1-91

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

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 Demetrion, 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!

From ARRL Press Releases

Starting in February of 1991, there will 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 flew 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.

Originally printed in THE OSCILLATOR, February 1968, Valley Amateur Radio Club.Re-printed from Zero Beat, December, 1984

Speedup for Relay Keyed Radios --R.Place 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.)

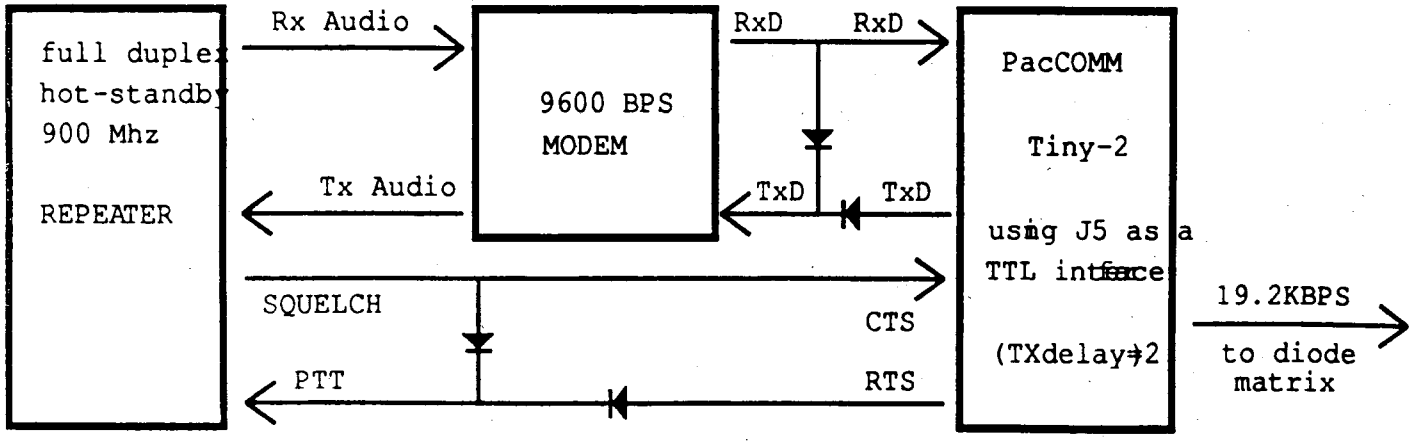
>Multiply the resistance you measured by the ratio calculated above, and round that number down to the nearest available resistor value.

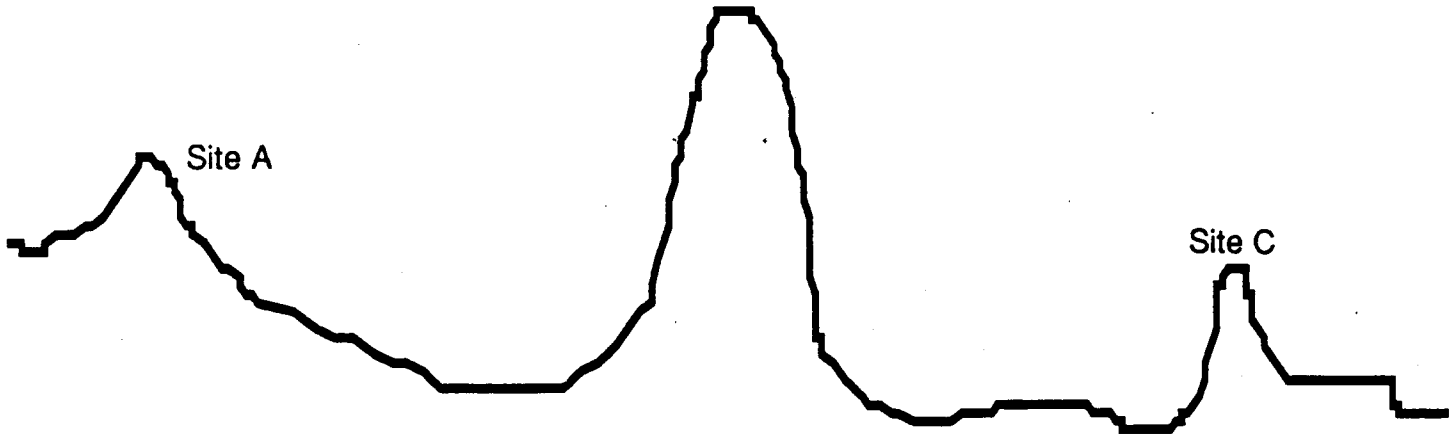
>Add this resistor in series with the snubber diode that is across the relay.

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 and 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 Txdelay 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.

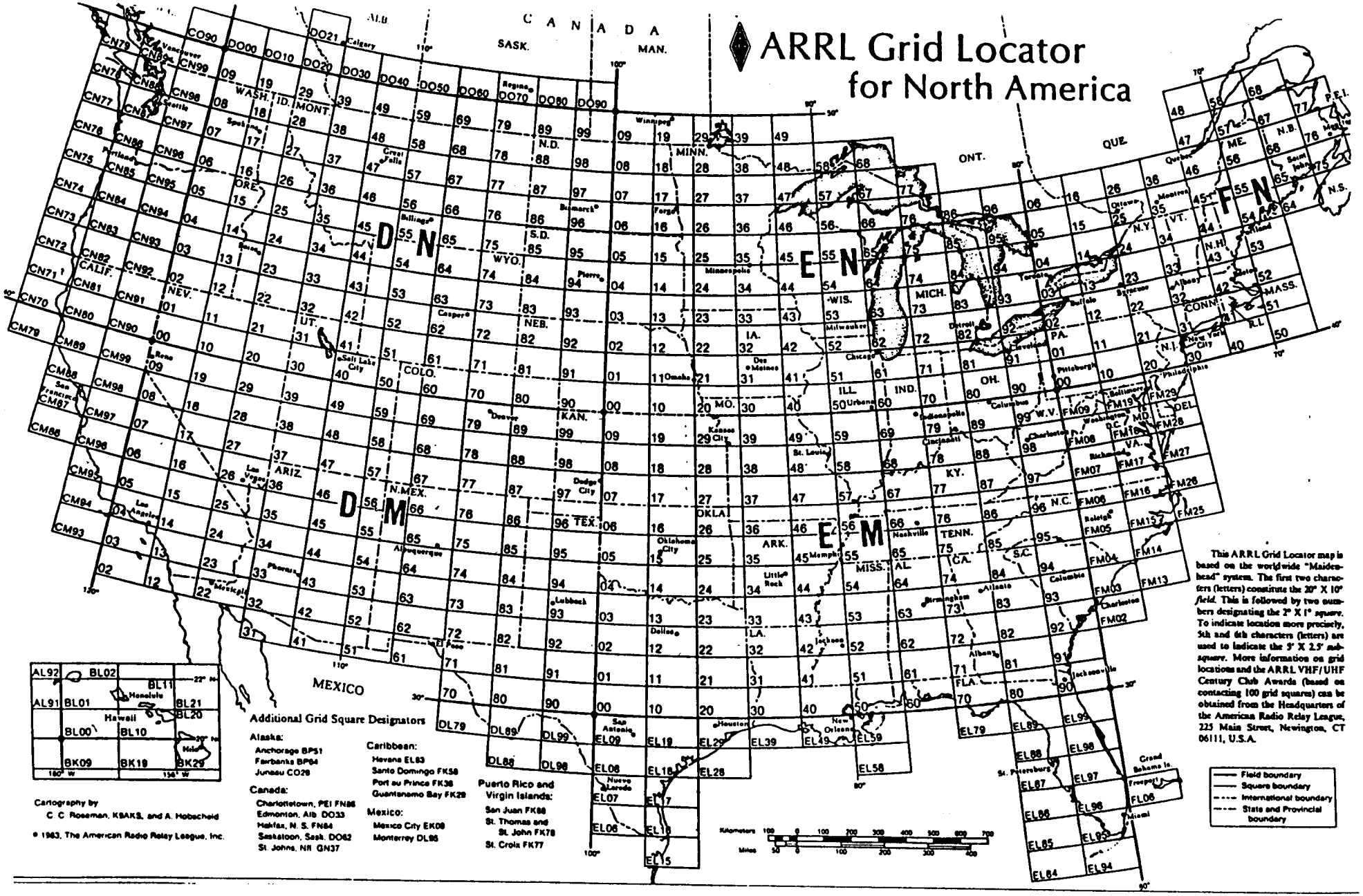
Country Distance and Bearings from the Western Mass Area

Prefix	Country Name	S. Path	L. Path	Miles-Kilo.	RetS Path	RetL Path
1A0	MALTA BASES	63	243	4455- 7169	305	125
1S	SPRATLY	354	174	8889-14306	4	184
3A	MONACO	59	239	3850- 6197	298	118
3B6	ST.BRANDON	69	249	8670-13954	315	135
3B8	MAURITIUS	78	258	9187-14785	310	130
3B9	RODRIGUEZ I	73	253	9435-15184	311	131
3C	EQU GUINEA	94	274	5689- 9156	312	132
3C0	PAGALU I.	99	279	5660- 9109	313	133
3D2	CONWAY REEF	267	87	8371-13472	53	233
3D2	ROTUMA	275	95	7813-12574	49	229
3D2	FIJI I.	271	91	8181-13166	51	231
3D6	SWAZILAND	102	282	8089-13018	306	126
3V	TUNISIA	67	247	4351- 7003	304	124
3X	GUINEA	101	281	4353- 7006	312	132
3Y	PETER I.	187	7	7730-12440	15	195
3Y	BOUVET I.	141	321	7989-12857	307	127
4J1	MALYJ VYSOTSK	34	214	4088- 6579	302	122
4S	SRI LANKA	33	213	8651-13923	336	156
4U	ITU-N.YORK	225	45	107- 172	44	224
4U	ITU-GENEVA	57	237	3744- 6025	296	116
4W	YEMEN	61	241	6797-10939	318	138
4X	ISRAEL	55	235	5556- 8942	314	134
5A	LIBYA	69	249	5017- 8074	309	129
5B	CYPRUS	55	235	5288- 8511	312	132
5H	TANZANIA	83	263	7389-11892	312	132
5N	NIGERIA	90	270	5315- 8555	311	131
5R	MADAGASCAR	86	266	8535-13736	309	129
5T	MAURITANIA	94	274	3804- 6123	308	128
5U	NIGER	84	264	5001- 8048	310	130
5V	TOGO	95	275	5008- 8060	312	132
5W	W. SAMOA	266	86	7295-11740	49	229
5X	UGANDA	78	258	6912-11124	313	133
5Z	KENYA	77	257	7305-11756	314	134
6W	SENEGAL	102	282	3917- 6304	312	132
6Y	JAMAICA	190	10	1684- 2711	8	188
7O	P.D.R. YEMEN	57	237	7017-11293	320	140
7P	LESOTHO	106	286	8034-12929	306	126
7Q	MALAWI	90	270	7651-12313	310	130
7X	ALGERIA	77	257	4191- 6745	305	125
8P	BARBADOS	156	336	2145- 3453	342	162
8Q	MALDIVE I.	45	225	8790-14146	328	148
8R	GUYANA	158	338	2693- 4335	344	164
9G	GHANA	96	276	4901- 7888	312	132
9H	MALTA	63	243	4455- 7169	305	125
9J	ZAMBIA	92	272	7401-11912	310	130
9K	KUWAIT	49	229	6233-10032	320	140
9L	SIERRA LEONE	105	285	4347- 6996	314	134
9M2	W. MALAYSIA	10	190	9283-14940	353	173
9M6	E. MALAYSIA	351	171	9288-14949	7	187
9N	NEPAL	21	201	7382-11880	343	163
9Q	ZAIRE	88	268	6786-10921	312	132
9U	BURUNDI	85	265	7042-11333	312	132
9V	SINGAPORE	5	185	9446-15201	356	176
9X	RWANDA	83	263	6948-11183	313	133
9Y	TRINIDAD	160	340	2240- 3604	345	165
A2	BOTSWANA	103	283	7543-12140	309	129
A3	TONGA	262	82	7808-12566	52	232
A4	OMAN	46	226	6995-11258	325	145
A5	BHUTAN	16	196	7514-12093	347	167
A6	U. ARAB EM.	48	228	6734-10838	323	143
A7	QATAR	49	229	6568-10570	322	142
A9	BAHRAIN I.	49	229	6483-10433	321	141
AP	PAKISTAN	32	212	6910-11121	333	153
BV	TAIWAN	346	166	7831-12604	11	191
BY	CHINA	2	182	7103-11432	358	178
C2	NAURU	292	112	7779-12520	44	224
C3	ANDORRA	63	243	3649- 5873	297	117
C5	THE GAMBIA	103	283	3934- 6332	312	132
C6	BAHAMAS	190	10	1258- 2025	8	188
C9	MOZAMBIQUE	92	272	7933-12768	309	129
CE	CHILE	179	359	4979- 8014	359	179
CE0	J. FERNANDEZ	186	6	5207- 8380	6	186
CE0	EASTER I.	213	33	5319- 8560	27	207
CE0	SAN FELIX I.	187	7	4740- 7629	6	186
CM	CUBA	199	19	1500- 2414	15	195
CN	MOROCCO	77	257	3690- 5939	301	121
CP	BOLIVIA	172	352	4109- 6613	354	174
CT	PORTUGAL	71	251	3302- 5314	295	115
CT3	MADERIA I.	84	264	3070- 4941	299	119
CU	AZORES	82	262	2344- 3773	291	111
CX	URUGUAY	166	346	5291- 8515	347	167
D2	ANGOLA	99	279	6824-10983	311	131
D4	CAPE VERDE	107	287	3378- 5437	312	132
D6	COMOROS	81	261	8132-13087	311	131
DA	W. GERMANY	50	230	3719- 5986	295	115
DU	PHILIPPINES	343	163	8514-13702	13	193
EA	SPAIN	68	248	3472- 5589	296	116
EA6	BALEARIC I.	66	246	3824- 6155	299	119
EA8	CANARY I.	88	268	3314- 5333	303	123
EA9	CEUTA-MELILLA	73	253	3632- 5846	299	119
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
FO	FR.POLYNESIA	248	68	6366-10246	46	226
FP	ST. PIERRE+	64	244	865- 1392	255	75
FR	REUNION	81	261	9103-14651	308	128
FR/G	GLORIOSO I	78	258	8305-13365	312	132
FR/J	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	7500-12070	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
HB0	LIECHTENSTEI	55	235	3849- 6195	297	117
HC	ECUADOR	187	7	3059- 4924	5	185
HC8	GALAPAGOS I.	205	25	3129- 5037	19	199
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	190
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	201
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	322	142	8361-13457	27	207
KC6	MICRONESIA	312	132	8148-13114	34	214
KG4	GUANTANAMO	186	6	1540- 2478	5	185
KH0	N.MARIANA I	320	140	7750-12473	29	209
KH1	BAKER-HOW+	281	101	6905-11112	47	227
KH2	GUAM	320	140	7939-12777	30	210
KH3	JOHNSTON I.	288	108	5803- 9339	48	228
KH4	MIDWAY I.	300	120	5618- 9042	47	227
KH5	PALMYRA +	274	94	5910- 9511	48	228
KH5K	KINGMAN REEF	275	95	5863- 9437	48	228
KH6	HAWAII	282	102	5048- 8125	51	231
KH7	KURE I.	302	122	5654- 9100	46	226
KH8	AM. SAMOA	264	84	7247-11662	50	230
KH9	WAKE I.	305	125	6775-10903	40	220
KL7	ALASKA	326	146	3365- 5415	77	257
KP1	NAVASSA I.	186	6	1670- 2688	4	184
KP2	VIRGIN I.	162	342	1716- 2763	346	166
KP4	PUERTO RICO	166	346	1697- 2731	349	169
KP5	DESECHEO I.	165	345	1708- 2749	348	168
KX6	MARSHALL I.	297	117	7237-11647	42	222
LA	NORWAY	37	217	3481- 5603	287	107
LU	ARGENTINA	173	353	5283- 8502	353	173
LX	LUXEMBORG	53	233	3648- 5871	294	114
LZ	BULGARIA	52	232	4647- 7478	307	127
OA	PERU	184	4	3604- 5800	3	183
OD	LEBANON	54	234	5505- 8859	314	134
OE	AUSTRIA	53	233	4007- 6450	299	119
OF	FINLAND	31	211	3890- 6261	298	118
OH0	ALAND I.	37	217	3840- 6180	296	116
OJ0	MARKET REEF	36	216	3843- 6185	296	116
OK	CZECHOSLAV+	49	229	4087- 6578	300	120
ON	BELGIUM	53	233	3532- 5685	292	112
OX	GREENLAND	20	200	2240- 3605	228	48
OY	FAROE I.	39	219	2941- 4733	274	94
OZ	DENMARK	44	224	3620- 5827	292	112

VHF Contest Activity Hours

Start	End	Day	Event
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
CANADA
SASK.
MAN.
ONT.
QUE.
WASH.
ID.
MONT.
N.D.
MINN.
WYO.
S.D.
ORE.
CALIF.
NEV.
UT.
COLO.
ARIZ.
N.MEX.
NEB.
KAN.
OKLA.
TEX.
IA.
MO.
ARK.
LA.
ILL.
WIS.
MICH.
IND.
OH.
KY.
TENN.
MISS.
ALA.
GA.
FLA.
S.C.
N.C.
W.V.
PA.
N.Y.
VT.
N.H.
ME.
MASS.
CONN.
R.I.
N.J.
DEL.
MD.
VA.
N.B.
P.E.I.
N.S.
MEXICO
Additional Grid Square Designators
Alaska:
Anchorage BP51
Fairbanks BP64
Juneau CO28
Canada:
Charlottetown, PEI FN86
Edmonton, Alb. DO33
Halifax, N. S. FN64
Saskatoon, Sask. DO62
St. Johns, Nfl. GN37
Caribbean:
Havana EL83
Santo Domingo FK58
Port au Prince FK38
Guantanamo Bay FK29
Mexico:
Mexico City EK09
Monterrey DL85
Puerto Rico and Virgin Islands:
San Juan FK68
St. Thomas and St. John FK78
St. Croix FK77
Cartography by
C. C. Roseman, KBAKS, and A. Hobscheid
© 1983, The American Radio Relay League, Inc.
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' subsquare. 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 ∞ UHF ∞ SHF Contest Log

Call Used ______ *Grid*[2] ______ *Log Sheet* ______ *of* ______

Date	Band	Time	Call Worked	Grid[2]	Mult		Notes
			Totals				

30 Contacts per page

VHF ∞ UHF ∞ SHF Contest Log

Call Used ______ *Grid*[2] ______ *Log Sheet* ______ *of* ______

Date	Band	Time	Call Worked	Grid[2]	Mult		Notes

30 Contacts per page *Totals* ______

HCRA Members Active in the January 1991 VHF Sweepstakes

	6m	2m		220		70cm		903	1296	up
	CW SSB	CW SSB	FM	CW SSB	FM	CW SSB	FM	CW SSB	CW SSB	CW SSB
K1BE	√	√	√	√	√	√	√		√	
K1BXE	√	√	√		√	√	√		√	
NQ1C	√	√	√	√	√	√	√		√	
W1CJK	√	√	√		√	√	√			
K1CPJ	√	√	√		√	√	√			
N1DPM	√	√	√	√	√	√	√	√	√	
N1EHS	√	√	√				√			
WB1ETS	√	√	√		√	√	√		√	
N1EVE	√	√	√				√			
WA1EYF	√	√	√			√	√			
N1FFZ	√	√	√				√			
WB1FIQ	√	√	√		√	√	√		√	
N1FMT	√	√	√				√			
N1GXR			√				√			
NC1I			√				√			
N1IED	√	√	√				√			
K1II	√	√	√				√			
NM1K	√		√		√		√		√	
W1KK			√							
NR1L	√	√	√	√	√	√	√	√	√	√
KA1MPS	√	√	√		√	√	√		√	
W1NY	√	√	√	√	√	√	√		√	
WA1OCK	√	√	√		√		√			
KC1OR	√	√	√			√	√			
WA1PLS	√	√	√		√		√			
KA1QAR					√					
KA1QAS	√	√	√		√	√	√			
W1RIL	√	√	√	√		√		√	√	√
AC1T	√	√	√		√	√	√			
KA1TBS			√				√			
KA1TMV					√					
W1UWX		√	√		√	√	√			
WA1VRH	√	√	√			√				
NA1W		√	√		√	√	√		√	
K1WVX	√	√	√				√			
WA1YCA		√	√							
KA1ZE	√	√	√	√	√	√	√	√	√	√

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
P4	ARUBA I	175	355	2049- 3298	356	176
PA	NETHERLANDS	50	230	3543- 5703	292	112
PJ2	NET.ANTILLES	173	353	2082- 3351	355	175
PJ5	ST. EUSTATIUS	173	353	2089- 3362	355	175
PY	BRAZIL	159	339	3765- 6059	344	164
PY0	FERNANDO+	131	311	4071- 6551	326	146
PY0	ST.PETER+	124	304	3913- 6297	322	142
PY0	TRINDADE+	138	318	5132- 8260	328	148
PZ	SURINAM	154	334	2821- 4541	341	161
S0	W. SAHARA	90	270	3567- 5741	305	125
S2	BANGLADESH	17	197	7731-12442	346	166
S7	SEYCHELLES	66	246	8315-13382	317	137
S9	SAO TOME +	96	276	5633- 9066	312	132
SM	SWEDEN	36	216	3634- 5849	291	111
SP	POLAND	46	226	4069- 6549	300	120
ST	SUDAN	71	251	6144- 9888	314	134
ST0	SOUTH SUDAN	77	257	6699-10781	314	134
SU	EGYPT	62	242	5576- 8973	313	133
SV	GREECE	57	237	4688- 7545	307	127
SV/A	MT. ATHOS	55	235	4731- 7614	308	128
SV5	DODECANESE	56	236	5074- 8166	310	130
SV9	CRETE	59	239	4950- 7966	309	129
T2	TUVALU	276	96	7574-12190	48	228
T30	W.KIRIBATI	289	109	7108-11440	45	225
T31	C. KIRIBATI	273	93	6874-11063	48	228
T32	E. KIRIBATI	269	89	5112- 8227	49	229
T33	BANABA IS.	289	109	7662-12332	45	225
T5	SOMALIA	65	245	7492-12057	318	138
T7	SAN MARINO	57	237	4098- 6595	301	121
TA	TURKEY	50	230	5222- 8405	313	133
TF	ICELAND	34	214	2614- 4207	260	80
TG	GUATEMALA	215	35	2124- 3419	26	206
TI	COSTA RICA	201	21	2322- 3738	15	195
TI9	COCOS I.	204	24	2645- 4258	17	197
TJ	CAMEROON	89	269	5658- 9105	312	132
TK	CORSICA	60	240	3996- 6432	300	120
TL	CEN.AFRI.REP	83	263	6020- 9689	312	132
TN	CONGO	92	272	6135- 9873	312	132
TR	GABON	95	275	5956- 9585	312	132
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
VP2E	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
XE	MEXICO	233	53	2230- 3590	39	219
XT	BURKINA FASO	93	273	4622- 7439	311	131
XU	KAMPUCHEA	3	183	8622-13875	358	178
XV	VIETNAM	359	179	8417-13547	0	180
XW	LAOS	3	183	8276-13320	358	178
XX9	MACAO	354	174	7981-12844	5	185
XZ	BURMA	10	190	7962-12814	352	172
Y2	E. GERMANY	48	228	3825- 6157	296	116
YA	AFGHANISTAN	35	215	6587-10601	330	150
YB	INDONESIA	340	160	9754-15698	15	195
YI	IRAQ	49	229	5870- 9446	318	138
YJ	VANUATU	278	98	8502-13682	50	230
YK	SYRIA	51	231	5534- 8906	315	135
YN	NICARAGUA	204	24	2144- 3450	18	198
YO	ROMANIA	49	229	4542- 7310	306	126
YS	EL SALVADOR	212	32	2118- 3409	24	204
YU	YUGOSLAVIA	54	234	4362- 7020	304	124
YV	VENEZUELA	169	349	2388- 3843	351	171
YV0	AVES I.	170	350	2100- 3380	353	173
Z2	ZIMBABWE	97	277	7760-12489	308	128
ZA	ALBANIA	56	236	4521- 7277	305	125
ZB2	GIBRALTAR	73	253	3529- 5679	299	119
ZC4	CYPRUS BASES	55	235	5288- 8511	312	132
ZD7	ST. HELENA	118	298	5822- 9369	317	137
ZD8	ASCENSION I	118	298	5050- 8127	319	139
ZD9	TRISTAN +	136	316	6711-10801	319	139
ZF	CAYMAN I.	199	19	1630- 2623	15	195
ZK1	N. COOK I.	262	82	6552-10545	48	228
ZK1	S. COOK I.	253	73	7050-11346	49	229
ZK2	NIUE I.	260	80	7459-12004	51	231
ZK3	TOKELAU I.	270	90	7114-11449	49	229
ZL	NEW ZEALAND	248	68	9081-14615	65	245
ZL7	CHATHAM I	240	60	8756-14091	64	244
ZL8	KERMADEC I	255	75	8316-13384	56	236
ZL9	AUCKLAND I+	235	55	9630-15498	80	260
ZP	PARAGUAY	161	341	4665- 7508	344	164
ZS	SOUTH AFRICA	107	287	7846-12627	307	127
ZS2	MARION IS.	121	301	9108-14659	291	111
ZS3	NAMIBIA	108	288	7241-11653	310	130
ZS9	WALVIS BAY	109	289	7119-11458	310	130

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