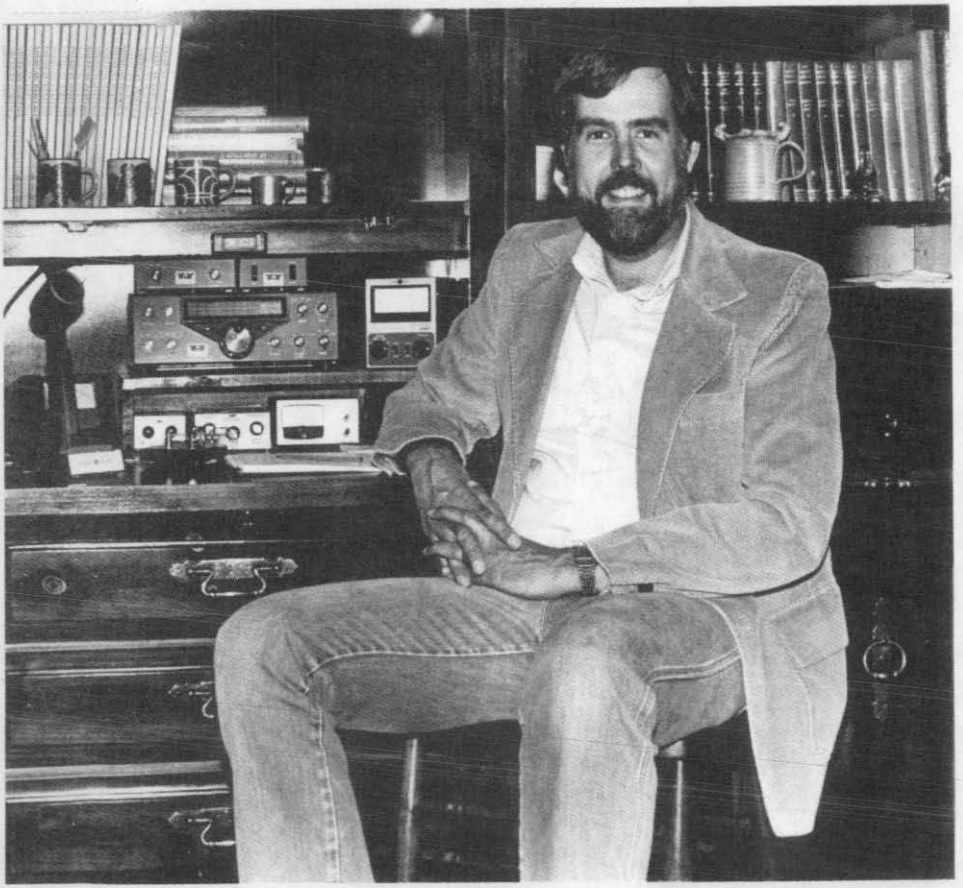
QRP Quarterly

July, 1984 - Volume XXII - Number 3

Journal of the QRP Amateur Radio Club, International

Roger Rose, W5LXS
Spring QSO Party Winner



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QRP Quarterly is the official journal of the QRP Amateur Radio Club, International, Inc., and is published four times a year; January, April, July and October. The QRP ARCI is a non-profit organization dedicated to increasing world-wide enjoyment of QRP operation and experimentation (QRP, as defined by the Club, is 5 watts output CW, and 10 watts output PEP). Current Club membership is 000000, and QRP Quarterly circulation is 00000

MEMBERSHIP The initial membership fee of $6.00 ($7.00 for DX) covers lifetime membership plus the first four issues of the Quarterly. Membership information is available from the Secretary/Treasurer.

QRP SUBSCRIPTION RENEWAL Subscription renewals are $5.00 ($6.00 for DX) for four issues. Notice of expiration will be stamped on the cover of your final QRP Quarterly. The subscription renewal date appears on the mailing label following the QRP membership number; i.e. 4174-4/84 means that member number 4174's subscription will expire with the 4th Quarterly in 1984 (October). Renewals and new member applications must be received by the 15th of the month prior to the next month of publication to receive that issue, otherwise service will not begin until the publication of the next Quarterly

SEND RENEWAL AND NEW MEMBER APPLICATIONS TO THE SECRETARY/TREASURER

PLEASE MAKE YOUR CHECK OR MONEY ORDER PAYABLE TO:

QRP Amateur Radio Club, International, Inc.

Please include your QRP membership number and call

* * * * * **PLEASE DO NOT SEND CASH** * * * * *

TECHNICAL ARTICLES Submit all technical articles to the Technical Editor. They should be typed, double-spaced and all circuit diagrams should be clear and include a complete list of parts and their values. The Technical Editor and the Club are not responsible for testing projects that are published in the Quarterly.

LETTERS TO THE EDITOR Letters to the Editor, articles of general interest and announcements should be sent to the Publisher. Not every letter can be published and the Publisher reserves the right to edit letters to conform to space limitations. Photographs of your station, construction projects, antennas, etc. are welcome. Black and white photos at least 3" by 3" are preferred.

Requests for the return of materials submitted for publication must be accompanied by a self-addressed, stamped envelope. If you write to one of the Officers and request an answer, please include a self-addressed, stamped envelope. Please include your name, call, address and a telephone number on all material submitted for publication and general correspondence as it may be necessary to contact you for additional information.

BARE-BONES SOLAR POWER FOR THE QRPer

Roger C. Rose, W5LXS
2203 Gulf Avenue,
Midland, Texas 79705

Editors note: Congradulations are in order for Roger for taking overall top honors in the Spring QSO Party and the milliwatt category as well. See story on page 20.

Roger is also Net control Station for the Transcontinental Net which meets on Sundays at 2300Z on 14.060 MHz.

Over the past few years, I have found myself searching for "new wrinkles" in amateur radio. This search brought me to QRP work, and I've never had so much enjoyment from the hobby. I also became intrigued with solar power as a "sub-wrinkle" but never felt I could afford to pursue it. Then one of our area amateurs acquired several 500 ma. solar panels from a surplus outlet. The panels had a defect in the plastic coating over the cells but could be weatherproofed and used quite nicely. I picked up two of them for $80, and the fun began.

I started researching the topic of solar power and soon discovered that most of the amateur articles I found were geared toward people needing large panels, multi-battery configurations, and charge controllers for power-hungry, medium-power rigs. Upon visiting with area hams about the project, I found none had experience with small solar-charging systems and most considered it necessary to provide some type of charge regulation.

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I then visited with a ham in New Mexico who had purchased some of the panels. he said that if the battery string was large enough, no regulation would be necessary. About that time, I acquired two six-volt, lead-acid, telephone-type batteries rated at about 25 ampere hours. they have clear plastic cases so one can keep track of the electrolyte level easily. I figured I would go ahead and try the system without regulation, and if the batteries didn't lose electrolyte at an excessive rate, I'd be home free.

I mounted one of the panels on the eaves of the west side of our house so it would only receive direct sunlight in the afternoon, providing a degree of charge limiting. A blocking diode was placed in series with the positive lead from the panel to prevent the batteries from discharging back into the panel at night.

Plain zip cord was used from the panel to the batteries since the voltage drop was no problem. At the batteries, two-conductor Jones plugs were used so the panel could be disconnected as well as the main feed from the batteries into the shack. No. 12 stranded wire was used for the main feed since voltage here is a problem, even with the small current required by an Argonaut. These leads must be kept as short as possible.

A control box was built for the shack to provide voltage metering and a power switch. In addition, a crowbar circuit (overload protection) was used in case the battery string went open and the full panel voltage, 18 volts, was applied to the rig. If the rig is in receive and drawing low current, I feel that the over-voltage would probably cause damage. Anyway I'm a conservative to the bitter end, so the crowbar makes me feel better. I also provided a closed-circuit headphone jack with the control box. The Argo's jack is on the rear apron and has always bothered me.

My average operating week consists of a few QSOs in the evening after work and as many as possible on the weekend. This solar-powered system has been on line since October 1 1982 and it's output has never dropped below 12 volts. I've only had to add water to the batteries twice, so overcharging is not a problem. I have also run the system with the panel disconnected during ARCI contests, (no battery storage), running the Argonaut at 500 mW output and had no problems.

I would also like to take this opportunity to urge our club to take a more enlightened approach to solar power in our contests. We are allowed no storage, so for a .5 times multiplier advantage over battery power, we are unable to operate at night or on cloudy days. In addition, your system would have to use more expensive, high-current panels to develop even enough juice to power an Argonaut. Storage is the only thing that makes solar power practical for the average ham. Therefore, our rules are counter-productive if alternate energy operation is to be encouraged.

Even if all new parts are used, the system can be built for less than $200 and much less if you are good at scrounging. That is a far cry from the high-dollar systems I've seen in many articles. You'll also have a system that will keep you on the air during power outages and emergencies.

Block diagram and parts list on page 5

A GENUINE PEANUT WHISTLE

Stu Tyler, WA4UJO, of Suffolk Va., reports moderate success with this genuine "peanut whistle" on 40 meters. Stu used the QST design of the "Tuna Tin" transmitter of a few years ago. Rather than use an empty tunafish can, as the original model used, Stu mounted his in a Planters Peanuts tin, since peanuts are a major crop in his neck of the woods.

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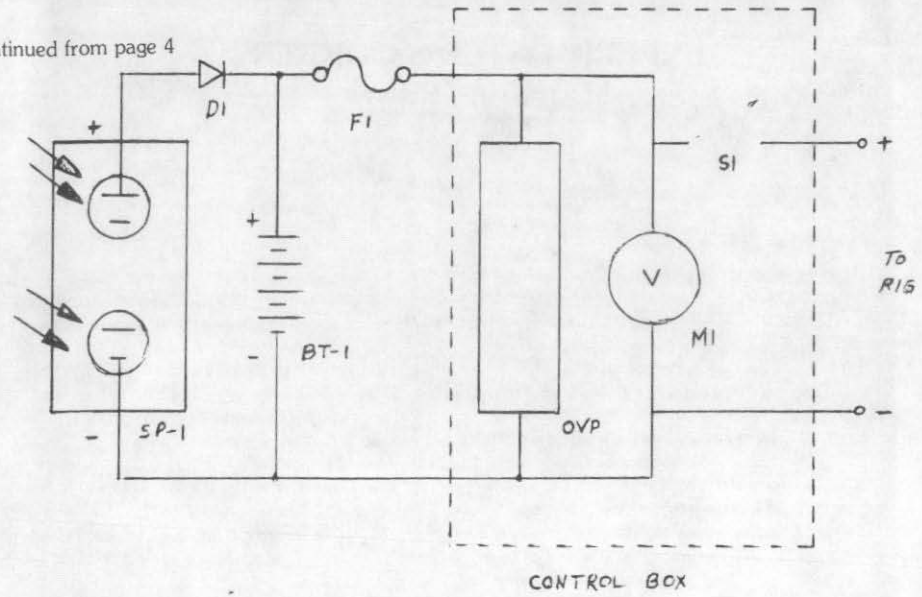

SP1 - Solarex 435HP or equiv., approximately 14 volts at 400 ma.
Source: Energy Sciences, 832 Rockville Pike, Rockville, MA 20852, 1-800-638-8304

D1 - Any silicon diode with enough P.I.V. and current rating to handle the panel's output.

BT1 - 12 volt deep cycle "RV" type battery such as the "Die Hard RV" from Sears. Avoid regular car batteries as they are designed to provide high currents for short periods of time.

F1 - Fuse large enough to handle rig. I used a fast-blow 2 Amp with the Argonaut. Must blow fast if crowbar operates.

OVP - BEC Electronics KOP-02 overvoltge protection circuit. I added a small bypass cap. from SCR gate to ground to prevent transients from triggering the circuit. Unnecessary with panels incapable of excessive voltage. (KOP-02 available for $6.95 plus shipping and handling from BEC Electronics, P.O. Box 461244, Garland, Texas 75046.)

M1 - 0 to 15 volt meter - Radio Shack No. 270-1754.

S1 - SPST Toggle switch.

Gary Phillips, KA9NZI, shown seated at the operating table. Gary sends along the word that he would like to see a novice band contest. (Gary, check this issue - we got the jump on you with one of the new sprints.)

First Sunday QSO Parties & QRP Nets

A great way to make new friends!

EXPERIMENTER'S CORNER
Measuring Power

by Wes Hayward, W7ZOI

By now summer is well underway. Along with the chores of keeping the lawn in order, there is plenty of QRP portable activity to be found on the bands. Summer propagation is usually excellent, offering many opportunities for QRP DX. Unfortunately, the noise from the summer thunder storms also propogates all to well.

First a post-script to last quarter's column: I purchased a large batch of stable surplus capacitors suitable for use in vfo construction. Three types are available: 33 pF, NPO; 47 pF, +/- 30 ppm/deg.C; and 7.5 pF, +/- 60 ppm/deg.C. These are the same "dog-bone" ceramic caps that W7EL and I have used in many vfo designs. If any of you are doing any building and need such caps for vfo's, drop me a note.

The subject for this quarter is power measurement. this is of special significance to the QRP adict. We wish to know, with reasonable accuracy, what our rigs are delivering to the transmission line. this becomes of greater interest when we turn the power down.

Figure 1 shows a very simple power meter. Assume the output of a QRP transmitter is applied to the input. A sinusoidal voltage appears across the 50-ohm input resistor. The power delivered to that resistor is:

Power = (Vrms) 2/Rload = (Vpeak) 2/(2*Rload) = (Vp-p) 2/(8*Rload)

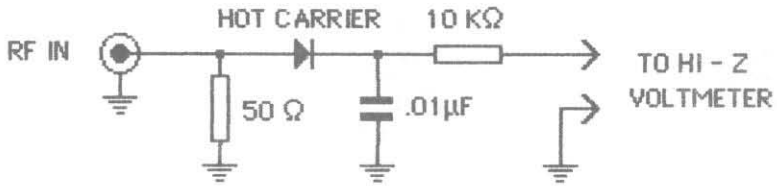

FIGURE 1

The power delivered to the 50-ohm resistor is related to the square of the voltage across that resistor. The three voltages we might measure are the r.m.s., the peak, or the peak-to-peak value. (Note that we have presented the equation in the form of a BASIC language computer statement. This does not imply that a computer is needed or even desired for such calculations. Rather, such a form is easier to type with a word processor.)

The diode detector and related components shown in Fig. 1 form a peak detector, so the second part of the equation applies. The dc output voltage should be measured with a high impedance (10 megohm or more) voltmeter. I used a Fluke 8020A DVM for the work reported here. If we measure a dc output of 2 volts, this is essentially the peak rf voltage, and the power is:

P = (Vpeak) 2/(2*Rload) = 4/(102) = 0.0392 watts

Table 1 shows the results of an evaluation of the power meter of Fig. 1. The four columns in the table show the power in dBm, that same power in milliwatts, the peak rf voltage corresponding to that power in a 50-ohm load, and the value that we actually measured. The rf source used in the experiments was a HP-8640B signal generator operating at 30 Mhz. The Fluke dvm measured the output voltage, shown in millivolts in the table. Further measurements showed the circuit to be essentially flat up to 500 Mhz.

The table shows the presence of some errors: the third and fourth columns are not identical. The primary source of this discrepancy is the finite voltage drop across the diode. The diode I used was a hot-carrier type with a 15-volt breakdown that was rated for a voltage drop of 0.6 volts with a diode current of 10 mA. At 100 milliwatts (+20 dBm) the peak rf voltage is 3162 mV, but we measure 2742 mV. The error, in db, is then:

Error = 20*Log (Vp/Vmeas) =

20*Log (3162/2742) = 1.2 dB

This is not large and probably not worth consideration for casual QRP work. The errors become much more significant at lower power

TABLE 1

P, dBm	P, mW	V-p(calc)	V-p (meas)
-20	0.01	31.6 mV	0.2 mV
-10	0.1	100	3.7
-8	0.159	126	12.2
-6	0.251	158	23.7
-4	0.398	200	42.3
-2	0.631	251	73.9
0	1.0	316	120
2	1.58	398	182
4	2.51	501	292
6	4	631	400
8	6.3	794	545
10	10	1000	732
12	15.8	1259	942
14	25.1	1584	1380
17	50.1	2238	1978
20	100	3162	2742

. At the lowest level measured, -20 dBm (10 watts), the error is terrible at 43 dB! Our "meter" is then little more than a sloppy ator.

errors may be reduced through calibration. an use a high frequency oscilloscope to ure the peak-to-peak voltage across the load. power is calculated and used to produce a of power vs. voltage reading. Another d for calibration is one suggested years ago RSP. A variable voltage dc power supply is d to the 50-ohm resistor. The dvm resopnse ed. Then, the diode is temporarily short ted, yeilding a higher meter response. The dure is repeated for a wide range of voltages, g care to not dissipate too much power in the m resistor. The curve that this measurement ces may then be interpreted as the peak rf e as a function of meter indication. While e ultimate, this method works very well and es no special equipment. The errors, after a calibration, should be under 1 dB for s of 1 milliwatt or more in 50 ohms.

often neglected accessory for the QRP n is a step attenuator. See the recent paper riner and Pagel, QST, Sept., 1982. The s used in their design are not needed for hf w vhf application.

uming such an attenuator is available (it's and simple to build), how is it applied? the power meter of Fig. 1 is built and ated using the W0RSP method at fairly high levels, perhaps 100 to 500 milliwatts. This d then be a fairly accurate measurement ment. Following the calibration with dc, a transmitter is applied to the power meter and the output is noted. Then, the step attenuator is placed in the line. It's adjusted for various attenuations, noting the results as the measurement progresses. the results is a calibrated power meter over a range limited only by the sensitivity of the detector.

The uses for the attenuator are nearly endless. For example, the attenuator can be placed directly in the output of a transmitter. Knowing the power output at the highest setting, the resulting powers with the attenuator in-line are well established down to the sub-microwatt levels. This is the method I use for all serious "milliwatting" activities. One note of caution - available step attenuators have a limited power dissipation. Those 5-watt commercial rigs should be used with a 10 dB power pad before going into a step attenuator. (See p. 151, Solid State Design for the Radio Amateur.)

The data presented in Table 1 illustrates another problem that we often see. The indicated output from a diode detector will nearly vanish once the rf voltage applied to the diode drops below the "turn on" voltage for that diode. The usual "SWR" bridges we use have diode detectors operating at low power levels. Think about this the next time you hear someone say his or her antenna has a "1 to 1 swr" across an entire band! If you want a **REAL MEASUREMENT,** use a calibrated milliwatt meter with a step attenuator and a return-loss bridge.

Very low powers may be detected with a biased diode. I described a simple circuit for this in a recent issue of SPRAT.

Well this should be about enough for now on the power measurement subject. Like so many of things we encounter in this exciting game of electronics we play, the answers to the problems do not lie in the use of exotic instruments that are unavailable to most of us. Rather, the answers come from a careful application of the most basic concepts.

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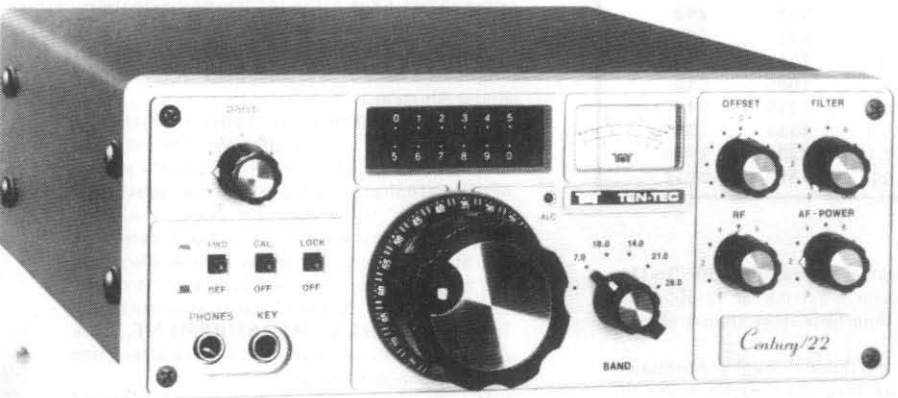
7700 SW Danielle Avenue,
Beaverton, Oregon 97005

QRP HANDBOOK

Latest word on the status of the long-awaited QRP handbook by Doug DeMaw, W1FB, is that the wait will still be longer. Chuck, KA0NRP, at Circuit Board Specialists in Pueblo, Colorado, which is publishing Doug's handbook, advises "it looks like it will be near the end of 1984 before all is marked 'GO.'" Says Chuck, "I know the QRP gang is awaiting the release of this book, but if I may quote, ***'We will sell no "book" before its time.'"***

TEN—TEC CENTURY/22

by Fred Bonavita, W5QJM



The availability of commrcially made QRP gear just went up a notch with the introduction of Ten-Tec's Century/22 transceiver.

A much-improved version of the once-popular Century/21, on which many a ham cut his or her teeth, the "22" is sure to be a boost for low-power operations, if preliminary specifications from the factory are any indication.

Having been introduced at Dayton earlier this year, the 22 put Ten-Tec right back in the ballgame with a low-priced transceiver that promises good performance for the dollar.

It ought to give the Heath HW-9 a run for its money.

The 22 is packaged in the same size cabinet as the higher-priced Argosy transceiver, but that's about where the similarity ends. The new unit has a power input of up to 60 watts, according to advance information, and it features a front-panel drive control with which the output can be cranked down to 5 watts or less for true QRP work.

The barely adequate watt meter in the old 21 has been replaced in the 22 with the same SWR/watt meter found in the Argosy, which is a noticeable plus right off the bat. The 22 offers all of the ham bands now available between 80 and 10 meters.

Another plus -- this one a biggie -- is the presence of separate a.f. and r.f. gain controls for the 22. Many Argosy owners have decried the lack of separate controls on that rig, but Ten-Tec has yet to respond to their complaints.

The 22 has a direct conversion receiver and a variable, six-pole active audio filter with a tunable notch. This means, of course, no crystal i.f. filters, which is a strong point with the Argosy.

Putting the 22 in the Argosy cabinet was a good move, since we now have a smaller, lighter (6 lbs.) rig that should appeal to many.

Pricetag? It lists for $390, with a minimum of accessories available -- power supply (12v. at 5 amperes), an electronic keyer and a crystal calibrator. The latter probably is a must for this rig, which comes now only with an analog dial.

The Century/21, by the way, sold about 7,000 units in analog and another 500 with digital readouts between 1977 and 1981, when it was discontinued.

The improved performance of the 22 hinted at in the specs plus the relatively low price, compact size and Ten-Tec unmatched break-in keying should make this a winner.

QRP ARCI
SUMMER DAZE SPRINT

DATES: 2200Z, Friday, August 24, 1984 to 0200Z, Saturday, August 25, 1984
(Eastern Time Zone, Europe and Africa)
2300Z, Friday to 0300Z, Saturday (Central Time Zone)
2400Z, Friday to 0400Z, Saturday (Mountain Time Zone)
0100Z, Friday to 0500Z, Saturday (Pacific Time Zone, Alaska, Hawaii, Asia and the South Pacific)

THIS IS A SSB CONTEST

EXCHANGES: Members - RS, state/province/country, QRP ARCI membership number.
Non-members - RS, state/province/country, power output.

STATIONS MAY BE WORKED ONCE PER BAND FOR QSO MULTIPLIER CREDIT

SCORING: QSO points - compute separately for each band:
Each member contact, 5 points regardless of location.
Non-member, same continent, 2 points; different continent, 4 points.
MULTIPLIERS: 8 - 10 Watts pep output X 2
6 - 8 Watts pep output X 4
4 - 6 Watts pep output X 6
2 - 4 Watts pep output X 8
Less than 2 watts pep output X 10
Over 10 watts pep - check log only
BONUS POINTS: (Not multipliers; add to computed score)
Work all 10 U.S. call districts, add 200 points
Work all 4 VE provinces, add 200 points
Work 3 continents, add 200 points
100% Battery/Natural (storage OK) power, add 100 points
Ten or more contacts on each band, add 100 points
(Hint: start early on 10 meters, work down as bands close)
Each QRP ARCI officer worked, add 100 points
(Including Quarterly Staff, see page 2 for the list)
SUGGESTED FREQUENCIES: 1810, 3985, 7285, 14285, 21385, 28885, and 50385. For novices and technicians, 3710, 7110, 21110, 28110. No 30-meter contacts will be counted.
SCORING: QSO points (total all bands) times number of states/provinces/countries (a s/p/c may be worked on more than one band for multiplier credit) times power multiplier - then add bonus points earned for claimed score. Send large s.a.s.e. to the contest chairman for scoring summary sheet.
CALLING METHOD: CQ QRP This is (Call sign)
AWARDS: Certificates will be awarded to highest scorer in each s/p/c with 2nd, 3rd, etc. where there are sufficient number of entries.
LOGS: Separate logs for each band required - Logs will not be returned. All entrants requesting results submit s.a.s.e. or IRC's with logs. The decision of the QRP ARCI contest chairman is final in case of dispute. WRITE YOUR CALL SIGN ON EACH PAGE SUBMITTED, AND INDICATE IF NOVICE OR TECHNICAN.
DEADLINE: Logs must be submitted by October 24, 1984. Logs received after that date or missing information will be used as check logs.
CONTEST CHAIRMAN: Gene Smith, KA5NLY
8201 Chatham Drive
Little Rock, Arkansas 72207

July, 1984

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
2	3 SEN - 7030 - 0100Z	4 GSN - 7040 - 0200Z GLN - 7040 - 0200Z	5	6	7 NEN - 7040 - 1200Z GLN - 3560 - 1500Z SWN - 7040 - 1500Z NWN - 7040 - 1700Z	8 TCN - 14060 - 2300Z
9	10 SEN - 7030 - 0100Z	11 GSN - 7040 - 0200Z GLN - 7040 - 0200Z	12	13	14 NEN - 7040 - 1200Z GLN - 3560 - 1500Z SWN - 7040 - 1500Z NWN - 7040 - 1700Z	15 TCN - 14060 - 2300Z
16	17 SEN - 7030 - 0100Z	18 GSN - 7040 - 0200Z GLN - 7040 - 0200Z	19	20	21 NEN - 7040 - 1200Z GLN - 3560 - 1500Z SWN - 7040 - 1500Z NWN - 7040 - 1700Z	22 TCN - 14060 - 2300Z
23	24 SEN - 7030 - 0100Z	25 GSN - 7040 - 0200Z GLN - 7040 - 0200Z	26	27	28 NEN - 7040 - 1200Z GLN - 3560 - 1500Z SWN - 7040 - 1500Z NWN - 7040 - 1700Z	29 ZS QRP CONTEST TCN - 14060 - 2300Z
30	31 SEN - 7030 - 0100Z	GSN - 7040 - 0200Z GLN - 7040 - 0200Z			NEN - 7040 - 1200Z GLN - 3560 - 1500Z SWN - 7040 - 1500Z NWN - 7040 - 1700Z	TCN - 14060 - 2300Z

August, 1984

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
	SEN - 7030 - 0100Z	1 GSN - 7040 - 0200Z GLN - 7040 - 0200Z	2	3 QRP ARCI NOVICE BAND SPRINT	4 NEN - 7040 - 1200Z / GLN - 3560 - 1500Z SWN - 7040 - 1500Z / NWN - 7040 - 1700Z	5 QRP ARCI FIRST SUNDAY QSO PARTY TCN - 14060 - 2300Z
6	7 SEN - 7030 - 0100Z	8 GSN - 7040 - 0200Z GLN - 7040 - 0200Z	9	10	11 NEN - 7040 - 1200Z GLN - 3560 - 1500Z SWN - 7040 - 1500Z NWN - 7040 - 1700Z	12 TCN - 14060 - 2300Z
13	14 SEN - 7030 - 0100Z	15 B.O.D. BALLOT DEADLINE GSN - 7040 - 0200Z GLN - 7040 - 0200Z	16	17	18 NEN - 7040 - 1200Z GLN - 3560 - 1500Z SWN - 7040 - 1500Z NWN - 7040 - 1700Z	19 TCN - 14060 - 2300Z
20	21 SEN - 7030 - 0100Z	22 GSN - 7040 - 0200Z GLN - 7040 - 0200Z	23	24 QRP ARCI SUMMER DAZE SPRINT	25 NEN - 7040 - 1200Z GLN - 3560 - 1500Z SWN - 7040 - 1500Z NWN - 7040 - 1700Z	26 TCN - 14060 - 2300Z
27	28 SEN - 7030 - 0100Z	29 GSN - 7040 - 0200Z GLN - 7040 - 0200Z	30	31	NEN - 7040 - 1200Z GLN - 3560 - 1500Z SWN - 7040 - 1500Z NWN - 7040 - 1700Z	TCN - 14060 - 2300Z

September, 1984

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
	SEN - 7030 - 0100Z	GSN - 7040 - 0200Z GLN - 7040 - 0200Z			1 Novice Sprint Logs Due NEN - 7040 - 1200Z GLN - 3560 - 1500Z SWN - 7040 - 1500Z NWN - 7040 - 1700Z	2 QRP ARCI FIRST SUNDAY QSO PARTY TCN - 14060 - 2300Z
3	4 SEN - 7030 - 0100Z	5 GSN - 7040 - 0200Z GLN - 7040 - 0200Z	6	7	8 NEN - 7040 - 1200Z GLN - 3560 - 1500Z SWN - 7040 - 1500Z NWN - 7040 - 1700Z	9 TCN - 14060 - 2300Z
10	11 SEN - 7030 - 0100Z	12 GSN - 7040 - 0200Z GLN - 7040 - 0200Z	13	14	15 OHIO PARTY - QRP SECTION NEN - 7040 - 1200Z GLN - 3560 - 1500Z SWN - 7040 - 1500Z NWN - 7040 - 1700Z	16 TCN - 14060 - 2300Z
17	18 SEN - 7030 - 0100Z	19 GSN - 7040 - 0200Z GLN - 7040 - 0200Z	20	21	22 NEN - 7040 - 1200Z GLN - 3560 - 1500Z SWN - 7040 - 1500Z NWN - 7040 - 1700Z	23 TCN - 14060 - 2300Z
24	25 SEN - 7030 - 0100Z	26 GSN - 7040 - 0200Z GLN - 7040 - 0200Z	27	28	29 NEN - 7040 - 1200Z GLN - 3560 - 1500Z SWN - 7040 - 1500Z NWN - 7040 - 1700Z	30 TCN - 14060 - 2300Z

GENERALLY RECOGNIZED QRP FREQUENCIES

CW	SSB	NOVICE
3560	3985	3710
7040	7285	7110
10106/10120		
14060	14285	
21060	21385	21110
28060	28885	28110
50360	50385	

Some European QRP groups recognize 7030. Check 'em all.

VK vs. THE WORLD

Get ready for VK vs. THE WORLD, sponsored by the CW Operators QRP Club of Australia.

The contest will be November 17 and 18, 1984. This contest is directed to all CW enthuasists, world wide, who elect to tackle that extra challenge.

Complete details will be published in the October Quarterly.

NEW QRP CLUB OFF TO A GREAT START

The CW Operators QRP Club of Australia is alive and doing very well. Their first quarterly news bulletin provided a wealth of information and some very interesting technical articles.

Their membership roster currently includes two U.S. amateurs, W5QJM and KX6GO. Len O'Donnell, VK5ZF, secretary/treasurer and bulletin editor, says that membership in the club is open to all amateurs and shortwave listeners in all countries. The annual membership fee is $4.00 for VK and $10.00 for DX.

The first news bulletin included a "Donnybrook Special", a two transistor QRP rig for 100 milliwatts on 80 meters, a QRP Power Meter with a built in dummy load, and a modification for the Yaesu FT7 to permit reduced power output of 25 watts to zero.

The club bulletin also listed the following frequencies which you may want to file away for future reference:

Club calling freq.: 3530, 7025, 14050, 21130, 28125 kHz.
International calling freq.: 3560, 7030, 14060, 21060, 28060 kHz.
Club CW QRP Activity: Friday evenings at 0930Z on 3530 kHz.
Club Information Net: Friday evenings at 1030Z on 3575 kHz. and Saturdays at 0500Z on 21180 kHz.

If you are interested in joining the CW Operators QRP Club, write to Len O'Donnell, VK5ZF, 33 Lucas Street, Richmond 5033, S.A., Australia.

QRP ARCI NOVICE BAND SPRINT

DATES: 2200Z Friday, August 3, 1984 to 0200Z Saturday, August 4, 1984 for Eastern Time Zone Europe and Africa.
2300Z Friday to 0300Z Saturday for Central Time Zone.
2400Z Friday to 0400Z Saturday for Mountain Time Zone
0100Z Saturday to 0500 Saturday for Pacific time Zone, Alaska, Hawaii, Asia and South Pacific

OPEN TO ALL LICENSE CLASSES - NOT JUST NOVICE/TECHNICIAN

Exchanges: (stations may be worked once per band for QSO multiplier credit)
Members - RST, state/province/country, QRP ARCI membership number
Non-members - RST, S/P/C, power output

QSO POINTS: compute separately for each band:
Each member contact, 5 points regardless of location
Non-member, same continent, 2 points; different continent, 4 points.

MULTIPLIERS:
4 - 5 Watts output x 2
3 - 4 Watts output x 4
2 - 3 Watts output x 6
1 - 2 Watts output x 8
Less than 1 Watt output x 10
Over 5 Watts output - checklog only

BONUS POINTS: (Not multipliers; add to computed score)

Work all 10 U.S. call districts - add 200 points
Work 5 VE provinces - add 200 points
Work 3 continents - add 200 points
100% Battery/Natural (Storage OK) Power - add 100 points
Ten or more contacts, each band - add 100 points
Ten or more contacts, each band - add 100 points
(Hint: Start early on 10 meters, work down as bands close)

SUGGESTED FREQUENCIES: Novice band only - 3710, 7110, 21110 and 28110 MHz.

SCORING: QSO points (total all bands) times number of states/provinces/countries (a S/P/C may be worked on more than one band for multiplier credit) times power multiplier - then add bonus points earned for claimed score. Send large S.A.S.E. to the contest chairman for scoring summary sheet.

CALLING METHOD: CQ CQ QRP DE (Call Sign)

AWARDS: Certificates will be awarded to highest scorer in each S/P/C with 2nd, 3rd, etc. where there are sufficient number of entries.

LOGS: Separate logs for each band required - logs will not be returned. All entrants requesting results submit S.A.S.E. or IRC's with logs. the decision of the QRP ARCI contest chairman is final in case of dispute. WRITE YOUR CALLSIGN ON EACH PAGE SUBMITTED. INDICATE IF NOVICE/TECH.

DEADLINE: Logs must be received by September 1, 1984. Logs received after that date or missing information will be used as check logs.

SEND ALL MATERIAL TO:
Gene Smith, KA5NLY
8201 Chatham Drive
Little Rock, Arkansas 72207

QRP ARCI QSL CARDS

QRP ARCI has QSL cards available for use by the members. The Little Print Shop has the card shown below in stock, so your orders can be processed as soon as they are received, no waiting.

The minimum order is 300 cards for $30.00, shipping included in the 48 states. These cards are printed on coated, heavy weight index stock and the reporting form is on the one-half of the back. The club logo is printed in red and the remainder of the printing is black.

To order your QRP ARCI QSL cards, send your check and the necessary information (call, name, address, etc.) to the Little Print Shop, P.O. Drawer 9848, Austin, Texas 78766.

W5QJM

EX: ZF2AL W7JLX W4WUQ G-QRP #819

QRP Member # 4577

Amateur Radio Club Int.

Fred Bonavita

P. O. Box 12072 Travis County Austin, Texas 78711

SMILE

AND SAY "QRP"

When Stu Tyler, WA4UJO, needed a carrying case for his HW-8, power supply and assorted gear, he came up with this novel model using an old Polaroid camera case. He punched one-inch holes in the rear of the camera case for access to the antenna, power supply and key jacks. Stu was able to squeeze a gel-cell battery in next to the HW-8 and fit his key and antenna in the lid. Earphones, logbook and other accessories also tucked neatly into the case, shich can then be carried on the shoulder.

QRP ARCI
BOARD OF DIRECTOR CANDIDATES

Three club members - two of them incumbents - have filed for election to six-year terms on the QRP ARCI Board of Directors, Bill harding, K4AHK. the club secretary/treasurer has announced.

Seeking re-election to the board are Robert "Red" Reynolds, K5VOL, of Lake Zurich, Ill., and Fred Bonavita, W5QJM, of Austin, Texas. The third candidate is James M. "Jim" Fitton, W1FMR, of Haverhill, Mass., who filed for the seat held by William Dickerson, WA2JOC, who did not seek another term.

The ballot for this year's election will be found on the reverse side of this article. It should be clipped, marked and mailed to the secretary/treasurer (address is on the ballot).

ALL BALLOTS MUST BE RECEIVED BY MIDNIGHT AUGUST 15, 1984 TO BE COUNTED.

The results of the balloting will be announced in the October Quarterly.

Following are resumes of the candidates and brief statements of their qualifications and goals for the club:

R. W. (Red) Reynolds, K5VOL - Lake Zurich, Illinois
Age 39, Married, 2 children
Associate Technical Specialist - Montgomery Ward Insurance
Lecturer, D.P. - William Rainey Harper College
Member - QRP ARCI, G-QRP, LAMARS, NRA, QCWA
NCS - GLN

I have enjoyed serving on the B.O.D. of the club while we transformed from a 100 watt limited membership to a true 5 watt QRP open membership organization. I would continue to work for the club's position as a world leader in QRP. Many challenges will be faced by the club in the future, and I feel that my past experience would be an asset for our club.

Please consider my qualifications for the B.O.D., but carefully select only the best qualified to represent the members for the job. The club is for the members, not just the officers.

J. M. (Jim) Fitton, W1FMR - Haverhill, Massachussetts
Age 44, Extra Class - licensed in 1954
Engineer, Electrical Test - Western Electric Company
Awards: QNI-25 for SEN & NEN, KM/W, QRP-25
NCS - NEN

Since joining QRP ARCI two years ago, I have operated low power almost exclusively. My home equipment consists of an Argosy, and for portable operation, a Heath HW-8. I enjoy portable operation very much and have done a lot in the past few years. My most notable trip has been to Ireland where I entered the Oct. 1982 ARCI QSO party signing EI2VLH/QRP. I also attended the Houston ARRL national convention last year for the first QRP forum at an international convention. Also, I have given talks to a number of local radio clubs on portable operation - QRP style.

To gain some appreciation for what the club officers are doing, I suggest trying to write an article for the Quarterly, or volunteering for a turn as an Officer or B.O.D. member in ARCI. My goal for the future will be to increase participation in club activities and to offer assistance to the hard working nucleus of officers that make this club what it is, but most of all, to try to return to the club some measure of the encouragement, pleasure, and experience that I have received as a member.

Fred Bonavita, W5QJM - Austin, Texas
Age 49; Advanced Class license; club member since 1980
Political correspondent for The Houston Post at State Capitol
Member of G-QRP and VK CW Operators QRP Club
NCS - GSN

I seek election to the Board of Directors for a second term to continue the work begun several years ago toward building club membership and interest in QRP.

In recent years, I served as club publicity and information officer and now am editor of the QRP Quarterly.

My goals are to help QRP ARCI maintain its leadership position in the world and to promote greater use of low-power communication.

QRP ARCI BOARD OF DIRECTORS OFFICIAL BALLOT

FOR SIX-YEAR TERMS TO EXPIRE DEC. 31, 1991

VOTE FOR NOT MORE THAN THREE

R.W. "RED" REYNOLDS, K5VOL - _____

JAMES M. "JIM" FITTON, W1FMR - _____

FRED BONAVITA, W5QJM - _____

Write in candidate - _____
(Print name & call clearly)

Clip this ballot (or make a photocopy) and sent it before midnight, August 15, 1984 to:

Bill Harding, K4AHK
10923 Carters Oak Way
Burke, Virginia 22015

QRP ARCI FALL QSO PARTY ANNOUNCED

The QRP ARCI Fall QSO Party will be October 13 and 14, 1984. Participants may select CW or SSB as a mode of operation, but once operation has begun must stay with that mode throughout the contest. Stations desiring to compete for the Triple Crowns of QRP must work SSB in this contest! (except Novice/Technician)

The October Quarterly will carry the complete rules and information about this event. It's not too soon to write to the contest chairman for a scoring summary sheet. Remember to send a large s.a.s.e. or IRC's to:

Gene Smith, KA5NLY
8201 Chatham Drive
Little Rock, Arkansas 72207

It seems as though a few participants in the October 1983 QRP ARCI QSO Party may not have received their certificates. The contest chairman urges you to contact him if you are one of those individuals. Write to Gene Smith at the address above.

OHIO QSO PARTY HAS A QRP SECTION

The Ohio QSO Party -- set for September 15 an 16 -- will feature a QRP section for the first time, according to QRP ARCI member Anthony Luscre, KA8NRC, of Stow, Ohio.

The special section will have a high multiplier (x3) for stations with ourputs of five watts or less "to encourage low-power operation," Anthony advises.

"This may encourage other QSO parties and contests to provide categories or multipliers for us little guns," he says.

Rules for the Ohio Party are:

1400Z Saturday, September 15 to 0500Z Sunday, September 16, and 1300Z to 1900Z Sunday, Sept. 16. Each station may work a maximum of 12 hours.

The Cuyahoga Falls Amateur Radio Club (CFARC) will again be sponsoring the Ohio QSO Party.

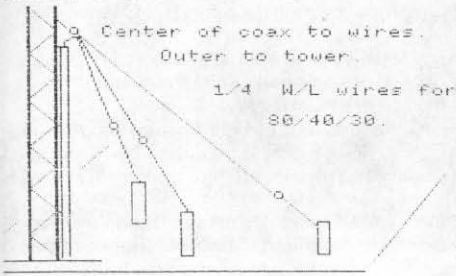
The same station may be worked on each band for multiplier credit.

EXCHANGE: RS(T) and QTH. County for Ohio stations; others give state, VE province or country.
SCORING: Each contact is worth two points. Work the club station, W8VPV, and receive 25 bonus points. Work a club member and receive a 5 point bonus. Club members will identify themselves.
MULTIPLIERS: Ohio stations multiply score by number of states, VE provinces and DX countries. All others multiply by number of Ohio Counties worked (maximum of 88). All stations output power less than 5 watts X 3; 5 to 200 watts X 1.5; over 200 watts X 1.
FREQUENCIES: CW-1805, 3530, 7030, 14030, 21030 and 28010.
Phone-1890, 3900, 7230, 14230, 21360, 28510.
Novice-3715, 7115, 21115, 28115.
The club station, W8VPV will be found on or near these frequencies.
AWARDS: Top scoring station in Ohio and out state categories will receive an engraved plaque. Certificates will be awarded to highest scorer in each Ohio county, state, VE province and DX country with two or more entries.
DEADLINE: October 13, 1984. Please include summary sheet with number of contacts and multipliers, output power and signed declaration, and total score along with log. Stations with 200 or more contacts should also include dupe sheets. Mail entries to:

Anthony Luscre, KA8CRE
4380 N. Norman Drive
Stowe, Ohio 44224

MULTI-BAND SLOPER

Jim Lyon, VE2KN
35 Huron Avenue,
Quebec, Canada H9G 2C2



For a number of years I used strapped 80/40 meter dipoles. That is, the two dipoles were fed with the same coaxial feeder. These were supported, in an inverted-Vee formation, from a 50-foot tower carrying the usual tribander.

Recently I replaced this arrangement with three half-slopers, one each for 80/40/30, all fed with a single coax. The outer shield of the coax is connected to the tower at the 47-foot level and the center goes to the ends of the three wires, each approximately a quarter wavelength on the appropriate band.

I had to do a considerable amount of cut and try to get thw SWR down, but it is now as close to 1:1 on 40 and 30 and below 2:1 on a 200 Khz portion on 80. The performance is at least as good as my previous half-wave inverted-Vees, and now I have considerably less wire hanging over my small city lot.

If you decide to try this arrangement, start out with lengths of wire at least 15% longer than an electrical quarter-wave and be prepared for some cut and try. The lengths may end up much shorter or longer than the calculated quarter-wave depending on the height of your tower and the angle of slope of the wires, but at the end you will have an inexpensive and satisfactory multiband system without lossy traps or the need for critical tuning of an open-wire system.

I use the Ten-Tec Model 227 antenna tuner and connect my tribander to the "Dummy Load" socket and the tri-band sloper to position 1. On 40 and 30 meters, where the SWR is very low, I operate "straight through" (bypass) and on 80 meters I insert the tuner. I leave the tuner adjusted for 80 meters and band changing is then a simple matter of turning a switch ... no adjustments required.

2,306,670 Miles per Watt on 1296 MHZ.

by Leo Delaney, KC5EV

I received an unusual letter from John Pearson KF4JU, in the middle of May. He related to me that on Saturday night, April 28, 1984, a two-way QSO was established and confirmed between KF4JU in St. Petersburg, Florida and Gene Monk, W4ODW in Niceville, Florida. The transmitter power of KF4JU was measured at 150 microwatts by a certified HP 436A borrowed from a local company (ECI).

The power at W4ODW is 50 watts so the problems had usually been one way. Gene could be heard during openings, but John could not be heard until the night. There had been much guessing as to the power output until the ECI hams arrived on May 8 with their HP. As there was no transmit amplifier that night, the power went from the rat race mixer through a 3 pole filter to the feed line. The output power was lower than expected and is believed to be the result of an improper IF match at the mixer.

This contact was the culmination of many recent attempts to establish contact with Gene. They normally use 432 Mhz to coordinate their efforts and on that night John's signal was sent back on 432 Mhz so no doubt would exist as to the validity of the contact. Also, Dave, KL7JGI/4 in Panama City, Florida, was listening on 432 Mhz and can verify their success. Congradulations on a new club record on 1296 Mhz.

It was great to receive news of such an accomplishment after returning from the RSGB convention in England. While at the convention I found that components and special interest groups comprised most of the booths there as opposed to the large number of commercial dealers that we have here in the States. They did have their share of "black box" dealers (and extremely high prices), just not the overwhelming numbers I had expected. I found several very interesting bargains that I simply could not pass as can be testified by my wife as she watched me filling two extra suitcases we had to purchase.

One interesting item some of you might be interested in is a small monoband transceiver kit. I have built the device, but have not had time to try it on the air. I plan to evaluate the rig during the next few months as well as having some of the local boys try it as well. If it appears to be a good radio, I'll see that there is a review in the next Quarterly.

I have moved, however mail to the old address will still reach me. The address on page two of this issue is my new address for correspondence and award applications.

When Does Your Subscription Expire
Check *YOUR* Mailing Label !

MILLIWATTERS STEAL 1984 SPRING QSO PARTY

by GENE SMITH, KA5NLY

The logs are in and Ade Weiss, W0RSP, has certainly gotton things going now that he is sponsoring a Milliwatt Certificate for our regular contests. Four of the five top scorers in the Spring QSO Party were stations running less than one watt!

Top honors were taken by Roger Rose, W5LXS, running 500 mW from a battery-powered Argonaut and feeding a beam and inverted Vee. Roger's score of 708,660 not only makes him the overall winner, but he also topped the field of 21 milliwatt entries for the Milliwatt Certificate!

Second place goes to Zachary Lau, KH6CP/3, running 900 mW out of Pennsylvania utilizing an Argonaut into a beam or dipoles, while Chris Page, G4BUE, followed closely on Zach's heels using a similar setup from England, substituting a G5RV for the dipoles, and managing to get worked on at least one band on almost every log submitted.

Perennial big gun, Bob Patten, N4BP, utilizing a TS-130V, TH6DXX and Vee to lead the non-milliwatt entries and capture fourth place overall, as well as the certificate for Florida. Bob was running three watts out and utilizing solar power with battery storage. Now that the "cat is out of the bag" on the milliwatt secret, it is likely that N4BP just might soon be gearing up for a run at the Milliwatt Certificate, and that means tough competition!

Fifth place goes to milliwatter, "Mike" Michael, W3TS, running an attenuated Omni C, beam, dipole and (get this) a 500' beverage antenna.

In spite of the unfortunate selection of the Easter weekend for the QSO party, a total of 111 logs was received representing 35 states, two VE provinces and five DX countries. Twenty-one milliwatters captured (in addition to the top scores overall) top score certificates in seven states and one DX country - they also represented four other states and one DX country, but were not eligible for the S/P/C winner award as they were the sole entry from their S/P/C.

The top scores, with an asterisk (*) indicating milliwatt entries:

1.	*W5LXS	TX	708,660	6.	WB5FKC	TX	447,468
2.	*KH6CP/3	PA	642,960	7.	N4RI	FL	381,024
3.	*G4BUE	ENG.	630,000	8.	N8CQA	MI	375,948
4.	N4BP	FL	561,960	9.	*KN1H	NH	338,835
5.	*W3TS	PA	488,400	10.	WB8VGE	OH	334,656

Here are a few statistics on the type of rig and antennas used in the 1984 Spring QSO Party. Seventy-nine of the 111 logs received provided station data - 4 utilized 2 different rigs, while 40 reported 2 or more different antennas utilized. The "other" category of transmitters generally consisted of QRO rigs operating at reduced power, while the "other" antennas consisted of long wires, delta loops, quads, beverage, rhombics, etc.

TRANSMITTERS

Argonaut (505-509-515)	31	Homebrew	5
Argosy	6	TS-130V	1
HW-7/8	18	Other	22

ANTENNAS

Beam	32	Vertical	16
Dipole	29	Skeleton Cone	4
Vee/G5RV	15	Other	26

The most common set-up was an Argonaut feeding a yagi on 10-15-20 meters and either a dipole or inverted Vee on 40-80 meters (13 stations). The second choice was a HW-7/8 (10) and the third a reduced power QRO rig (7), both with the same antenna set-up. The fourth choice was either an Argonaut or HW-7/8 with a vertical, and various combinations of rigs and antennas filled out the rest of the field.

SPRING QSO PARTY RESULTS

All scores, by State/Province/Country - * indicates milliwatter:

Alabama
KA4LKH 114,240

Alaska
KL7XA 7,821

Arizona
WA7KLK 8,580

Arkansas
*KA5NLY 75

California
K6MDJ 199,800
W6YMH 165,240
W6RCP 57,324
W6SKQ 36,360
WD6DMY 30,624
W6JHQ 30,525
K6URI 29,790
K6ZH 27,264
WA6DKY 15,936
NX6M 12,672
N6GTI 5,056
KA6SIQ 1,120
W6SIY 960
WB6AJV 306

Colorado
KR0U 36,608
KA0IQT 12,342
WB0OKY 180

Connecticut
*KB1DH 88,110
W1FD 43,200
*WB1EEU 7,320

Florida
N4BP 561,960
N4RI 381,024
K4KJP 84,942

Georgia
*WD4DSS 24,180
K4CWQ 3,744

Hawaii
KH6IJS 14,859
AH6EK 4,410
KH6H 1,728

Idaho
KA7PMP 244,736
N7FEG 9,792
N7DYS 1,632

Illinois
WB9HPV 201,960
*KA9HAO 53,820
*W9PNE 53,560
WD9EGW 34,398
W9OA 34,316

Indiana
*N9DXH 7,500
N9ACD 6,012
W9GJS 960

Iowa
W0ASN 8,904

Kansas
N0CLV 3,202

Maine
KA1ZX 18,000

Maryland
K3TKS 120,612

Massachusetts
W1FMR 235,392
N1BXC 10,620
N1CRD 8,000
W1XH 2,366

Michigan
N8CQA 375,948
WB8UUJ 136,800
KW8B 7,840

Minnesota
W0JE 32,550

New Hampshire
*KN1H 338,835

New Jersey
AA2U 301,080
K2JT 96,672
K2RS 60,636
W2JEK 20,976

New York
WB2IPX 331,264
W2PFS 64,416
W2DW 13,800
W2QYA 10,593
*AI2T 9,150
*W2WSS 6,440
KA2ONY 160
(KA2OOA, KA2OOC, KA2QBB)

North Carolina
*KA4TAU 90,090
KF4AR 39,150
WD4LOO 26,976

Ohio
WB8VGE 334,656
*WA8MLV 222,885

Oregon
N7EZG 10,584

Pennsylvania
*KH6CP/3 642,960
*W3TS 488,400
*WB3AAL 132,525
K7YHA 71,424
W3JMM 60,300
WB3GNJ 21,744
N3AOT 5,922

South Dakota
*W0RSP 64,020

Tennessee
KV4B 6,992

Texas
*W5LXS 708,660
WB5FKC 447,768
KY5N 46,816
W5USJ 33,234
W5QJM 15,808
N5ELM 13,330

Utah
KK7C 7,696

Viginia
*KX4V 84,730
KC4ZA 48,720
WB4RRA 37,932
WD4EXG 29,754

Washington
N7DHA 140,148
KV7X 94,518

Wisconsin
WB8ULZ 22,044
KW9N 15,972

Wyoming
NC7O 5,520

Ontario
VE3DJX 69,120
VE3KKO 14,586
VE3KTZ 13,104
VE3NYT 11,520
VE3KK 10,920

Saskatchewan
VE5ACY 12,000

DX
*G4BUE 630,000
G4EBO 27,416
JA7AS 4,050
*OK2BMA 880
PY2FNE 3,312
SM7KWE 1,224

Check Logs
KH6JOI

DESIGN COMPETITION REVISED

by Ed Manuel, N5EM

Several letters relating to the Design Competition have been received that prompt a couple of modifications to the original rules of the contest. First, it has been suggested that the time frame is too short for many experimenters who have only the weekends to build. With these comments in mind,**the deadline for the 1984 Design Competition has been changed to December 31, 1984.** Several entries have been received already. If you have been procrastinating, now is the time to get with it.

Another builder pointed out the problem some who live in small towns may have finding two other hams to operate the piece of gear. If you cannot find two other hams, or if the hams do not have the skill to use your gear (i.e., CW), **then submit a statement that two hams observed you using your equipment, or a statement that you have been unable to find two hams who live close enough to you to comply.** Please understand that we are not attempting to eliminate anyone with a technicality. I am merely trying to make sure that each design submitted is completely (as opposed to virtually!) finished and functional.

To those of you who responded so favorably to the concept of a Computer Aided Design Library, thanks. I am working on a letter to each of those who took the time to write, some with sample programs. You will be receiving it shortly after this issue of The Quarterly is completed. It will explain, in detail, how to prepare your program for submission and will include a sample program. To those who are interested but have not written, please send me your name and address and I will include you in the mailing. An S.A.S.E. would be appreciated.

As soon as a few programs are available, an announcement will be made in The Quarterly.

As a final note, in the October issue of The Quarterly, you will find the ballot for the Technical Achievement Award. To those of you who have not been members for long, this is your opportunity to vote for the article and writer you think has published the best technical piece in the Quarterly. This year you will also find the first reader survey included with the ballot. We, as the editorial staff, need to know what you like and dislike and what you want more of or less of. This is also an excellent opportunity to survey you as to your operating habits, construction habits and favorite modes and bands. Be on the lookout for it and plan now to spend 10 minutes of your time to help us give you a better Quarterly and Club.

W1AW/QRP ?

Want a two-way QRP contact with W1AW? Willing to stay up late to get it?

Bruce Hale, KB1MW, an avid low-power buff and one of the operators at W1AW, says he is willing to put the ARRL station on the air QRP twice weekly to work other QRPers.

For the time being, Bruce says he will throttle back on the power on the Collins KMW-380 in the visitors operationg position "until the output meter on the rig barely moves. This gives me about 3 watts output..."

Because Bruce has to work QRP around his official duties and operating schedules and since this is purely *unofficial*, his schedule for listening and operating will be temporary and subject to change *without notice*. "I don't want people writing nasty letters to us if I don't show up one night or don't hear them calling me," he says.

For the time being, Bruce will be on the air from W1AW/QRP from 0445Z to 0545Z Thursdays (12:45 am to 1:45 am Eastern Daylight Time) on 7040 kHz., plus or minus QRM. Between the same hours on Friday mornings, he will be listening around 3560 kHz.

"I can get on 14060 kHz. in the early evening, but this has to be during my lunch break and will be eratic due to the fact I can only operate when W1AW is off the air bulletin-wise," Bruce adds. "Some nights there is a lot of quiet time; some nights none at all. So I am on 20 meters very rarely."

W1AW has an impressive array of antennas for him to use: On 80 meters, he has a dipole; on 40 meters there is a 2-element beam at 90 feet fixed to the west; on 20 meters, they have two phased 4-element beams, one at 60 feet and one at 120 feet.

"This 20-meter setup works great," Bruce says. "One night I worked an Illinois station and was called by 6W1CC in Sengal right afterward. The beams were pointed west, and I was running about 5 watts at the time."

ZS QRP CONTEST

Word has been received from Dave Farris, K5NT, WQF secretary that the ZS QRP club will sponsor a contest on July 29, 1984 between 1200Z and 1400Z. Only the basic information is known at this time through correspondence Dave has had with ZS6ARK.

Points will be awarded based on power input, only 7 MHz will be used, probably 7030 and the exchange will be RST, QSO number, and an X if crystal controlled. The power category letters are: A-up to ½ watt input; B-½ to 2 watts input; C-2 to 5 watts input; and D-over 5 watts input.

QRP ARCI NET REPORT

BY JIM HOLMES, W6RCP

Bring on the solar flares, magnetic storms and declining sun spot activity. In spite of it all the QRP nets group is hanging in there and having a ball. The adverse conditions are especially trying for Transcontinental Net but, thanks to our net manager - Roger Rose, W5LXS, Midland, Texas who always seems to do the right thing at the right time, we always make it to the finish.

There were 485 check-ins to the nets during the first quarter of this year. Let's watch that number grow.

QNI-25 certificates have been awarded at a rapid rate recently. Thirty-nine QRPers have received the award since it was introduced in October of '81.

The marines don't get them all - three good men have volunteered for alternate NCS duty. Jim Smith, K9PNG, Palatine, Illinois for the Great Lakes Net and Transcontinental Net; Danny Gingell, K3TKS, Silver Spring, Maryland, Southeast Net and Brian Greer, WD6DMY, North Hollywood, California for the Southwest Net.

The DX check-ins this quarter will be hard to beat. While Jim Fitton, W1FMR, Haverhill, Massachusetts was acting alternate NCS for Southeast Net he logged check-ins from G3BZR and SP5EXA, both QRO. And how about this one - Wes Hayward, W7ZOI, recently checked into Northwest Net running 10 milliwatts output. Beaverton, Oregon to Anacortes, Washington - 20,900 miles per watt. I wonder where Wes found a schematic for a rig like that.

Five club members have qualified for the QNI-25 award for checking into the QRP nets: TCN: W5LXS; SEN: WB2IPX; GLN: K9IFO; SWN: N7DGZ and WD6DMY. Danny Gingell, K3TKS, has reached the 200 mark for net check-ins.

The QRP net roundtable is a great place to get better acquainted with your fellow QRPers. See you there.

Welz QRP Power Meter

The Welz Corporation has been displaying their RP-120 QRP inline type, low insertion loss, small size, lightweight, wide frequency range meter at the ham conventions.

The RP-120 QRP meter will resolve power readings as low as 10 milliwatts or handle as much as 20 watts. The RP-120 measures frequencies down to 500 kHz and up to 54 MHz in frequency. To measure the V.S.W.R. capability of both forward and reflected power a professional type V.S.W.R. chart is provided to determine the V.S.W.R. value.

The RP-120 QRP meter is packaged in the same size case as the pocket-sized SP-10X HF/VHF wattmeter.

The word from the distributor is that it will be about September before these meters reach the retail market. The RP-120 should prove to be an interesting item, especially for those who travel with their rigs, or want a compact unit for mobile operation.

QRP QUARTERLY SUBSCRIPTION RENEWAL

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