# QRP QUARTERLY

QRP Amateur Radio Club International Newsletter January 1981 Vol. 19, No. 1


THE PRESIDENT SPEAKS:

By Tom Davis - K8IF
QRP ARCI President

Season's Greetings! (Albeit a bit after the fact.) 1980 has been quite an eventful year for the club in many respects. We have experienced several staff changes but have maintained consistency in running the club. And we've had a healthy increase in membership. Our contest program included a QRP field day for the first time this year, the membership responded admirably to two questionnaires, and the club's board of directors have tackled perhaps the most difficult questions concerning club policy in years!

So what about 1981? There are many new events in store for us this year. And this means some changes for the QRP ARCI and how the club functions.

One function that is of major concern is our everyday QRP activities and our monthly, informal QSO parties. Here at K8IF, I apply the "one a day" principle--at least once every day I call CQ QRP on one of our club frequencies. Where is everybody? It really floors me to consider the hundreds of hams that come out of the woodwork for our April and October QSO parties, but hibernate afterwards. Not only that, but only a handful of dedicated members go out for the monthly informal QSO parties, and I'll be honest fellas and gals, at those times it's slim pickins.

There may be one good reason for the small turnout for these informal gatherings. Shall we call it "The right place at the wrong time" syndrome? To remedy this, here's the band plan for these informals:

80m 0100-0300 UTC
40m 1500-1600 1900-2000 2300-2400
20m 1600-1700 2000-2100 0000-0100
15m 1700-1800 2100-2200
10m 1800-1900 2200-2300

And when you're tuning around, here are the calls to listen for:

20m

1st week of the month--WD4LOO
2nd week of the month--WA9WZV/4
3rd week of the month--K5BOT
4th week of the month--K8IF
(and 5th if any)

40m

1st week--K8KIR
2nd week--WB1ESN
3rd week--K3TKS
4th week--WB9LKC
5th week (if any)--K8IF

80m

K5VOL
WA3ZPJ

So there you have it. Remember that these get-togethers also are good opportunities to get those QSOs you're looking for for our awards program. And for everyday operating, try my "one a day" plan.

Our 40 meter frequency for CW has been changed from 7.060 to 7.040 Mhz. This change is effective Jan. 1, 1981. And it has been made because of the overwhelming SSB and BC QRM on .060. But this new frequency, like all the others, is not just there for the taking. We must get out there and use it! Let other operators know that 7.040 is a recognized QRP frequency by calling CQ QRP on it. If we don't use it, we may well find ourselves frequency-

(Please turn to Page 3)

A PEEK INSIDE:

# Amateur Radio Club International

QRP Quarterly is the official organ of the QRP Amateur Radio Club International, Inc., and it is published four times a year: January, April, July, and October.

The QRP ARCI is a non-profit organization of amateur radio operators dedicated to increasing world-wide enjoyment of QRP operation (defined by the QRP ARCI as 5 watts output CW, 10 watts output PEP). Members agree to voluntarily limit their transmitter power to no more than 50 watts output CW, 100 watts output PEP, except for public service work, where higher power levels are permissible.

The first year's dues of $3 (4$ for DX applicants) covers a life-time membership plus four issues of the QRP Quarterly. Requests for membership information should be addressed to the Secretary-Treasurer (see officers roster below). Subsequent subscription renewals are $2 ($3 for DX subscribers) for four issues. Please send renewal notices, call sign changes, or changes of address to the Editor (see below). PLEASE MAKE ALL CHECKS OR MONEY ORDERS PAYABLE TO: QRP Amateur Radio Club Int'l, Inc. PLEASE DO NOT SEND CASH.

Letters to the Editor are welcome. Please write legibly or type letters. Not every letter can be published, and the Editor reserves the right to edit letters to conform to space limitations. All letters must bear the signature(s) of the author(s), although the Editor will honor requests to withhold names from publication.

Similarly, construction projects or articles of general interest are always welcome. All manuscripts should be legible. All circuit diagrams should be clear and include all parts values. The Editor and club are not responsible for testing projects that appear in this publication. Please include your name and call, as well as phone number, on all manuscripts and mail them to the Editor.

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Country: _____

hopping every two years! This applies to our other frequencies as well.

There are more changes is store for us in 1981. The most important of these have been encouraged through the questionnaires and implemented by the board of directors.

1. Henceforth, our standard on all power measurements will be output. A voluntary limit for club membership remains, but has been changed to 50 watts output CW, 100 watts output SSB.

2. Our club definition of QRP power levels is 5 watts output CW, 10 watts output PEP for SSB.

3. All club QRP awards will be issued at the power levels in #2 only. The exception is the QRP 25 award (and endorsements), which is a club-based award that will be issued for power levels up to the club limit.

4. New applications for Associate Member status no longer will be accepted. All current associate members may retain that status if they wish, or upgrade to Full Member status.

5. The club logo will be modified to reflect the change in QRP power level definition.

Please note our liberal "grandfather clauses". All past awards issued for input at the appropriate power level of the award are still valid. QRP 25 awards can be continued with output power. Those of you currently working toward any of our present awards can complete them under each award's specific guidelines. However, NEW applications for WAS, WAC, DXCC, KM/w, and QRP 25 will not be accepted until June 1, 1981. Also, all claims, questionable or otherwise, will be left to the final decision of the awards manager.

We feel these changes are positive. Now we have a specific, written agreement on a definition of QRP. In addition, we remain unique because we incorporate a power limit as a membership requirement. Other clubs do not. Thereby, we weed out the "part-time" QRPers.

The timing on these changes could not have been better! The club recently received an invitation to join the World QRP Federation. This is an organization representing QRP interests world-wide through a committee of representatives of each of several clubs: DL-AGCW, G-QRP Club, MI-QRP, and SCAG (the Scandinavian countries.)

Exchanging journals, information, and suggestions on behalf of the QRP cause are some of the WQF's objectives, as well as improving inter-club communications. And guess what else... encouraging the use of QRP as 10 watts DC input or 5 watts output!

On behalf of the club, I've accepted their invitation and have inquired as to the appeal for an interational QRP field day for July, 1981. Details still are being drawn up at this time, but the feelings are good, and the potential exists for at least a dry run in 1981.

(Please turn to Page 10)

****QRP OUARTERS****

This issue's QRP Quarters belongs to Chris Page, G4BUE. He writes: The photo shows the QRP section of my shack. That's a Ten-Tec Argonaut with a Datong FL-1 audio filter and CW filter above it. To the right is a Yaesu FR 101 receiver. On the shelf above is a Datong speech clipper, and above that are meters for measuring voltage and current to the PA of the Argonaut. To the right is the SWR bridge used for the QRO line, atop which sits a variable power supply that drives the Argonaut's PA. I used a second 12-volt supply for the rest of the Argonaut's circuitry, which is above the cabinet for the antenna rotator controls to the right of the SWR bridge.

To show off your shack, however modest or chrome-bedecked, send a clear black-and-white photo and a description of what constitutes your shack and send it to the Editor.

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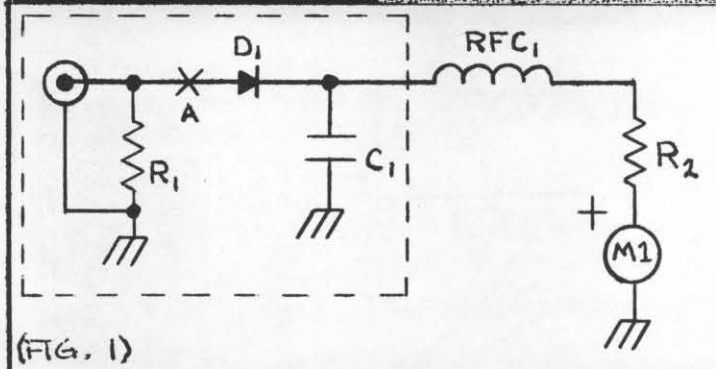
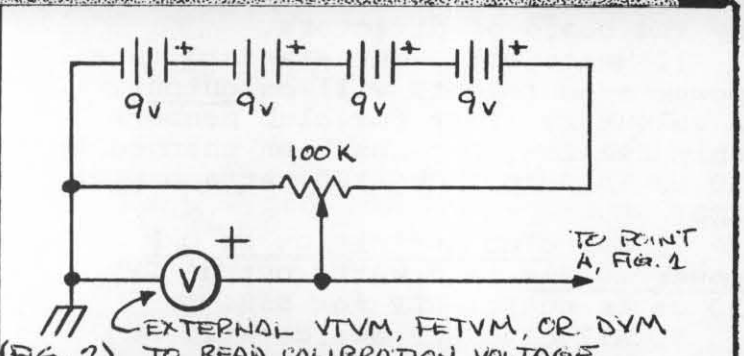
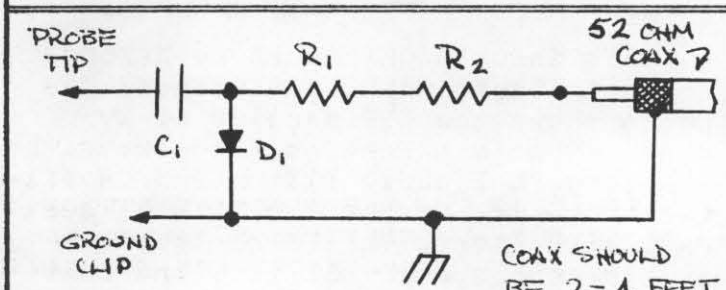


(FIG. 1)



(FIG. 2)



(FIG. 3)

$R_T = R3 \times 1.414$

$R_T - R3 = R1 + R2$

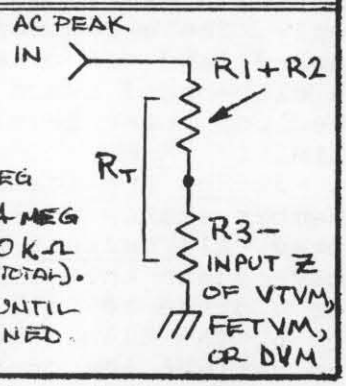
EXAMPLE FOR VTVM W/10 MEG INPUT Z:

$R_T = 10 \times 1.414 = 14.14$ MEG

$R1 + R2 = 14.14 - 10 = 4.14$ MEG

SO USE 3.3 MEG AND 820 KΩ FOR R1 AND R2 (4.12 MEG TOTAL).

MEASURE ACTUAL R1+R2 UNTIL DESIRED VALUE IS OBTAINED.



(FIG. 4)

MEASURING RF OUTPUT POWER

By Adrian Weiss
WØRSP

For the average amateur, the basic approach to measuring RF output power is to convert that AC quantity to a DC form, and then measure the DC. In general, we are speaking of measurements of "average" power rather than "peak" power, although the same techniques apply to the measurement of both.

The measurement of average output power from a voice-actuated SSB transmitter is beyond the capabilities of those lacking access to a sophisticated laboratory set-up. In the following, two instruments and their application are discussed.

RF POWER WATTMETER: Figure 1 shows the circuit of a simple, easily calibrated RF output power wattmeter that can be used in conjunction with an external VTVM/FETVM/DVM or with an internal microammeter or millammeter.

The theory of operation is quite simple. The circuit senses AC peak voltage. When an AC or RF signal is placed across the load (R1), a voltage representing the AC peak level is rectified through D1, and it charges capacitor C1 to that peak level. That voltage is then measured, and the following formula is used to calculate the average output power of the signal:

$$P_{oAv} = \frac{(E_{pkDC})^2}{2 \times \text{value of R1}}$$

Measurement of the peak voltage at C1 can be made using an external VTVM, FETVM, or DVM exhibiting an input impedance of several megohms or more. Or the builder can install a microammeter or millammeter in the circuit. However, a voltmeter cannot be used in conjunction with the circuit because of a voltmeter's low input impedance; it will disturb the impedance relationships in the circuit. Likewise, a "cheapie" VOM also is likely to provide inaccurate, unreliable readings.

The circuitry for a self-contained meter consists of RFC1, the series dropping resistor R2, and the meter. RFC 1 isolates the meter from the dummy load (R 1) at RF, while R2 is chosen to produce full-scale meter deflection at the desired upper watts limit. If an external instrument is used instead of an internal meter, measurements should be taken at the meter end of RFC 1, and the dummy

load must be shielded from the instrument. RF isolation is essential.

The major objective of construction is to assemble and shield the sensing portion of the device (R1, D1, C1). In choosing resistors for the dummy load (R1) our objective is to produce a given power dissipation capability and a cumulative resistance of between 48 and 54 ohms when the resistors are paralleled. In the author's unit, three 150 ohm resistors, rated at 2 watts each, produced a measured resistance of 51.9 ohms capable of dissipating 6 watts.

The shield can be fashioned from double-clad PC board or a small minibox. Before sealing the shielding enclosure, however, the meter must be calibrated (if a meter is being built in to the unit).

The advantage of this circuit is that it can be calibrated at DC. A variable voltage supply capable of producing 0-36 VDC (15w range), 0-33 VDC (10w range), or 0-25 VDC (5w range) is placed across D1 and ground after disconnecting R1. (Point A on Fig. 1)

Using the formula $E_{dc\ cal} = P_{oAv} \times 2R1$ (derived from the earlier formula), determine the voltage that corresponds to the maximum power level you have selected for the meter. Then determine experimentally the value of R2 which when connected to the voltage will give you full-scale deflection. A suitable variable power supply is shown at Figure 2. If you want to get fancy, you can use this method and a suitable switch to provide your meter with several ranges.

Once you get full-scale deflection at the desired power level, the meter can be calibrated using a VTVM/FETVM/DVM and the initial formula given on the preceding page. The self-contained meter scale may be refaced and marked in watts, or a calibration chart can be set up based on the existing meter scale.

Once the meter in calibrated, reconnect the dummy load and seal the shielded enclosure.

If an external VTVM (etc.) is used, insert the peak voltage into the formula given on the preceding page and calculate average power.

In either case, it is important to use actual value of R1, derived from measuring it as accurately as possible, instead of the theoretical value found merely by calculating the parallel value based on textbook formulas and the color codes on the resistor bodies.

Once calibrated, this meter can be used to calibrate an in-line wattmeter of the Breune type, which has been discussed in amateur literature.

RMS VOLTAGE RF PROBE: A second method for measuring RF power output is by using a VTVM/FETVM/DVM in conjunction with an RF probe, shown in Figure 3. In this approach, the RF voltage developed across a load of known resistance is measured by means of the probe, and the measured RMS voltage is inserted into the formula to calculate average RF power.

The probe circuit is quite simple. C1 is a DC blocking capacitor that exhibits a low impedance across the frequency spectrum of signals to be measured. When it is applied to a circuit point, the probe--through the capacitor--permits the RF signal to pass, and D1 then rectifies, or grounds, the positive swings in the RF signal. The remaining negative half-cycles are filtered by the shunt resistance provided by R1-R2 and the cable capacitance. The resulting DC RMS voltage is then measured. The shunt resistance (R1-R2) is selected in conjunction with the input impedance of the measuring instrument to produce a ratio of 0.707:1 between the RF voltage at the test point and the DC voltage at the probe's output. Meter readings are then in RMS. Because standard value resistors are not available to provide exact R1-R2 values, two ¼ watt resistors are connected in series to get the exact value. (See Figure 4 for determining R1-R2)

Two approaches are possible for building the probe--both using PC boards to mount the parts. The PC board may be housed in a metal cylinder, such as a ½" dia., piece of copper tubing. Or the PC board may be insulated by a generous wrapping of electrical tape, followed by a generous wrapping of aluminum foil, which is electrically connected to the coax shield braid and the circuit board's "common" foil. Then add another generous wrapping of electrical tape. The "WØRSP World Record RF Probe" used this second approach. It was built in 24 minutes flat, from entry to the office to first actual RF measurement.

The probe duplicates the wattmeter's performance. The probe tip is soldered directly to the proper printed circuit pad and is cut from #12-#16 solid copper wire. The alligator clip used to ground the probe must be electrically connected to the probe housing AND to the shielded cable braid.

The load (a dummy load) is measured for its actual resistance, and the output from the transmitter is placed across the load. The resulting RF voltage developed across the load is then measured with the RF probe. The load resistance and the RMS voltage values are inserted into the first formula to calculate the average RF output power.

The above instruments will allow amateurs to measure RF output power accurately and with a minimum of expense and effort. The return will be reliable, and sometimes invaluable data that assesses the performance of a transmitter both in regard to internal performance and performance in communication situations.

Wattmeter Parts List:

C1 - 0.01 mfd disc ceramic
D1 - 1N134A or 1N191 diode
RFC1 - 10 turns of #28 wire around Amidon FB-73-801 ferrite bead
R1 - carbon composition resistor (see text), 48-54 ohms
R2 - see text
M1 - micro- or milliammeter (optional)

RMS RF Probe Parts List:

C1 - 0.001 mfd disc ceramic
D1 - 1N134A or 1N191 diode
R1,2 - see text and figure 4

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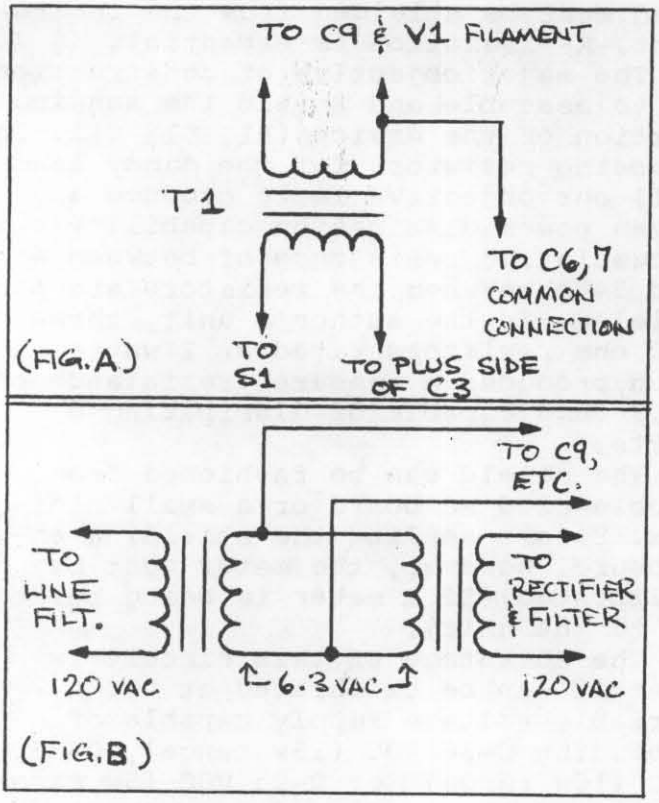
CORRECTIONS!!!!!

CF Rockey's 80 meter QRP transmitter in October's issue had an error in the circuit diagram that you may want to correct to avoid unpleasant suprises (see Figure A). Filament transformer T1 in the diagram on Page 4 of last issue's From the Breadboard should be connected as follows. The right side of the primary should be disconnected from the junction of C6, C7 and reconnected to the positive end of C3. What appears to be a jumper from the primary to the secondary of T1 should reconnected so that the end connected to the primary of T1 is wired instead to the common junction of C6, C7.

However, writes Julian Jablin,




W9IWI:

The article by W9SCH, "Grass Roots QRP Xmtr Mark III," in the October issue was a step in the right direction, back to getting rid of some of the junk we've been saving for years. But one thing about it worries me -- that direct connection to the AC lines. 'Taint safe.

This arrangement was OK (I guess) for the "Ackey-Dackey" broadcast receivers of the 1940s and 50s, when the thing was buttoned up in a plastic case and had no external connections to anything but the AC line. For a ham transmitter, with an antenna coming out to Lord knows where, a ground needed, and the possibility of hooking up ancilliary equipment to it? I don't know. As W9SCH has set it up in the diagram, it looks OK, but there are too many chances for accident, especially mounted on an open chassis.

I would rather see the power arrangement as shown in Figure B. At the cost of another 6.3V power transformer (low amperage), you have effectively a "line isolator" which makes things a lot more secure, electrically. Perhaps my way of getting the filament voltage is not the best, but it will work OK.

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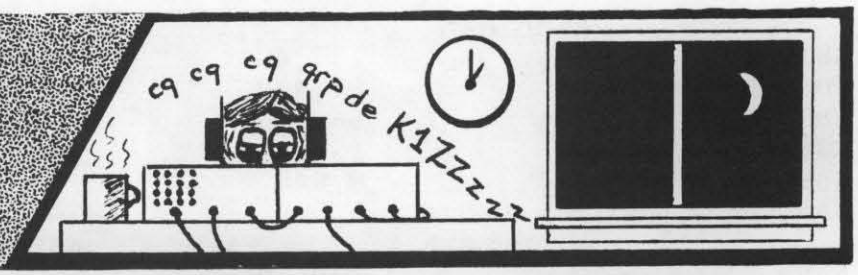
# QRP CONTESTS




We had a total of 129 entries for the October QSO Party, the largest entry while I've been Contest Chairman. This was just great to see! There were 69 member entries and 60 non-member entries. This is the type of interest it takes to keep these QSO parties going. Finally, thanks to all of you for your legible logs and for your correct scoring. Thanks also to those who were not sure how to score and said so. This made it easy to check and correct those that needed it. This was my last contest as Contest Chairman. William W. Dickerson, WA2JOC, takes over beginning with the January SSB QSO Party. Bill will do an outstanding job in this capacity for you members and non-members alike. Oh, yes, I'm not leaving the club, but stepping from the frying pan into the fire by taking over the role of Secretary-Treasurer. It's been a great pleasure and experience being Contest Chairman and most enjoyable meeting so many of you through your letters and comments sent in with your entries.

What follows is an abbreviated tally of the results of the October QSO Party. For a more full listing, send an SASE to Bill Dickerson (see officers roster on Page 2).

First Place overall and in Utah: N7ARE with 326,016 points
Second Place overall: KBØN with 230,252 points
Third Place overall and first in Missouri: WBØWIW with 205,252 points
Low Power winner was WB4SXX with 51,580 points and 5 DX contacts
Novice winner was KA8DFJ with 5,040 points

| Call | Power | Score |
|---|---|---|
| | **Alaska** | |
| K4JXS | 640 mw | 17,670 |
| | **Arizona** | |
| WA7LNW | 10 w | 103,944 |
| WB7PST | 350 mw | 1,680 |
| | **California** | |
| W6SKQ | 5 w | 72,436 |
| K6CSL | 3 w | 6,400 |
| K6URI | 50 w | 4,914 |
| W6YVK | 5 w | 4,840 |
| | **Colorado** | |
| WØKEA | 5 w | 142,880 |
| WBØOKY | 5 w | 42,516 |
| NØZA | 2.5 w | 33,936 |
| WBØLEY | 5 w | 6,384 |
| AFØS | 3 w | 4,600 |
| | **Connecticut** | |
| WA1YLN | 3 w | 84,016 |
| W1FD | 3 w | 10,420 |
| KA1CZF | 5 w (Novice) | 1,280 |
| | **Delaware** | |
| KA3CZI | 10 w | 13,144 |
| | **Florida** | |
| N4BP | 5 w | 183,916 |
| WA9WZV | 10 w | 18,632 |
| K4KJP | 2 w | 6,040 |
| | **Georgia** | |
| WA4IBI | 5 & 10 w | 114,464 |
| AA4GA | 5 w | 55,952 |
| WD4DSS | 15.6-19.5 w | 52,854 |
| | **Illinois** | |
| WB9HPV | 5 w | 202,320 |
| W9PNE | 5 w | 173,880 |
| K5VOL | 2.5 & 2 w | 120,480 |
| WB9WOM | 5 w | 98,864 |
| WD9EGW | 5 w | 51,000 |
| N9TN | 5 w | 39,372 |
| | **Iowa** | |
| WAØVBW | 5 w | 116,920 |
| WBØURA | 5 w | 93,996 |
| AEØR | 10 w | 31,652 |
| | **Kansas** | |
| KCØM | 5 w | 23,344 |
| KAØDGR | 5 w | 6,220 |
| | **Kentucky** | |
| KC4MK | 3 w | 57,724 |
| WA4BTL | 5 w | 25,380 |
| | **Maine** | |
| WB1GNX | 3 w | 152,040 |
| | **Maryland** | |
| WB3KOZ | 3 w | 74,520 |
| N3PM | 40 w | 50,985 |
| WA3FNK | 3 & 5 w | 29,412 |
| K3TKS | 5 w | 27,060 |
| K3ZR | 5 w | 26,732 |
| | **Massachusetts** | |
| K1KSY | 3 w | 125,580 |
| AD1C | 3 w | 96,096 |
| WB1ESN | 3 w | 61,512 |
| WB1HGH | 3 w | 11,160 |

| | | |
|---|---|---|
| | Michigan | |
| K8IF | 5 w | 137,488 |
| WD8RYY | 3 w | 67,492 |
| WD8MFP | 50 w | 66,120 |
| K8KIR | 5 w | 15,624 |
| W8HCS | 5 w | 8,944 |
| KA8DFJ | 2.5 w (Novice) | 5,040 |
| | Minnesota | |
| KBØN | 4 w | 230,268 |
| | Missouri | |
| WBØWIW | 5 w | 205,252 |
| KØTBB | 5 & 3 w | 36,608 |
| WBØMSR | 450 mw | 2,000 |
| KAØFDL | 5 w | 1,584 |
| | New Jersey | |
| W2AXZ | 3 w | 74,256 |
| WB2DGJ | 5 w | 53,136 |
| WA2GTJ | 5 w | 7,480 |
| W2JEK | 3 w | 198 |
| | New Mexico | |
| W5DO | 5 w | 19,600 |
| K5XY | 90 w | 239 |
| | New York | |
| KA2HDY | 5 w | 68,872 |
| KA2GCS | 5 w | 65,136 |
| WA2GOS | 8 w | 62,700 |
| WA2KSM | 5 w | 57,568 |
| WA2PMW | 3 w | 53,392 |
| KA2CGV | 10 w | 24,304 |
| W2EMW | 3 w | 17,400 |
| KA2AYK | 10 w | 16,896 |
| K2BSM | 3 w | 16,896 |
| W2EZ | 160 w | 11,712 |
| W2UYQ | 5 w | 10,240 |
| WD2AIQ | 34.5 w | 4,692 |
| KA2HMY | 5 w | 3,876 |
| | North Carolina | |
| KA4FMO | 5 w | 66,400 |
| WB4SXX | 750 mw | 51,580 |
| WD4LOO | 3 & 100 w | 49,920 |
| KB4IP | 5 w | 18,632 |
| K4JO | 5 w | 9,720 |
| N4EY | 5 w | 3,976 |
| | North Dakota | |
| KBØL | 5 w | 79,104 |
| WA5TFU | 3 w | 50,676 |
| KAØJGL | 5 w | 1,536 |
| | Ohio | |
| W8AC | 250 mw & 5 w | 44,568 |
| W8EAO | 3 w | 1,860 |
| KA8JTC | 3 w | 430 |
| | Oregon | |
| WA7ZBL | 5 w | 11,536 |
| KA7GXT | 3 w (Novice) | 4,992 |
| KA7GXK | 3 w (Novice) | 3,052 |
| K7LNS | 50 w | 1,296 |
| | Pennsylvania | |
| W3TS | 5 w | 24,292 |
| AG3D | 2.5 w | 7,296 |
| W3CEI | 3 & 55 w | 3,678 |
| WB3ICC | 2.5 w | 3,221 |
| | Rhode Island | |
| K1MKP | 5 w | 51,744 |
| K1FKJ | 15 w | 9,504 |
| | South Dakota | |
| WØRSP | 3-7 w | 25,112 |
| | Tennessee | |
| W4IV | 1-3 w | 56,510 |
| KA4LLN | 36-100 w | 11,418 |
| | Texas | |
| WA4ZFP | 2 w | 144,384 |
| N5QQ | 5 w | 120,680 |
| WN5MBS | 1 w | 52,920 |
| K5SN | 3 w | 21,120 |
| K5PSH | 25 w | 4,126 |
| | Utah | |
| N7ARE | 5 w | 326,016 |
| WN7SIV | 3 w | 3,276 |
| | Virginia | |
| K4AHK | 5 w | 127,260 |
| WB4RRA | 3 w | 89,712 |
| AI1Y | 2-3 w | 82,270 |
| KA4JBA | 3 w | 40,098 |
| WD4GCE | 5 w | 38,304 |
| W4KMS | 3 w | 29,376 |
| KX4V | 90 w | 18,465 |
| WA4FKK | 3 w | 15,150 |
| | Washington | |
| WDØCCL | 5 w | 68,952 |
| AA7Ø | 2.5 w | 33,378 |
| WB7RMQ | 5 w | 6,600 |
| WB7FAH | 5 w | 6,568 |
| | West Virginia | |
| WA8CNN | 50 w | 29,928 |
| WB8BSB | 3 w | 28,026 |
| | Wisconsin | |
| K9GDF | 90 w | 52,377 |
| AE9K | 5 w | 30,888 |
| K9HVL | 25 w | 26,624 |
| N9JW | 100 w | 8,946 |
| W9SCH | 10 w | 1,288 |
| AE9G | 3 w | 1,108 |
| | Wyoming | |
| W7TO | 30 w | 9,048 |
| | Canada | |
| VE6PD | 8.5 w | 6,100 |
| VE7DXU | 500 mw | 11,880 |
| VE1BQQ | 3 w | 7,272 |
| VE3EQQ | 3 w | 23,340 |
| | England | |
| G4BUE | 5 w | 11,024 |
| | Panama | |
| HP1XAT | 2.5 w | 3,822 |

73,

Ed Lappi - WD4LOO

**********

**UPCOMING QRP ARCI CONTESTS**

**JANUARY 1981:**

(continued next page)

January SSB QSO Party - runs from 2000 UTC Saturday, Jan. 17, 1981 through 0200 UTC, Monday, Jan. 19. Exchange: Members RS, state/province/country (S/P/C), QRP ARCI #; non-members, RS, S/P/C, pwr input. Scoring: stations can be worked once per band for QSO and multiplier credits. Each member QSO counts 3 points, non-member QSOs count 2 points. Stations other than W/VE count 4 points. Bonus Points: add 300 points to total score if station operated entirely on solar or wind power. Add 100 points to total score if station operated by other emergency-type power (batteries, emergency generators, etc.). Power multipliers: (DC input power)

More than 100 watts.....X1
25.1 - 100.0 watts.....X1.5
5.1 - 25.0 watts.....X2
1.1 - 5.0 watts.....X3
less than 1 watt.....X5

Scoring: QSO points x total s/p/c per band x power multiplier. Then add any bonus points. Frequencies: 1.810 mhz, 3.985 mhz, 7.285 mhz, 14,285 mhz, 21.385 mhz, 28.885 mhz, 50.385 mhz. Note: no repeater contacts - VHF/UHF contacts must be direct. Calling method: CQ CQ CQ QRP from call sign . Awards: certificates to highest scoring station in each state, province, country, with more than two entries. Logs: send full log data, including full name, address, and bands used, plus equipment, antennas, power used, and method used for determining bonus points. Members should include QRP ARCI # on summary sheets with scoring. Please enclose a business-size (#10) envelope with sufficient postage if you desire result sheets and scores. Logs must be received by March 25, 1981 to qualify. Logs arriving after that date will be used as check logs. Finally, in case of disputes over scoring, the decision of the Contest Chairman is final. Send all logs and forms to the Contest Chairman (see officers roster, page 2).

APRIL 1981:

Annual April QSO Party - runs from 2000 UTC Saturday, April 18, 1981 to 0200 UTC Monday, April 20, 1981. Exchange: see above. Scoring: see above. Bonus points: +500 for 100% solar or wind power, +200 for 100% battery power for duration of contest. Multipliers: (input power)

100 or more watts.....x1
30.1 - 100 watts.....x1.5
10.1 - 30 watts.....x2
3.1 - 10 watts.....x4
1.1 - 3 watts.....x6
less than 1 watt.....x10

Scoring: see Jan. contest. Frequencies: CW: 1.810 Mhz, 3.560 MHz, 7.040 Mhz, 14.060 Mhz, 21.060 Mhz, 28.060 Mhz, 50.360 Mhz; SSB frequencies same as January contest. Novice frequencies: 3.710 Mhz, 7.110 Mhz, 21.110 Mhz, 28.110 Mhz. Try SSB frequencies on even hours. All frequencies + or - 5 Khz to clear QRM. Calling method: see Jan. contest. Awards: certificates to highest scoring station in each S/P/C/ with 2 or more entries. Other places will be awarded depending on activity. One certificate to highest overall score for Novice/Techs. One certificate for the station showing 3 "skip" contacts using lowest power. Logs: see January contest. Logs must be received by May 20, 1981 to qualify. Logs received after that date or missing information will be used as check logs. Send logs and data to Contest Chairman.

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CLUB AWARDS UPDATE:

KM/w CW-
AI1Y to RU2RKN, 2.3w, 1.793 KM/w, 7
WB1ESN to JH3LPT, 2.5w, 2.683 KM/w 21
KA4EBW-WP4BCX, 1w, 1.5 KM/w, 28
KA4NNN-OK1APV, 2.5w, 1.8 KM/w, 21
KA9CIM-DJ1FE, 2.5w, 1.74 KM/w, 21
KB9DO-JA1EUV, 2w, 3.1 KM/w, 21

KM/w SSB-
WA2PIP-OH2BUB, 2w, 2 KM/w, 21
K4CAW-WD4MBK, 250μw, 320 KM/w, 432
W4ATC-K6PXT, 500μw, 5,000 KM/w, 50
WD4MBK-K4CAW, 250μw, 320 KM/w, 432
NC State U ARC, 62.5μw, 320 KM/w, 432
(80 Mi. distance)
KB6CO-VY1AM, .25w, 7.012 KM/w, 28
WD8OJC-PY1ZAD, 5w, 1.010 KM/w, 21
JK1PEC-KH6HHH, 1w, 4.3 KM/w, 21
SMØGKF-VK7NRT, 5w, 2 KM/w, 21
VK3CIW-W2RDB, 10w, 1.010 KM/w, 21

QRP WAS-
WD5HYD

QRPp WAS-
AI1Y, 30 state seal
WB1ESN, 40 states
WA5TFU/Ø, 40 state seal
K7ETZ, 30 & 40 state seals
WD8RYY, 30 state seal
WA9GEE, basic

QRP WAC-
WA2PIP

CLUB AWARDS UPDATE (Cont.):

QRP 25+ -

WB1ESN, basic & 50 seal
WA3ZBJ, 50 seal
WA2PIP, basic

**********

HEAVY TRAFFIC: QRP ARCI net news

All three nets are moving along smoothly now, thanks to the efforts of several members willing to take responsibility to keep them active. Also, a number of changes have been made and will be in effect when you read this. First, each net has its own net manager, with K5VOL compiling all net information. The 40 meter net now has a new time and frequency. And the 20 meter net has settled on a new time and will not change monthly. After the first of the year, we may start up a 15 meter net, in the Novice/Technician portion of the band. The current nets are:

80 meters, 3.560 Mhz, 0200 UTC Thursday. K5VOL, mgr.
40 meters, 7.040 Mhz, 1400 UTC Saturday. K8KIR, mgr.
20 meters, 14.060 Mhz, 0000 UTC Monday, K8IF, mgr.

NCS stations:

80: WA3ZBJ, K5VOL
40: K8KIR, K3TKS, WB1ESN, WB9LKC
20: K8IF, WD4LOO, WA9WZV/4, and a host of QSP stations!

New QNI certificates:

K8KIR, #11

Don't forget, these nets give you an opportunity to have QSOs with hams you might want to exchange QSLs with for our club awards!

By the way, you might want to check into a new net, K7ZVA's "76er Net". The net meets Sunday, Tuesday, and Thursday at 1700 UTC on 7.110 Mhz. It's open to all QRP stations.

73,
"Red" Reynolds
K5VOL

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(President Speaks, cont.)

This is what your president has been doing, in case you've been wondering. And I trust that the picture looks as good to you as it does to us. Let's keep that club spirit going strong and strengthen our member-to-member contact by using our club frequencies, the club nets, and the informal QSO parties. Remember, power is no substitute for skill!

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THE EDITOR'S SOAPBOX

By Peter N. Spotts - N1ABS
QRP Quarterly Editor

Well, I hope you all had a great holiday season! I want to thank those of you who wrote such flattering notes about the last issue and enclosed them with the poll in October's issue. I want you to know that it all went straight to my head, and my wife had to spend $15 on lubricating oil just to get my head through the den door!

One person wrote and asked why I don't include a full list of the new members with each issue. Well, says I, while it does add a nice touch, it also eats up space that otherwise could go to projects and members' articles. We always extend the warmest of welcomes to our new members. And we hope that they get many years of enjoyment out of QRP operating and out of their association with this club. But I'll bet they'll want to see more projects and articles to help them get the most out of QRP operation than they will want to see long lists of names and calls.

There are a couple of changes in club policy you'll want to know about beyond what Tom has mentioned. First, send all NEW membership applications and accompanying money to the secretary-treasurer. But when it comes time to renew your QRP Quarterly subscription, send the form on page 2 of this and subsequent issues to me, along with your money. In either case, DO NOT SEND CASH. A couple of people did that following the last issue, and they nearly wound up contributing to my party fund. When you send in your membership or renewal fee, please use checks or a money order. And make them payable to the club. If you make you checks out to me or Ed, we are likely to squirrel them away to use against next year's Christmas gifts. But if you make them out to the club, that's where they'll go.

And speaking of money, a second change takes effect April 1, 1981. As of that date, the initial membership fee will increase to $4 for US applicants and $5 for DX applicants. Subsequent renewals for the Quarterly will increase to $3 for US members and $4 for DX members for four issues. We'd like to expand the numbers of pages in

each issue of the Quarterly. This, plus inflation, made the increase necessary. We also will be initiating a family renewal rate beginning April 1. Each member of a family who wishes to join the club must pay the full initial fee. But on renewal of their subscription to the QRP Quarterly, one member pays the full $3, and each remaining family member pays only $1. And effective June 1, our fee for awards will increase to $2.

By the way, your response to the poll in the October issue was magnificent! As Prez Tom mentioned in his column, your recommendations for the most part were adopted. A full list of the results of the poll will appear at the end of this column. Your participation in the poll gives the officers great hope that you'll take a few minutes out at the end of reading this issue and elect one new member of the board of directors from the three people who have been nominated. The nominees, some information about them, and the ballot, appear elsewhere in this issue.

Finally, it's art contest time, folks! We're holding a QRP ARCI QSL card design contest. A number of letters that came in with the poll wanted to know if we could come up with a club QSL. The contest rules are simple - as should be the designs:

1. All designs should be drawn full-scale, thus fitting a 5½"x3½" QSL card size. The design can incorporate a logo, or it can utilize a slogan. Let your imagination guide you. But remember, keeping the design simple makes duplicating it easier, thus holding down (hopefully) the cost of the cards.
2. Deadline for submission is February 15, 1981. The decision of the judge is final. The winning designer, aside from having his or her work immortalized in a club QSL, will receive a copy of the 1981 ARRL Amateur Radio Handbook.

So sharpen those pencils and have at it!

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## EVALUATING STATION CAPABILITIES (Revisited)

By Doug Crittendon
WB1ESN

(Editor's note: In our last issue, we reprinted a piece evaluating station capabilities, none too complimentary to us QRPers. Herewith is Doug's reply. Touché Doug, boy!)

2-KW with beam

Burns out TV and stereo sets and electric shavers for miles around with a single "dit." Powerful enough to destroy a thousand "in-progress" QSOs within 30 Khz of his frequency. Can work rarest DX without even trying, first call. Curses and has fits when QRM is within 30 Khz. Thinks QRP is a new DX country.

1-KW with beam

Burns out TV and stereo sets on his block with a single "dah." Powerful enough to destroy 500 QSOs in progress within 20 Khz of his frequency. Can work the rarest DX with little effort, fourth or fifth call. Has fits when QRM is within 20 Khz. Thinks QRP is 500 watts or less.

Barefoot with beam

Burns out a million cigarettes trying to keep up with KWs. Powerful enough to destroy 50 QSOs in progress within 10 Khz of his frequency. Works DX with a bit of work, after an hour or so in pile-up. Curses when QRM is within 10 Khz of his frequency. Knows QRP is something less than 100 watts.

QRP

Short circuits the minds of QRO operators when he also works that rare one. Powerful enough to have good QSOs while causing minimum QRM. Can work DX due to highly developed operating skills. Copies weak signals 469 in heavy QRM with no sweat. Wonders why anyone needs 2 KW!

QRPp

Short circuits everyones' minds when he shows off his DXCC wallpaper. Unbelievably powerful, a master in the use of "The Force." Has more fun and gets more enjoyment out of every QSO than any other class of station or operator. Ignores QRM, can copy weak signal from a "galaxy far, far away" on 15 meters during solar storms or sweepstakes contests. Wonders why anyone would have to use 10 watts!

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OCTOBER POLL RESULTS

| | | |
|---|---|---|
| Input | 82 | 37.1% |
| Output | 125 | 56.6% |
| No pref. | 12 | 5.4% |
| Disqual. | 2 | 0.9% |
| 100 watts | 41 | 18.6% |
| 75 watts | 2 | 0.9% |
| 50 watts | 21 | 9.5% |

(Continued next page)

| | | |
|---|---|---|
| 25 watts | 20 | 9.0% |
| 15 watts | 6 | 2.7% |
| 10 watts | 51 | 23.1% |
| 5 watts | 74 | 33.5% |
| No pref. | 4 | 1.8% |
| Disqual. | 2 | 0.9% |
| Awards plus membership req. | 61 | 27.6% |
| Awards plus 100 watt limit | 91 | 41.2% |
| Awards plus no pwr limit | 62 | 28.1% |
| No pref. | 5 | 2.3% |
| Disqual. | 2 | 0.9% |

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FROM THE MAILBAG

Hi Pete,

Just a small note to let our readers know that this is my first QRP contest, and I had a ball with my HW-8 running 3 watts output. My score totalled 280 points and 33 S/P/C with one country and three provinces. Also worked 55 new QRP members to help me on various certificates. A real good contest and a lot of fun. Looking forward to the next one.

Lou Marchese Jr.
WA2PMW

Dear Peter,

It was nice to read your article of great circle distance in last issue. Yes, the members of JARL QRP Club use kilometers-per-watt instead of miles-per-watt already. Isn't it more promising unit for our QRP ARCI?

Anyway, I would like to propose a new club award adding to the KM/W to encourage a QRPer who already completed that beginner's class award. The name is 'Round-the-Earth-per-watt. That means 40 KM/W. It may be divided into three steps such as "Quarter Way" (10 KM/ ), "Half Way" (20 KM/W), and "Full Way" (40 KM/W). I hope officers and members think about these ideas.

Takahisa Masuzawa
JH1HTK

P.S. Please correct the name of the proposed award to fit the feeling of English-speaking people.

Dear Pete,

Thanks for taking over as QRP ARCI editor. I know it is going to be a lot of work for you.

I joined as a full member but recently have started to use a 100 watt input rig as I get tired of "just listening" in the evenings.

I was sorry to see that we are going to have another contest. I like the idea of an SSB QRP contest, but the world really doesn't need yet another contest! Twice a year is enough. Why not make one for CW and one for SSB and alternate them from Spring or Fall each year?

Rich

Dear Pete,

Wanted to say I received my first QRP Quarterly today. It is one of the best club-issued newsletters I have ever received. Thanks.

I wanted to apply for full membership, but my son is a novice (WD5HYD) and it seems he has pushed me off 10 and 15 meters where I have worked most of my QRP in the past. I find QRP on 20 meters a little more difficult. Most times I still operate QRP, but I'm not above throwing the linear switch on 20.

My biggest thrill in QRP was in the late 40s and early 50s. The xmtr was a dual triode, II717GT. Half of the tube was an xtal osc. The other half was the rectifier. No xformer, just direct into the AC line. Max. input was about 2 watts or at least that's what the Xmas light bulb said. The only problem was you had to mark the plug and AC recepticle. If you didn't, AC was floating around on the rig. The rig was about the size of two packs of cigarettes. The rcvr was a two-tube regenerative (30s) at first, and then an S-38A. In three or four years I managed the 48 states. No QRP/WAS certificate, and I don't know if there was such a certificate then. Of course, all this time I had my high-power rig, 50 watts into a dipole. My son became a novice in 1979 and that's the first time in 30 years I ever ran more than 100 watts.

Well, Pete, like most old goats, I like to brag, but better QRT.

Lee Allen
W5VJT

Dear Mr. Spotts,

In regard to the idea of C.F. Rockey, W9SCH, I think it is a good one--that is a QRP handbook.

That is one of the reasons I joined the club in the first place, so I could learn more about QRP operation. I am a relatively new member and I have received two newsletters so far. But I

have not learned much about QRP operation.

I did notice this 2nd newsletter was larger than the first. And there seemed to be a renewed interest in improving the quality of the club.

I didn't see anything about enlarging the membership of the club. Why?

Charles Denmon
WD4NVN

Dear Pete,

My QRP operation at the present time is all CW. The rigs are an HW-8, and a homebrew, 2 transistor 10 meter xmtr, 3/4 watt output. I use my TS520S as the receiver when I use the homebrew rig. The 3/4 watt job is my pride and joy. It came from the book "Solid State Design", which is outstanding!

My ant. farm consists of a HF 5 VIII vert., random wire abt 90 ft. long, and a TA 33 Jr. So far I've worked 48 states, 47 confirmed. I'm working on my WAS-QRPp award, for which I have to 40 seal. I need to get the next five states sent off for my 45 seal. By the way, I still like the gold seals. The award used to look better than with the stars. To me, the stars are cheap looking, but that's my opinion. Has anyone ever made 5BWAS-QRP (less than 5 watts?) That's one of my long-range goals. For DX I've worked nine countries, with cards from three of them. Where in the Devil is Y26? I worked Y26BH/4 for my ninth country.

Jerry
WA5TFU

Dear Peter,

I didn't send in any QRP Field Day scores to the club as my effort was added to that of our local Peroia club. No one brought out a CW station this year, so I took my Argonaut out along with the battery from my yard tractor. The antenna was about 100 feet of wire, end fed, and tied to a tree. The antenna averaged about 12 feet above ground.

I think a few members figured I'd never get out of the park with a set-up like that. Anyway, WN9GEV and I managed 51 contacts and 34 sections, including both coasts. We took it easy and stopped frequently to talk to visitors. Lots of fun! Bands worked were 40,20, and 15 meters, all on CW.

Chuck
WD9EGU

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LATE AWARD RESULTS:

KM/w CW-
K4AHK-VK4AWJ, 5w, 1.870 KM/w, 14 Mhz
K4AHK-JR1JFO, 5w, 1.340 KM/w, 21
AE9K-PY1AYE, 5w, 1.063 KM/w, 21
PY1AYE (rcvg above signal)
WDØEGC-K1HZP, 1w, 1.35 KM/w, 21
K1HZP (rcvg above signal)
VK5ZF-VK6NBR, 400mw, 3.725 KM/w, 28

KM/w SSB-
K4AHK-ZS6DN, 5w, 1.6 KM/w, 28

QRP WAS-
KA4EBW, 5w, 3rd issued to a Novice

QRPp WAS-
WD8IDD, 30 state seal
JH8DEH, basic 20, SSB

QRP WAC-
KA4EBW, 1st issued to Novice
KA8DFJ, 2½w, 2nd issued to Novice

DXCC-QRPp-
WA2GOS, Cert. #10, 14 Mhz, CW

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STATEMENT FROM THE OUTGOING SEC/TREAS.

Thanks to all who gave me help and encouragement while I served as the club's sec/treas. It was quite an experience in the midst of major club policy changes. However, with my current work schedule involving multiple jobs, there is not enough time to devote to the club and handle the sec/treas duties properly. Thanks to Ed, WD4LOO, for taking the job, and to Bill, WA2JOC, for taking the contest chairman's slot so Ed could take sec/treas. And thanks to Tom, K8IF, for arranging all this!

A few parting words: Any time you write an officer or board member, please include your call, QRP#, and return address. And if you want a reply, send an SASE. Also, if you tell someone about our club, let them know an SASE is highly valued. Incidently, a business-style envelope is better than the smaller type, especially if a certificate is desired. I can't stress the point of QRP# being included enough. I have sent renewals back because a call or QRP# was lacking. By the way, renewals now should be sent to the newsletter editor!

Another way to get in touch with officers and boards members is through the nets, the informal QSO parties, and during contests.

Finally, the '79 membership roster update will be available (send SASE) f from Ed, but give him some time to get ready for the requests. 73,"Red" K5VOL

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QRP ARCI Elections for Board of Directors

(One seat - expires Jan. 1, 1984)

**Nominees:**

James A. Holmes - W6RCP, QRP # 4300

Retired from the Federal Aviation Administration. Spent last 10 years at work as Radar Unit Chief, Honolulu Air Route Traffic Control Center.

Past President and trustee, Marianas ARC (KG6)

Past President and trustee, Diamond Head Aviation ARC (KH6)

Past Secretary/treasurer, El Dorado County ARC (W6)

Awarded National Certificate of Merit by ARRL. Wrote letter to editor of the San Jose Mercury (CA) responding to a Jack Anderson column that advocated giving amateur frequencies to CB. The letter was published.

Awarded Certificate of Appreciation by FAA for public service following Typhoon Sara, Wake Island.

Concerning Input/Output, power limitations, and QRP definition, I would actually prefer power output to be measured as average power output. But I like to keep things as simple and practical as possible. So until someone comes up with an inexpensive, accurate, and universally adaptable means of measuring RF power output, I opt for DC input to the final. I never exceed 5 watts input, but I think we should leave the limit at 100 watts. The power multipliers we are currently using seem to even things in a fair manner for scoring contests.

I feel that we must do more to spread the word about our club. I have been ending some of my QSOs with a slogan, "You have just had a QSO with a QRP ARCI member. Tell a friend." I have made several copies of the club infor sheets that were sent to me when I joined the club and have sent them to hams I have QSOs with in hopes of attracting new members.

Joseph T. Lovejoy - N3PM (ex-W3RYV), QRP # 2118

Belongs to QCWA, Morse Telegraph Club, MARS, was Area 3 representative for QRP ARCI in 1972, and has been a QRP ARCI member since 1965. Is retired.

I feel we should increase membership through a membership drive. Members should sign up new members through their QSOs or by sending applications to prospective members. I feel that daily QRP activities have been ignored and would like to see more daily activity on QRP frequencies. I advocate output as the means to measure transmitter power but I feel that we should retain the 100 watt DC input limit -- 75 watts output maximum for those using output. It also would be nice to have club QSL cards.

Peter N. Spotts - N1ABS, QRP # 4174

Currently employed as editorial assistant, American News Department, <u>The Christian Science Monitor</u>.

Past vice-president of the Wellesley Amateur Radio Scoiety (MA), current editor of the QRP ARCI'S QRP Quarterly.

To paraphrase an old bromide, "What this country needs is a good 5 watt national QRP club." We stand to fill a gap in national amateur organizations, a gap recognized even by our friends overseas. But with a 100 watt level even appearing in our logo, no one takes us seriously as a QRP club. By stating full well that we recognize 5 watts as the operating level for QRP work, we will bring our club within bounds of recognized QRP operation. As for the input/output issue, when the final "dit is sent," it's the south end of a northbound transmitter that is doing the work. Output, especially in CW work, is measurable using instruments easily within the reach and capability of most amateurs to build. And it doesn't require violating the warranty on that shiny new rig by digging inside to try to wire in a meter to measure current to the final.

I would like to see the associate membership status abolished, with all current associate members upgraded to full membership, and the elimination of the 100 watt limit. I propose this as a full member who operates with an

Argonaut as my sole HF rig and as one who runs no more than 10 watts on 2 meters and 220 MHz. Because of its very nature, QRP ARCI is going to attract only people who are interested in--at least for part of their operating time--QRP work. These people should be welcomed into the fold with full membership status. Let's let our awards program and contests provide the incentives for QRP operation to those who do not operate full-time QRP. To the extent that the club attracts as members "full-timers," great! And to the extent that the club's awards and contests induce otherwise full-time QRO operators to try QRP even part of the time, the club will have succeeded in fulfilling one of its goals--the reduction of stateside QRO QRM. And once some of those QRO operators see that QRPing isn't all THAT difficult, they just might increase their QRP operating time. So let there be no power limit as a requirement for membership.

I also would like to see awards and contest places given to those alone who operate within the club's definition of QRP at the time they are going for the award or are participating in the contests. It seems to me to be counterproductive to go to all the trouble to define QRP and then give "QRP" awards to those who are not operating QRP when they are trying for those awards. The same holds true for contests. Such actions only render meaningless either as incentives for QRP operation or as indicators of operating skill and achievement our awards and contests.

Finally, while I whole-heartedly support efforts to increase club membership, I would like to see the officers of this club strive to improve the quality of this club's contribution to QRPdom. Sheer numbers are meaningless unless they are accompanied by real contributions, whether technical in nature or in terms of operating events, to the QRP movement.

1981
020

(3100-4/81) WØRSP
Adrian Weiss
83 Suburban Estates
Vermillion, SD 57069