Linda had

to go find out what the problem was. She came back in (3:00 am) and asked for my help with the dogs. Bo had tangled himself in a dangling coax from my 80 meter dipole. Resolution number 2: **Keep all wires both inside and out in an orderly manner.**

Over the years I have had the good fortune to make lots of great contacts. Because of my high location, large antennas, high towers, high power, and many patient hours on VHF, UHF, and microwave, I have been first FN31, first CT, or best DX for many hams. I know this from all the QSL's I have received. One came from a JA looking for confirmation for first CT on 6m, another from a ham in Michigan looking for confirmation of a 1296 QSO, another for first auroral QSO, another for first CT, and on, and on. I have no QSL cards of my own. Resolution number 3: **Get KA1ZE cards and use them.**

The January VHF contest is almost here. I have always put in a good effort but there are times when I forget the smaller, less powerful stations. The contest should be fun for all, small or large. Resolution number 4: **Put fun back into the contest by helping the smaller stations, not by stepping on them.**

On behalf of your board of directors and officers, I wish all a healthy and happy new year. 73, Stan.

There will be no VE exam in January

Next meeting will be January 4th, 8:00pm at the Feeding Hills Congregational Church

Next board meeting will be January 10th at NQ1C's house

Club Officers

President—Stan Hilinski, KA1ZE
Vice President — Bob Lafleur, NQ1C
Secretary — Jim Sebolt, N1DUY
Treasurer—Greg Stoddard, N1AEH

Board of Directors

Charlie Dunlap, K1II	Bob Cohen, K1CPJ
Larry Lemoine, N1EPE	Fred Stefanik, N1DPM
Steve Nelson, WA1EYF	Frank Potts, NC1I
Cliff Junkins, W1UWX	Scott Cohen, KA1QAS

Articles from this newsletter may be reprinted as long as credit is given to Zero Beat

Calendar of Events

January	4	Meeting
	10	Board Meeting
	19-20	VHF Contest
February	1	Meeting
	6	VE Session
	7	Board Meeting
March	1	Meeting
	6	VE Session
	7	Board Meeting
April	5	Meeting
	11	Board Meeting
	28	Fleamarket
May	3	Meeting
	9	Board Meeting
June	5	VE Session
	7	June Banquet
	13	Board Meeting
	29-30	Field Day

VE Exam Results

The HCRA VE exams have been quite successful. The following people have gotten their license, or upgraded through the HCRA VE program:

Susan Fredrickson, KC1UI upgraded to E; John McLaughlin, WA1ASH upgraded to E; Robert Barkowski, N1HQO upgraded to G; Mark Formhals, no call, upgraded to T; James Davis, N1HKF, upgraded to A; Seth Mancini, KA1VIL, upgraded to T; Fern Purdy, no call, upgraded to T; Robert Payne, KA1WAJ, upgraded to A; Thomas Shea, W1HYO, upgraded to A; James Demetron, KA1WDR, upgraded to T; David Arthur, N2ISB, upgraded to E; Ronald Klimas, WA1VRH, upgraded to A; Roy Johnson, Jr., no call, upgraded to T; Lawrence Lemoine, N1EPE, upgraded to A; Barry Mason, no call, upgraded to T; Leo Matthew, no call, upgraded to T; Robert Miller, Jr., no call, upgraded to T.

Of course, the VE sessions would not be possible without the volunteers who have given their Wednesday evenings (and more!) to administer the exams. These volunteers are: Charlie Dunlap, K1II, Bob Roy, N1ABJ, Charles Vanderscoff, NQ1E, Al Carpin, NA1W, Rusty Hack, NM1K, John McLaughlin, WK1S, Sue Fredrickson, WM1B, Bob Rinaldi, W1CNY, and Steve Nelson, WA1EYF.

Incidentally, John and Sue passed their extras with us in September and came back to help with a session. I think that deserves a gigantic "THANKS", especially with them living so far from Agawam.

Special thanks to Janette Platanitis, WC1O, for making the whole VE effort work!

Receive Only	Freq. Range (MHz)	N.F. (dB)	Gain (dB)	1 dB Comp. (dBm)	Device Type	Price
P28VD	28-30	<1.1	15	0	DGFET	\$29.95
P50VD	50-54	<1.3	15	0	DGFET	\$29.95
P50VDG	50-54	<0.5	24	+12	GaAsFET	\$79.95
P144VD	144-148	<1.5	15	0	DGFET	\$29.95
P144VDA	144-148	<1.0	15	0	DGFET	\$37.95
P144VDG	144-148	<0.5	24	+12	GaAsFET	\$79.95
P220VD	220-225	<1.8	15	0	DGFET	\$29.95
P220VDA	220-225	<1.2	15	0	DGFET	\$37.95
P220VDG	220-225	<0.5	20	+12	GaAsFET	\$79.95
P432VD	420-450	<1.8	15	-20	Bipolar	\$32.95
P432VDA	420-450	<1.1	17	-20	Bipolar	\$49.95
P432VDG	420-450	<0.5	16	+12	GaAsFET	\$79.95

Inline (rt switched)

SP28VD	28-30	<1.2	15	0	DGFET	\$59.95
SP50VD	50-54	<1.4	15	0	DGFET	\$59.95
SP50VDG	50-54	<0.55	24	+12	GaAsFET	\$109.95
SP144VD	144-148	<1.6	15	0	DGFET	\$59.95
SP144VDA	144-148	<1.1	15	0	DGFET	\$67.95
SP144VDG	144-148	<0.55	24	+12	GaAsFET	\$109.95
SP220VD	220-225	<1.9	15	0	DGFET	\$59.95
SP220VDA	220-225	<1.3	15	0	DGFET	\$67.95
SP220VDG	220-225	<0.55	20	+12	GaAsFET	\$109.95
SP432VD	420-450	<1.9	15	-20	Bipolar	\$62.95
SP432VDA	420-450	<1.2	17	-20	Bipolar	\$79.95
SP432VDG	420-450	<0.55	16	+12	GaAsFET	\$109.95

Every preamplifier is precision aligned on ARR's Hewlett Packard HP8570A/HP368A state-of-the-art noise figure meter. All only preamplifiers are for receive applications only. Inline preamplifiers are rt switched (for use with transceivers) and handle 25 watts transmitter power. Mount inline preamplifiers between transceiver and power amplifier for high power applications. Other amateur, commercial and special preamplifiers available in the 1-1000 MHz range. Please include \$2 shipping in U.S. and Canada. Connecticut residents add 7.5% sales tax. C.O.D. orders add \$2. Air mail to foreign countries add 10%. Order your ARR Rx only or inline preamplifier today and start hearing like never before!

Advanced Receiver Research

Box 1242 • Burlington, CT 06013 • 203 582-9409



Loop yagis: 903 MHz 33 elements \$89 kit, \$109 assembled and tested. 1296 MHz 45 elements \$89 kit, \$109 assembled and tested. 1296 55 element "Super Looper" \$99 kit, \$124 assembled and tested. 2304 MHz 45 element \$75 kit, \$89 assembled and tested. Element and hardware kits also available for above loop yagis. 2 and 4 way power dividers. Discount on complete arrays. Solid state linear power amps, 13vDC: 1296 8W in, 35W out, \$315. 1W in, 20W out, \$265. 4W in, 70W out, \$695. GaAsFET preamps: 902 .8dB NF, \$90. 1296 .8dB NF, \$90. 2304 1dB max NF, \$140. SHF systems no-tune transverter kits with 144 MHz IF now available for 902 through 3456. Write or call for complete catalog. DOWNHEAST MICROWAVE, Bill Olson, W3HQT. Box 2301, RR1, Troy Maine, 04907. For information and orders telephone (207) 948-3741.

Rutland Arrays — Highest performance yagis available! 10M: RA5-28 5 elements, 8dBd gain. 6m: RA4-50 4 elements, 12' 4" 8.25dBd. RA7-50 7 elements 26' 6" 10.5dBd. 2m: RA8-2UWB 8 elements 11' 9" 13.5dB gain. FO12-144 12 elements 17' 4" 12.6dBd. FO15-144 15 elements 24' 8" 13.7dBd. 22: FO16-220 16 elements 7' 3" 14dBd. 70cm: FO11-440 11 elements 6' rear mount 12dBd. FO22-432 22 element 14' 15.8dBd. FO25-432 25 elements 17' 3", 16.5dBd. FO33-432, 33 element 24' 3" 7.8dBd. We also have stacking frames and power dividers. Call or write for our catalog. 1703 Warren Street, New Cumberland, PA 17070. (717) 774-8298 7:00-10:00 pm EST.

Starting in February of 1991, there will be a license class for amateurs which does not require knowledge of Morse code. The Federal Communication Commission (FCC) has eliminated the need for new Technician class license applicants to demonstrate proficiency in Morse code in order to obtain amateur privileges above 30 Mhz. This may be implemented as early as February of 1991. Technicians who obtained their licenses prior to that date will be grandfathered, and will continue their existing HF privileges.

The new codeless Technician written exam will have 55 questions. All modes and frequencies available to existing technician class licensees above 30 Mhz will be available to the new codeless licensees. Passing a 5 word-per minute Morse code examination administered by volunteer examiners will qualify the new codeless class Technicians to use all HF modes granted to existing Novices and Technicians. No changes in callsign will be made.

No changes in the existing Novice license class were announced. More details will be available in February QST.

What Now?

Opinion By

Jeffrey J. Duquette K1BE

With the codeless license finally here, all radio clubs should gear up for radio classes. The novice and Technician theory should be taught and the written exams should be made available to students every week after the fifth week. While it is confusing to use the same name for the new codeless license, this is a great opportunity for all radio clubs. If you don't take the lead and teach the new people the right way, they'll start out on the wrong foot and a sour note will resound for years.

What's in it for us? Well, obviously new members who'll bring new ideas and enthusiasm! Won't they all just go and join the repeater clubs? Sure, many will, and some of their students will join our club. Why not! It's all one fraternity. What benefits one club, benefits all the clubs!

Cheapo Test Equipment

By

Gent Lam WA1CQF

How many times have you thought about a super deluxe work bench with an array of neat test equipment? Well, the thought has crossed my mind many times and the idea of paying big money for test equipment (which will probably be used infrequently), has put a damper on my test gear selections.

The first piece of equipment should be a VOM, (Volt Ohm Meter), which can also be pressed into service around the

ranges, and a fairly decent one can be purchased for \$50. If you require greater accuracy from an inexpensive unit, it can be calibrated against a more expensive instrument, (borrowed from another ham, of course), and a chart can be plotted noting the error.

Another versatile instrument is the venerable grid dip meter. Its uses are widely documented and for its modest investment, it serves as a signal generator, wavemeter, and crystal checker. With known capacitors and inductors, it can be easily used to find the values of those unmarked coils and capacitors that you bought at the last flea market.

How can you determine the output power of your rig without plunking down \$200 for a Bird wattmeter and associated slugs? Scrounge around for a surplus RF ammeter and by using a resistive dummy load, you can determine power output with reasonable accuracy by using the formula $P=I^2R$. (Where I = indicated RF current, R = impedance of your dummy load, nominally 50 ohms.)

There are many pieces of equipment that fall under the nice to have category but are not cost effective for most of us to own. Regardless of the type and quality of test equipment you own, get to know how to use them. Dust them off and give them a workout with your functioning gear. It's a lot easier to troubleshoot if you have an idea of what you're supposed to be looking for!

Reprinted from Zero Beat, November 1981

Ten Rules for Selling Equipment

By

Ed White W1NPL

1. Clean up the gear, making it presentable.
2. Permit a demonstration, or a trial period.
3. When stating the selling price, be firm about the figure. (Be certain what you want.)
4. If you wish to bargain, don't set a price.
5. If you're willing to ship it, be certain to state who pays the shipping costs.
6. Sometimes a better all-around transaction can be had by accepting a trade.
7. Under no circumstances accept "\$10.00 down, 50¢ a week"! If the buyer needs cash, let them get a loan from a bank!
8. Should the equipment be defective, state it, and make sure the buyer knows it.
9. Don't be misleading. i.e. It was only used by a grandmother to set her watch to WWV!
10. Remember that the vast majority of hams are anxious to please the buyer.

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Speedup for Relay Keyed Radios --R.Plac WB2JLR

Here's a simple trick to improve those radios of yours with relay keying. While modifying for PIN diode switching would be great, some radios switch so many different voltages that it's not feasible to go to solid state switching. I tested several relays and found that while most will turn on in under 10 msec, the time drop out time was at least 3 times that long. When the relay is turned off, current continues to flow through it via the snubber diode. The current dies out exponentially depending upon the relay coil's resistance and inductance, but in the meantime it keeps the relay energized.

By adding resistance in series with the snubber diode you can decrease that time constant and speed things up. Adding this resistance will increase the voltage transient that the keying transistor will see, so you must be careful not to use too big of a resistor. The procedure to follow is this:

>Look up the Collector - Emitter voltage rating of the keying transistor hooked to the relay.

>Divide the voltage rating by the voltage applied to the relay and write down that ratio.

>Measure the resistance of the relay (measure it both directions and

use the higher reading so that you aren't just reading the diode across it.)

>Multiply the resistance you measured by the ratio calculated above, and round that number down to the nearest available resistor value.

>Add this resistor in series with the snubber diode that is across the relay.

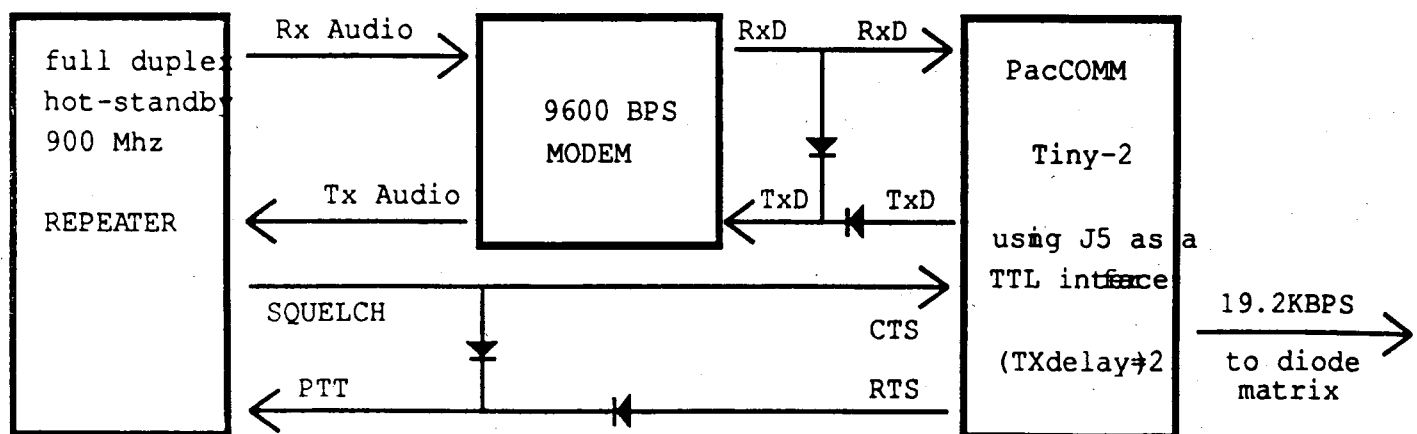
When you are done, the voltage transient that occurs at the collector of the transistor when it unkeys will be just under the voltage rating of the transistor. The time for the relay to unkey will be reduced by a factor equal to the ratio calculated above.

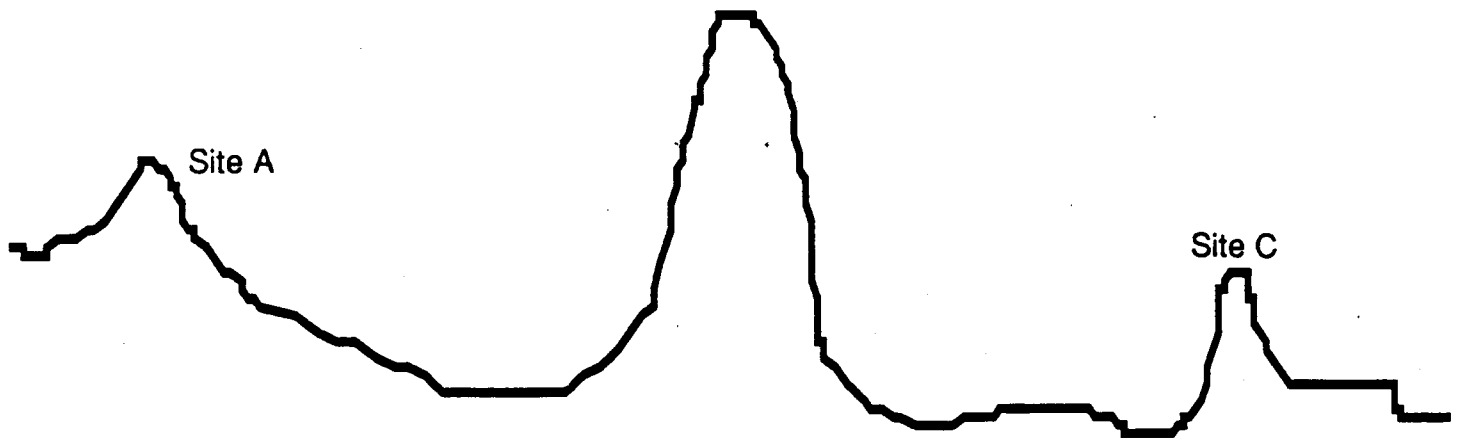
9600 Baud 900 Mhz Repeater

The CANDGA node in Canandaigua NY is now using a 900 MHz full duplex repeater which includes an internal 9600 baud modem. The equipment, donated by Microwave Data Systems in Rochester NY, will provide connectability from MONROE in Rochester to COR144 in Cortland, over 80 miles away. Being full duplex

completely avoids the hidden transmitter syndrome since anyone within range of the repeater will hear anyone else transmitting to the repeater. Data being sent between MONROE and COR144 will bypass the CANDGA tncs, going out of and directly back into the modem at the repeater. This speeds things up an additional factor

of 2 over a conventional store-and-forward type node. If the packets are addressed to CANDGA, then it intercepts them and responds. Here is the configuration for anyone else thinking about doing something similar. Rich WB2JLR @ KC3BQ





Hidden Transmitter Syndrome

This is the bane of most earlier packet networks. A system with 3 sites: Site A and Site C are far enough apart that they don't hear each other at all. Site A and site C are near cities. Each has a BBS or 2. Site A has traffic to go to site C and site C has traffic to go to site A or B. Site A will transmit when it doesn't hear anything. Site C will do the same. Site B hears both A and C. If C is transmitting and A decides to transmit, both messages are lost. If A is waiting for a reply from B and site C is talking, then site A has to wait. If C is talking for too long, site A will retry, thus trashing the message C is sending to B.

If the A to B link was on a different frequency than the B to C link, the observed performance increase is greater than 5 times, regardless of the baud rate! A hidden transmitter is a station that can be heard by one or more stations on a frequency but can not hear ALL of the stations on the frequency. It is the policy of N.E.D.A. to stay away from hidden transmitters on any new backbones that are added to the network.

Hidden Transmitters on User Ports

It is not possible to eliminate HTS on simplex user ports. It is certainly possible to eliminate HTS on a user port if the user port could take advantage of a duplex repeater. However, given that most user ports are simplex systems the effects of the hidden transmitter problem must be taken into account.

If the user port node is the only

station on frequency that can hear everybody and if all stations on frequency have parameters set to take advantage of this, the following is true:

Time used for data transmission by the node is about 80% efficient. Time used for data transmission by user stations is about 80% efficient, under minimum load. Under maximum load the time used for data transmission by the node is still 80% efficient but time used by the user stations drops down to near 0% efficient. Thus it is useful to have sources of lots of data (i.e. automated stations like BBSs) to be sourced through the network and not from a normal user site on a 2 meter user frequency.

For this reason NEDA recommends that automated stations which source a lot of data (i.e. servers/BBSs) use uplink channels that are lightly loaded and where the bulk of the users will not be affected (220 or 440). This improves efficiency of the server operation and makes for the maximum amount of fun for the random packeteer.

Minimizing HTS

1. On Backbones:

Keep each link hidden transmitter free. Try to configure backbones as dedicated end to end links using only two radios per frequency/link if on a high traffic path. High volume means that there is channel activity as much

as 1/4 of the time during peak loading periods.

Set persistence values at each port on a backbone to $256/(N-1)$ where N is the number of nodes on your backbone frequency. Example: If 4 nodes on backbone frequency then use Persistence of 85 at each port.

Set slot time at each port on a given backbone equal to Tx delay for that port.

2. Users that are high data volume sources:

High data volume sources should minimize collisions with low volume users by setting up dedicated uplink channels to one or more local nodes. Arrangements might be made with other local high data volume sources to share a dedicated user port. This should not be on 2 meters.

3. Users that are not high data volume sources:

These users should arrange to use minimum power to assure full quieting signal at a NEDA node user port which has few or no co-channel nodes or servers. Observe the node in monitor mode and see what/who is uplinking to it. What/who is downloading is much less important. On channel Dxing of user ports is seriously not a good thing. Low power is used by the users to maintain a signal into only one node. This helps in the effort to minimize hidden transmitter problems on nodes which have overlapping coverage.

Keep MAXFRAME low (1 or 2), and DWAIT at 16. CROWD nodes let you use PACLEN up to 240 so set it at 240.

EI	IRELAND	52	232	2992- 4815	283	103
EL	LIBERIA	104	284	4562- 7342	314	134
EP	IRAN	44	224	6256-10068	323	143
ET	ETHIOPIA	69	249	6867-11052	316	136
F	FRANCE	59	239	3570- 5746	294	114
FG	GUADELUPE	156	336	1915- 3082	342	162
FH	MAYOTTE	81	261	8201-13198	311	131
FJ	ST. MARTIN	158	338	1756- 2826	343	163
FK	N. CALEDONIA	275	95	8818-14191	53	233
FM	MARTINIQUE	157	337	2033- 3271	342	162
FO	CLIPPERTON	236	56	3117- 5017	39	219
FP	FR.POLYNESIA	248	68	6366-10246	46	226
FR	ST. PIERRE+	64	244	865- 1392	255	75
FR/G	REUNION	81	261	9103-14651	308	128
FR/J	GLORIOSO I	78	258	8305-13365	312	132
FR/T	JUAN DE NOVA	86	266	8270-13309	309	129
FR/T	TROMELIN	76	256	8800-14162	312	132
FT8W	CROZET	117	297	9691-15597	284	104
FT8X	KERGUELEN I	118	298	10532-16950	270	90
FT8Z	AMSTERDAM I	90	270	10855-17470	290	110
FW	WALLIS I.+	269	89	7500-10270	50	230
FY	FR. GUIANA	150	330	2893- 4656	338	158
G	ENGLAND	52	232	3275- 5272	287	107
GD	ISLE OF MAN	50	230	3122- 5025	284	104
GI	N. IRELAND	50	230	3031- 4879	282	102
GJ	JERSEY	56	236	3311- 5328	290	110
GM	SCOTLAND	46	226	3090- 4974	281	101
GU	GUERNSEY	56	236	3300- 5311	289	109
GW	WALES	52	232	3195- 5142	286	106
H4	SOLOMON I.	292	112	8520-13712	44	224
HA	HUNGARY	50	230	4288- 6901	303	123
HB	SWITZERLAND	55	235	3798- 6113	297	117
HBO	LIECHTENSTEIN	55	235	3849- 6195	297	117
HC	ECUADOR	187	7	3059- 4924	5	185
HC8	GALAPAGOS I.	205	25	3129- 5037	19	195
HH	HAITI	179	359	1595- 2567	360	180
HI	DOMINICAN R.	175	355	1600- 2575	356	176
HK	COLOMBIA	179	359	2631- 4234	359	179
HK0	MALPELO I.	194	14	2714- 4368	10	194
HK0	SAN ANDRES	197	17	2119- 3410	13	193
HL	KOREA	345	165	6816-10969	14	194
HP	PANAMA	193	13	2330- 3750	10	190
HR	HONDURAS	208	28	2042- 3287	21	208
HS	THAILAND	9	189	8458-13612	353	173
HV	VATICAN	59	239	4169- 6710	302	122
HZ	SAUDI ARABIA	54	234	6324-10177	319	139
I	ITALY	58	238	4142- 6666	301	121
IS0	SARDINIA	62	242	4076- 6560	301	121
J2	DJIBOUTI	64	244	6940-11169	317	137
J2/A	ABU AIL-JABA+	49	229	6382-10271	321	141
J3	GRENADA	158	338	2184- 3516	344	164
J5	GUINEA-BISSAU	103	283	4009- 6453	312	132
J6	ST. LUCIA	157	337	2100- 3380	342	162
J7	DOMINICA	157	337	1969- 3170	342	162
J8	ST.VINCENT	158	338	2116- 3406	343	163
JA	JAPAN	336	156	6702-10787	22	202
JD1	OGASAWARA	329	149	7174-11546	26	206
JD1	MINAMI TORI+	318	138	7020-11297	33	213
JT	MONGOLIA	2	182	6344-10210	358	178
JW	SVALBARD	17	197	3511- 5651	288	108
JX	JAN MAYEN	26	206	2932- 4718	263	83
JY	JORDAN	55	235	5647- 9088	315	135
KC4	ANTARTICA	193	13	9097-14641	83	263
KC6	BELAU					

VHF Contest Activity Hours

<u>Start</u>	<u>End</u>	<u>Day</u>	<u>Event</u>
2:00 PM		Sat	The contest starts!
2:00 PM	3:00 PM	Sat	220 MHz activity hour
3:00 PM	4:00 PM	Sat	432 MHz activity hour
4:00 PM	5:00 PM	Sat	1296 MHz activity hour
5:00 PM	6:00 PM	Sat	903 MHz activity hour
6:00 PM	7:00 PM	Sat	6m activity hour
7:00 PM	8:00 PM	Sat	2m Local FM activity hour
8:00 PM	9:00 PM	Sat	220 MHz national activity hour
9:00 PM	10:00 PM	Sat	432 MHz national activity hour
10:00 PM	11:00 PM	Sat	1296 MHz national activity hour
11:00 PM	12:00 AM	Sat	903 MHz national activity hour
6:00 AM	7:00 AM	Sun	6m activity hour
7:00 AM	8:00 AM	Sun	2m Local FM activity hour
8:00 AM	9:00 AM	Sun	220 MHz national activity hour
9:00 AM	10:00 AM	Sun	432 MHz national activity hour
10:00 AM	11:00 AM	Sun	1296 MHz national activity hour
11:00 AM	12:00 N	Sun	903 MHz national activity hour
12:00 N	1:00 PM	Sun	6m activity hour
1:00 PM	2:00 PM	Sun	2m Local FM activity hour
2:00 PM	3:00 PM	Sun	220 MHz activity hour
3:00 PM	4:00 PM	Sun	432 MHz activity hour
4:00 PM	5:00 PM	Sun	1296 MHz activity hour
6:00 PM	7:00 PM	Sun	6m activity hour
7:00 PM	8:00 PM	Sun	Local FM activity hour
8:00 PM	9:00 PM	Sun	220 MHz national activity hour
9:00 PM	10:00 PM	Sun	432 MHz national activity hour
10:00 PM	11:00 PM	Sun	1296 MHz national activity hour
	11:00 PM	Sun	The contest concludes!

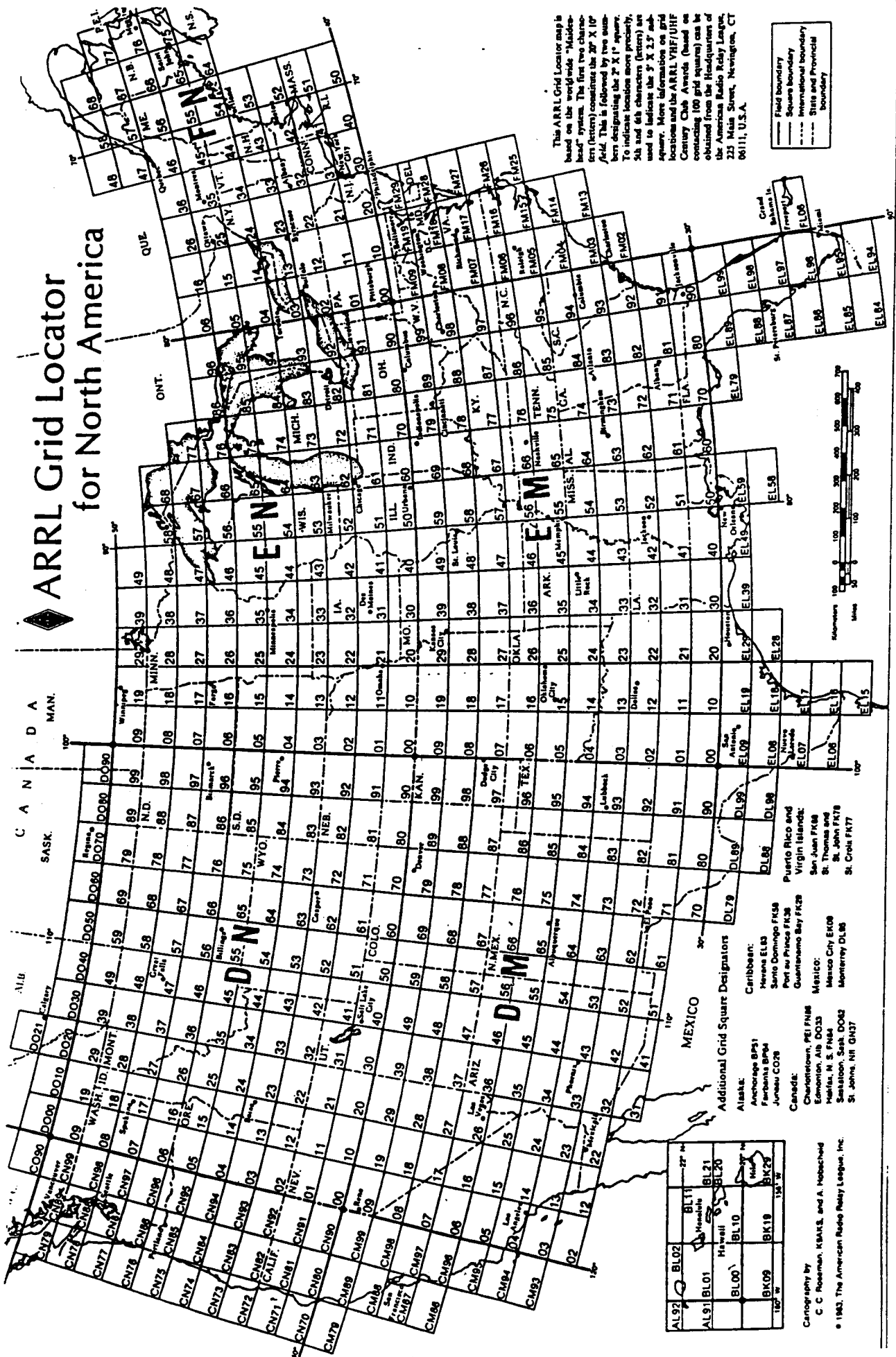
W1NY on:

446.000 MHz FM

223.500 MHz FM

146.550 MHz & 146.580 MHz & 146.490 MHz

ARRL Grid Locator for North America



VHF ∞ UHF ∞ SHF Contest Log

Grid² 

Log Sheet of

Band

Call Worked

Grid2

Mult

Notes

[illegible]

Totals

VHF ∞ UHF ∞ SHF Contest Log

11/11/2011

11

Notes

[illegible]

Totals

HCRA Members Active in the January 1991 VHF Sweepstakes

[illegible]

Use this grid to keep track of the local stations you have worked. When you work a station, highlight the square with their call and the band you worked them on. Follow across to see if the station has any other bands you need to work them on.

You may only work a station once per band per grid square.

Don't be afraid to ask a station for a sked on another band. Once you work a station on one band, work them on all the bands they have.

6 meters:

CW 50.075-50.100
DX window 50.100-50.120
SSB 50.120-50.200
Calling frequency 50.125

2 meters:

CW 144.075-144.100
SSB 144.100-144.250
Calling frequency 144.200
FM simplex 146.49, 146.55, 146.58

220 MHz:

CW/SSB 220.075-220.125
Calling frequency 220.100
FM simplex 223.50

70cm:

CW/SSB 432.075-432.150
Calling frequency 432.100
FM Simplex 446.000

903 MHz:

CW/SSB 903.085-903.115
Calling frequency 903.100

1296 MHz:

CW/SSB 1296.085-1296.125
Calling frequency 1296.100

P2	PAPUA N.G.	302	122	8829-14210	39	219	XE	MEXICO	233	53	2230- 3590	39	219
P4	ARUBA I	175	355	2049- 3298	356	176	XT	BURKINA FASO	93	273	4622- 7439	311	131
PA	NETHERLANDS	50	230	3543- 5703	292	112	XU	KAMPUCHEA	3	183	8622-13875	358	178
PJ2	NET.ANTILLES	173	353	2082- 3351	355	175	XV	VIETNAM	359	179	8417-13547	0	180
PJ5	ST. EUSTATIUS	173	353	2089- 3362	355	175	XW	LAOS	3	183	8276-13320	358	178
PY	BRAZIL	159	339	3765- 6059	344	164	XX9	MACAO	354	174	7981-12844	5	185
PY0	FERNANDO+	131	311	4071- 6551	326	146	XZ	BURMA	10	190	7962-12814	352	172
PY0	ST.PETER+	124	304	3913- 6297	322	142	Y2	E. GERMANY	48	228	3825- 6157	296	116
PY0	TRINDADE+	138	318	5132- 8260	328	148	YA	AFGHANISTAN	35	215	6587-10601	330	150
PZ	SURINAM	154	334	2821- 4541	341	161	YB	INDONESIA	340	160	9754-15698	15	195
S0	W. SAHARA	90	270	3567- 5741	305	125	YI	IRAQ	49	229	5870- 9446	318	138
S2	BANGLADESH	17	197	7731-12442	346	166	YJ	VANUATU	278	98	8502-13682	50	230
S7	SEYCHELLES	66	246	8315-13382	317	137	YK	SYRIA	51	231	5534- 8906	315	135
S9	SAO TOME +	96	276	5633- 9066	312	132	YN	NICARAGUA	204	24	2144- 3450	18	198
SM	SWEDEN	36	216	3634- 5849	291	111	YO	ROMANIA	49	229	4542- 7310	306	126
SP	POLAND	46	226	4069- 6549	290	120	YS	EL SALVADOR	212	32	2118- 3409	24	204
ST	SUDAN	71	251	6144- 9888	314	134	YU	YUGOSLAVIA	54	234	4362- 7020	304	124
ST0	SOUTH SUDAN	77	257	6699-10781	314	134	YV	VENEZUELA	169	349	2388- 3843	351	171
SU	EGYPT	62	242	5576- 8973	313	133	YV0	AVES I.	170	350	2100- 3380	353	173
SV	GREECE	57	237	4688- 7545	307	127	Z2	ZIMBABWE	97	277	7760-12489	308	128
SV/A	MT. ATHOS	55	235	4731- 7614	308	128	ZA	ALBANIA	56	236	4521- 7277	305	125
SV5	DODECANESE	56	236	5074- 8166	310	130	ZB2	GIBRALTAR	73	253	3529- 5679	299	119
SV9	CRETE	59	239	4950- 7966	309	129	ZC4	CYPRUS BASES	55	235	5288- 8511	312	132
T2	TUVALU	276	96	7574-12190	48	228	ZD7	ST. HELENA	118	298	5822- 9369	317	137
T30	W.KIRIBATI	289	109	7108-11440	45	225	ZD8	ASCENSION I	118	298	5050- 8127	319	139
T31	C. KIRIBATI	273	93	6874-11063	48	228	ZD9	TRISTAN +	136	316	6711-10801	319	139
T32	E. KIRIBATI	269	89	5112- 8227	49	229	ZF	CAYMAN I.	199	19	1630- 2623	15	195
T33	BANABA IS.	289	109	7662-12332	45	225	ZK1	N. COOK I.	262	82	6552-10545	48	228
T5	SOMALIA	65	245	7492-12057	318	138	ZK1	S. COOK I.	253	73	7050-11346	49	229
T7	SAN MARINO	57	237	4098- 6595	301	121	ZK2	NIUE I.	260	80	7459-12004	51	231
TA	TURKEY	50	230	5222- 8405	313	133	ZK3	TOKELAU I.	270	90	7114-11449	49	229
TF	ICELAND	34	214	2614- 4207	260	80	ZL	NEW ZEALAND	248	68	9081-14615	65	245
TG	GUATEMALA	215	35	2124- 3419	26	206	ZL7	CHATHAM I	240	60	8756-14091	64	244
TI	COSTA RICA	201	21	2322- 3738	15	195	ZL8	KERMADEC I	255	75	8316-13384	56	236
TI9	COCOS I.	204	24	2645- 4258	17	197	ZL9	AUCKLAND I+	235	55	9630-15498	80	260
TJ	CAMEROON	89	269	5658- 9105	312	132	ZP	PARAGUAY	161	341	4665- 7508	344	164
TK	CORSICA	60	240	3996- 6432	300	120	ZS	SOUTH AFRICA	107	287	7846-12627	307	127
TL	CEN.AFRI.REP	83	263	6020- 9689	312	132	ZS2	MARION IS.	121	301	9108-14659	291	111
TN	CONGO	92	272	6135- 9873	312	132	ZS3	NAMIBIA	108	288	7241-11653	310	130
TR	GABON	95	275	5956- 9585	312	132	ZS9	WALVIS BAY	109	289	7119-11458	310	130
TT	CHAD	78	258	5602- 9016	311	131							
TU	IVORY COAST	99	279	4698- 7561	312	132							
TY	BENIN	93	273	5005- 8054	311	131							
TZ	MALI	91	271	4343- 6990	309	129							
UA	EUROPE.USSR	35	215	4542- 7310	310	130							
UA1	FRANZ JOSEF L	9	189	3711- 5972	313	133							
UA2	KALININGRAD	43	223	4034- 6492	300	120							
UA9	ASIATIC USSR	359	179	5378- 8655	2	182							
UB	UKRAINE	43	223	4656- 7494	309	129							
UC	BYELORUSSIA	42	222	4317- 6948	304	124							
UD	AZERBAIJAN	41	221	5598- 9009	320	140							
UF	GEORGIA	43	223	5374- 8649	317	137							
UG	ARMENIA	44	224	5546- 8926	318	138							
UH	TURKMENISTAN	36	216	5971- 9610	326	146							
UI	UZBEKISTAN	32	212	5970- 9608	328	148							
UJ	TADZHIKISTAN	28	208	6380-10268	334	154							
UL	KAZAKHSTAN	24	204	5720- 9205	332	152							
UM	KIRGHIZIA	24	204	6280-10108	337	157							
UO	MOLDAVIA	46	226	4633- 7457	308	128							
UP	LITHUANIA	41	221	4071- 6551	300	120							
UQ	LATVIA	40	220	4036- 6495	300	120							
UR	ESTONIA	38	218	4096- 6593	301	121							
V2	ANTIGUA	156	336	1852- 2980	342	162							
V3	BELIZE	213	33	1966- 3165	25	205							
V4	ST. KITTS +	158	338	1818- 2927	343	163							
V8	BRUNEI	350	170	9196-14800	7	187							
VE	CANADA	328	148	1610- 2591	129	309							
VE1	CANADA-NEWBR+	44	224	436- 702	228	48							
VE1	SABLE I.	77	257	667- 1073	266	86							
VE1	ST. PAUL I.	57	237	702- 1130	246	66							
VE1	CANADA-PE IS.	54	234	541- 870	241	61							
VK	AUSTRALIA	298	118	10468-16847	46	226							
VK	LORD HOWE I	268	88	9526-15331	60	240							
VK0	HEARD I.	130	310	10663-17161	256	76							
VK0	MACQUARIE I	229	49	9977-16056	91	271							
VK9	COCOS-KEELING	20	200	10258-16509	345	165							
VK9	CHRISTMAS I	3	183	10211-16434	358	178							
VK9	MELLISH REEF	286	106	9131-14695	48	228							
VK9	WILLIS I.	292	112	9350-15047	46	226							
VK9	NORFOLK I.	265	85	8984-14459	58	238							
VP22	ANGUILLA	159	339	1747- 2813	343	163							
VP2M	MONTserrat	158	338	1872- 3013	343	163							
VP2V	BRIT VIRG I.	161	341	1713- 2757	345	165							
VP5	TURKS-CAICOS	177	357	1424- 2291	358	178							
VP8	S.SANDWICH I	156	336	7256-11677	327	147							
VP8	S. ORKNEY I	167	347	7286-11725	339	159							
VP8	S.SHETLAND I	174	354	7222-11623	350	170							
VP8	S. GEORGIA I	159	339	6976-11227	334	154							
VP8	FALKLAND I.	172	352	6514-10484	350	170							
VP9	BERMUDA I.	144	324	816- 1314	329	149							
VQ9	CHAGOS	54	234	9100-14645	323	143							
VR6	PITCAIRN I.	230	50	5904- 9502	39	219							
VS6	HONG KONG	353	173	7976-12836	5	185							
VU	INDIA	31	211	7721-12427	336	156							
VU	LACCADIVE I.	40	220	8223-13234	331	151							
VU	ANDAMAN I.	18	198	8573-13798	347	167							
W0-W9	USA	267	87	1168- 1880	72	252							
XA4	REVILLA GIG.	247	67	2752- 4429	46	226							

A Very Large Tower

WRAL-TV/FM\WPTF-TV Tower
Auburn Tower Project Joint Venture
Auburn, North Carolina

Statistics about the 2000-foot-tall tower:

- 1) Designed for 82.5 MPH (EIA-222-E) or RS-222-C combined ice and wind load of 20 PSF with 1" radial ice under 300'; 25 PSF with 1.5" radial ice 300' to 650'; and 30 PSF with 2" radial ice above 650'.
- 2) 12-foot triangular-face tower.
- 3) Overall height = 2000 feet.
- 4) Nine guy levels.
- 5) Total tower weight = 723 tons (1,446,000 lbs.)
- 6) Total weight of guy wires = 258.5 tons.
- 7) Added loads (lights, two-ways, ice sheilds, antennas, dishes, platforms, etc.) on tower = 156 tons.
- 8) Total Weight Of the Tower = 1,137.5 tons = 2,275,000 lbs
- 9) Total length of guy lines = 37,299 feet.
- 10) Total length of individual wires in guy lines = 5,428,820 feet.
- 11) Largest guy wire = 3 3/4" with a capacity of 625 tons.
- 12) 1000 square feet of outside platform space.
- 13) Total volume of concrete in foundations = 600 cubic yards.
- 14) Total weight of concrete in foundations = 1215 tons.
- 15) Maximum load on center pier = 2584 tons.
- 16) Two-man Kline elevator; travel length 1769.5 feet.
Elevator cable length = 3920 feet.
- 17) Length of rigid transmission lines = 12,527 feet.
- 18) Total individual pieces of steel = apx. 14,000.
- 19) Total number of structural fasteners = apx. 45,000.

Contest Operating

By

Roger Corey W1JYH

For thousands of years the minds of men have conceived laws and doctrines designed to govern the actions of their contemporaries, but like all human creations, the laws of man have been broken, the doctrines revoked, and the way of life which each generation believes demands new rules. Nature's laws alone remain unchanged. Thus the ant works, the grasshopper plays, and the tiny Lemming, driven by an unconquerable inner force, periodically rushes to the sea and self destruction. Thus too, thousands of amateurs, driven by a competitive spirit which Nature has decreed each of us must possess, rush periodically to the shacks to call "CQ Contest". While it is doubtful that anyone will ever take the trouble to make a Lemming's icy plunge more comfortable, we believe that an attempt to make amateur radio contest participation less painful would be a humanitarian effort worthy of the considerable effort.

If McCaulay's schoolboy were alive today he would be well acquainted with the fact that the greatest single factor in successful contest work, and the enjoyment thereof, is EXPERIENCE. He would also be aware that a great deal of needless effort may be expended in gaining experience if proper guidance is not available and that experience is a great teacher only when the student is aware of what he wants to learn. This article is written with the hope that it will aid the contest newcomer in gaining useful experience and provide the more experienced contest ham with a checklist with which he may sharpen his technique. We submit the following summary as the best means of fulfilling our objectives commensurate with our own limitations.

I Physical condition.

1. Start the contest well rested and in good health.
2. Don't overeat or depend on stimulants to keep going.
3. Make certain the operating position is as comfortable as possible.
4. During the contest, rest before getting overtired.

II Mental Condition

1. Set a goal. Either to win for your area or try for a certain number of contacts, score, or multipliers. If you reach your goal during the contest, set another a little higher.
2. Keep alert at all times. Every second of operating time should be devoted to attaining the goal.
3. Mental activity should be confined to planning the next contact. The one in progress should be automatic.
4. Forget everything except the contest. This is probably your one chance to stop worrying about loused up world events so make the most of it.

III Equipment

1. VFO, break-in, automatic QSO machines, and other

fatigue reduction devices like noise limiters, RIT, etc are musts.

2. Bandswitching, single control tuning, or separate transmitters are highly desirable.

3. A direct reading 24 hour clock set to GMT is a must.

4. A clean signal with plenty of punch and good keying or limited bandwidth modulation will produce the greatest number of contacts.

5. Spare fuses connectors, etc should be kept on hand.

IV Operating

1. Thoroughly memorize all rules of the contest so that you can take advantage of all possibilities of increasing your score.

2. Determine the shortest possible transmission that can be made. Practice, if necessary, until it becomes mechanical and stick to it.

3. Send the information only once and repeat only if asked, and only the portion asked.

4. Spread operating time over as much of the contest period as possible, taking several short rests instead of one long one.

5. When calling another station in domestic contests, zero beat his frequency exactly with his carrier. In DX contests, listen carefully for calling instructions and follow them. Otherwise call him where you think he is listening. (Several local colleges now offer courses in extra sensory perception as applied to Dxing!)

6. Maintain a dupe sheet of stations already worked.

7. Learn to listen to several other stations while copying one, thus when the contact is completed an instant decision can be made whether to call CQ or to call another station.

8. Notice what the others are doing. For example, if you hear KA1ZE say "Thanks for the new section!" near the end of the contest, the chances are it'll be new for you, too, so stick around.

9. Take pains to make your sending readable. A moderate, steady speed will produce more results than fast erratic sending. On voice, clarity of enunciation is more important than speaking rapidly. Use the ARRL phonetic alphabet, don't invent your own "cute" phonetics.

10. Never give UP! The last five minutes of the contest could bring in five new multipliers.

To summarize, the contest operator must be in top physical condition, be mentally alert, strive for peak efficiency in operating, and have a quiet, cooperative family. If, after conscientious application of all of the above, and after at least two years of contest operating, you still can not produce a winning score, the writer will, upon receipt of three worn bug paddles, furnish an engraved, black-edged certificate of sympathy and an assortment of Mickey Finn recipes to feed the competition at pre-contest gatherings.

From ARRL 1952 N.E. Division Convention, hosted by the HCRA
(Some editing by J.J. Duquette, K1BE)

Connecticut Valley and the VHF SS!

By

Ed Tilton W1HDQ

As you may know, I came to be associated with the ARRL and QST initially because K.B. Warner told me, "Everytime I listen on 5 meters I hear you there!" He paid me two personal visits in 1939, just "to see where all the noise comes from." Out of those visits came an invitation to produce a monthly "UHF" column in QST. The first one, called "On the Ultra Highs" appeared in QST for December, 1939. I have been in every issue of QST since, in one way or another.

I worked for F.W. Sickles Co. until I left to take a job as a radar field engineer for Raytheon, 1943 to 1945, intending to return there after the war. But KBW offered me a fulltime job with the ARRL, so I never went back to Sickles, as I had intended.

Warner wanted to do everything he could to build ham interest in the "ultra Highs". I used to go down to West Hartford to talk with him frequently about the future of amateur radio on the higher frequencies. He was worried that we could lose HF privileges, perhaps fairly soon, unless the ARRL could show that hams were good for the future of radio as a whole. His mind was always looking far ahead, searching out problems and solutions before most people were even aware that problems existed.

Ed Handy also gave me a lot of his time. He wanted to see VHF grow, too. Both he and Warner feared possible loss of HF and they wanted to see a large body of hams ready to take such an event in stride. Between the two, I got a whole new vision of the future of ham radio, and my place in it.

Ed Handy's feeling was that "contests" having been growing in popularity in the 1930's, should be devised to include the VHF bands. We talked a lot about

this and several possible adaptations of the contest idea were discussed at considerable length, both before and after World War II.

We experimented with many contest forms over the early years, eventually going to the three per year format still in use. I felt that something as much like the more popular HF activities could develop for what had become VHF after the war. The VHF Sweepstakes, with its message-style exchange, copied the popular HF sweepstakes. It caught on at once, and was very popular, right from the start.

Our flaw in the picture was that operators and clubs in the big city areas of the East always seemed to win.

I had an idea to help boost participation in the VHF SS in the Connecticut Valley area. I was active in the Hartford County ARA, and knew everyone in the Hampden County Radio Club too. So I proposed a local competition between the two valley clubs. They were similar in size, and there was much to be gained in improving the use of VHF in the valley. Basically the proposition was that both clubs would compete in the January VHF Sweepstakes. The winning club would be the guests of the losers, at a joint dinner, at a place selected by the host club. It was on a Dutch treat basis, but with the losers making all the arrangements. I don't recall for how many years this arrangement lasted, but it did make for a lot of good times, and friendly competition. I can't recall why it was stopped, but it was too good of a thing to lose, it seems to me.

Looking at the early statistics, it did a lot for local VHF activity. The first five years the HCRA has (2) 3rds, (2) 4ths, and (1) 5th place finish. And that had a lot to do with the local club competition!

Reprinted from Zero Beat, April 1986

Note: Ed now resides in Florida, and lucky club members can work him

during the contest on 6 meters. He is also an honorary Lifetime member of the club, one of two left. Art Zavarella, W1KK is the other member honored by the club in this way. Art has the trophies won during the inter-club competition! (Percy Noble, W1BVR was also a Lifetime member, now he is a Silent Key.)

PAST VHF SS SCORES:

Yr	Score	Place
1951		8TH
1952		11TH
1953		5TH
1954		5TH
1955		4TH
1956		4TH
1957	45,015	4TH
1958	195,501	3RD
1959	76,941	6TH
1960	33,917	15TH
1961	19,841	24TH
1962	33,564	4TH
1963	20,252	28TH
1964		
1965	37,760	14TH
1966	47,730	9TH
1967	58,841	9TH
1968	42,796	6TH
1969	67,994	6TH
1970	105,736	5TH
1971	123,898	4TH
1972	57,336	8TH
1973		
1974	16,838	9TH
1975	3,394	7TH
1976	42,771	8TH
1977	31,570	8TH
1978	13,358	15TH

NEW SCORING SYSTEM

1979	93,570	5TH
1980	142,566	3RD
1981	213,746	2ND
1982	282,094	FIRST
1983	280,576	FIRST
1984	132,969	3RD
1985	192,556	3RD
1986	263,089	3RD
1987	Missing -	
1988	Help me Out	
1989	I Lost them!	
1990	329,589	3RD

VHF Sweepstakes

It's that time of year again! Snow appears and the temperature drops. It's time to get the VHF gear out and tuned up for the biggest and the best VHF Sweeps ever! Many HCRA members have spent many long hours preparing for this contest. Club station WINY will be on again and you can work them and get a special QSL card for every band.

For those to whom this is all new - You operate any VHF or UHF band, or as many as you own radios for. You can work a station once per band, regardless of mode. Multipliers are how many different grid squares you work. (including the one you're in!) Grid squares are world wide squares, 2 degrees by 1 degree, with two letters followed by two number designations, and everyone has one. Collecting them qualifies you for awards. The attached map helps to show some of the grids in the U.S. Most of Western Mass is FN32. The exchange is your callsign and grid square.

The Hampden County Radio Association has been active in this contest from its very inception over 44 years ago! The contest efforts this year may set a new club record, IF every member pitches in. Some are hesitant to send in a log for only 100 points, feeling its "too small". Well, one year the club missed breaking 100,000 by 10 points!

The more bands you can work the higher your score! It increases algebraically (almost). If you work stations like KAIZE, WINY, NIDPM, AC1T, K1BE, and NQ1C, the QSO can be worth 5 to 10,000 points to the club aggregate score!

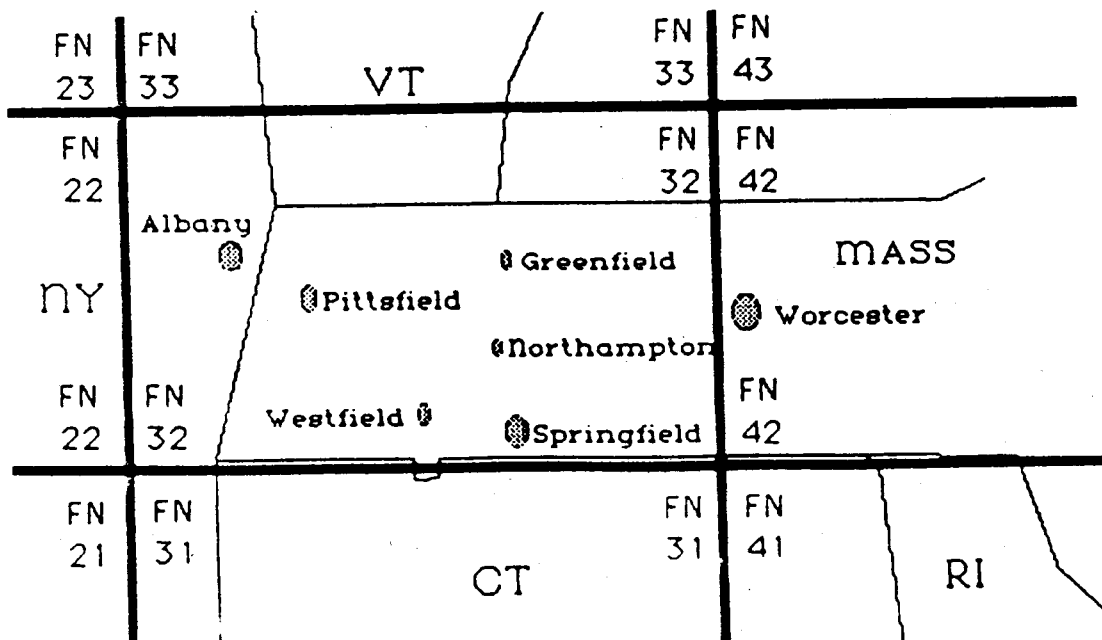
January 19th & 20th, 1991



HCRA CONTEST EFFORTS!!!

If you have extra gear you wouldn't mind loaning out, bring it to the January meeting. That old crystal transceiver sitting in the closet would be fun for a new technician to operate!

Logs, maps, and summary sheets are included in this issue. Make sure you send in your entry. We'll be glad to fill it out for you if you're intimidated by the forms. Rumors that the club will again sponsor some kind of a special award for the contest may be true. But you won't be eligible unless you participate!



VHF Propagation

By

Jeffrey J. Duquette K1BE

These people are desperate! The contest is winding down and they haven't made 1 million points! You're the man of the hour! (Ham-of-the-hour?) With your ten watt rig feeding a coat hanger on the kitchen table, you can work all of the high power distant stations. How, you might ask? Desperate times call for desperate measures! They'll strain their ears to pull your signal out of the muck. How far can your signals really go?

This depend on various factors. Single sideband, CW, and FM signals propagate many different ways on VHF/UHF bands. When you see the weather map in the morning paper, check to see if a warm air mass is overrunning a cold air mass. Then you can expect tropospheric bending of your signal which will come down who knows where! This weather inversion causes DX to open to incredible distances. Aim your antenna along the trailing edge and expect to hear stations in a wide coverage area.

Sporadic E skip occurs when intense patches of ionization occur. Solar flares produce these and can be very strong. Listen to WIAW and WWV for the solar index or news of a solar flare. Or if you start to hear stations in California on two meters, suspect sporadic E! F layer openings can also be spectacular, and maybe one will occur during the VHF contest. I remember one year when Ohio stations came in like gangbusters for 20 minutes!

If Donald Duck suddenly seems to be working you on SSB, or the CW has a strange fluttery sound, you're most likely bouncing your signals off of an aurora. Look out the window for the Northern lights, or Aurora Borealis! You don't need to be a high power, super-station like KA1ZE to work Washington state from Massachusetts. Once you hear auroral propagation, you won't forget it. Try pointing those antennas North at night!

Transequatorial propagation occurs along the North/South line of the sun. You can work South American stations on six meters. Tropospheric scatter on two meter CW can go over 500 miles. Signals tend to be weak and fluttery, but what some people won't do for another multiplier! Meteor scatter is beyond the ken of most of us, but some of the club members will be suing it. EME, or bouncing your signals off the moon, is being used more and more. WINY uses it very successfully.

Beam antennas work best, but don't sit out the VHF Sweepstakes just because you feel you don't have a "good" station. Every year many hams rack up over 1,000 points using a rubber duck, 1 watt, and simplex FM frequencies!

Keep in mind the testers want you, and you're doing them a favor. The club score goes up for every station you work, due to the multipliers. The testers, big and small, have the gear to work you, so get out there and do it!
Reprinted from January 1985 Zero Beat

Attention All Radio Amateurs!

The 44th ARRL January VHF Sweepstakes will take place starting on Saturday 19, at 2:00 pm EST and ending Sunday, January 20th, at 11:00 pm EST. There will be considerable club activity. Please participate! Even a few contacts on FM will go a long way towards helping others boost their scores. Every club member should keep a log and send it into the ARRL. Every point matters! The exchange is very simple, just your grid square with other stations. For example, Western Mass is FN32, CT is FN31. It's that easy! It's lots of fun! Pass the word to other club members! CQ Contest!

January 1991 VHF Contest Activity Hours (EST)

Start	End	Day	Event
2:00 pm		Sat	Contest Starts
2:00 pm	7:00 pm	Sat	All bands active
7:00 pm	8:00 pm	Sat	Local FM activity
8:00 pm	9:00 pm	Sat	220 Mhz national activity hour
9:00 pm	10:00 pm	Sat	432 Mhz national activity hour
10:00 pm	11:00 pm	Sat	1296Mhz national activity hour
11:00 pm	12:00 am	Sat	903 Mhz national activity hour
6:00 am	7:00 am	Sun	6 meter activity hour
7:00 am	8:00 am	Sun	Local FM activity hour
8:00 am	9:00 am	Sun	220
9:00 am	10:00 am	Sun	432
10:00 am	11:00 am	Sun	1296
11:00 am	12:00 Noon	Sun	903
12:00 Noon	1:00 pm	Sun	6 meter
1:00 pm	2:00 pm	Sun	Local FM
2:00 pm	3:00 pm	Sun	220
3:00 pm	4:00 pm	Sun	432
4:00 pm	5:00 pm	Sun	1296
6:00 pm	7:00 pm	Sun	6 meter
7:00 pm	8:00 pm	Sun	Local FM
8:00 pm	9:00 pm	Sun	220
9:00	10:00 pm	Sun	432
10:00 pm	11:00 pm	Sun	1296
	11:00 pm	Sun	Contest Ends!

The activity hours listed above are a big help for those who have a limited number of hours available to participate in the contest. By getting on at the same times, you're more likely to work everyone.

• TidBits •

This is the TidBit column, which will be run monthly. In it you will find tidbits about local amateur radio happenings, as well as general tidbits about amateur radio. What will make this column work? YOU! I cannot know every tidbit there is to know about amateur radio, so I rely upon you to tell me about them. No, you don't have to write a whole article — just a sentence or two about something interesting that has happened or will happen. If you're not sure that your tidbit is the right type of information, give it to me anyway! It's better to get too much than too little.

So here we go...

- Rusty, NM1K, has been appointed NARL (Newington Amateur Radio League) "Ham of the Year". Rusty has helped over 200 hams obtain their licences.

- Bob, NQ1C, was in Florida to see the launch of STS-35, the shuttle mission carrying amateur radio. The launch was quite spectacular.

VE Exams

Exams are sponsored by the HCRA on the first Wednesday of each month at 7:00PM *sharp* at the Agawam High School. VE's are also needed. If you are interested in taking an exam or helping give exams, please contact Jeanette WC1O at 786-1463.

There will be no VE exam in January.

HCRA Meetings

First Friday of each month at
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

Next Meeting

January 4th, 1991 8:00pm

Feeding Hills Congregational Church

Jeff Duquette, K1BE

Setting Up A Contest Station

Hampden County Radio Association, Inc.

P O Box 482

West Springfield MA 01090-0482

Editor: Bob Lafleur, NQ1C

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