

QRP Adventures

for
Education, Challenge & Enjoyment

7 Sept 2007, W2NED



QRP -- Not Just For CW...

- Although tonight's focus is on CW –
(because, that's what I do...)
- Much of the discussion also applies to...
 - SSB, or
 - PSK 31(Each with a bit more complexity 😊)



Discussion Topics

- Adventure Radio Society
- Does QRP Make Sense ???
- The Trail Friendly Radio – an Evolution
- ARS operating events
 - Spartan Sprint
 - Flight of the Bumble Bees
- Some URLs



The Adventure Radio Society

- 1700 Amateur Radio Operators
- Promotes a sense of adventure by supporting radio operation from beautiful and remarkable places.
- Supports imaginative equipment & antenna designs.
- Encourages “human powered travel” to reach out-door operating sites.
- Go to: <http://www.arsqrp.com>
 - ARS Sojourner – monthly on-line magazine
 - Info on popular operating events and awards

From ARS Web Site <http://www.arsqrp.com>



Why QRP works...

- With 100 watt transceiver as a reference...
- 5 watts is 13 db down...
- One S-Unit is about 6 db...
- Therefore, 5 watts is about 2 S-units weaker than a 100 watt signal – all else being equal.
- But 5 Watts is 1/20 the power, with correspondingly less
 - Size,
 - Weight,
 - RFI,
 - Etc...



The TFR – Trail Friendly Radio

- Light weight: < 1 pound
- Low power: < 40 ma on receive
- Easy to operate while sitting on ground
- Controls on top.
- Large controls -- easy to use even with gloves.
- I/O ports -- styled and positioned to avoid confusion
- Self contained -- i.e. internal batteries
- High performance receiver
- See Wayne's (N6KR) Paper – *Anywhere, Anytime HF*
http://www.arsqrp.com/ars/pages/back_issues/2003_text/1203_text/N6KR.html



HW-8 – “pre-TFR”

HW-8



Screen clipping taken: 9/6/2007, 9:10 PM
<http://www.theheathkitshop.com/hw-8.html>

- 1976 to 1983
- Part of the popular HW 7, 8, 9 Series
- Discrete components
- Direct conversion
- Multiband 15-20-40-80
- 1 - 2 watts out
- Popular, portable – but not a TFR
- \$130



NorCal-Wilderness-Elecraft Evolution



- At Left
 - SST
 - Nor Cal 40
 - Sierra
 - K2
- Then came (not shown)
 - K1
 - KX1

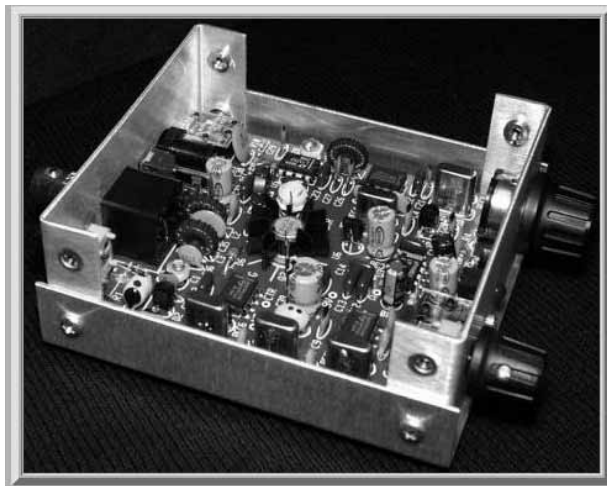
From: <http://www.elecraft.com>



SST



- Single band units
- 20,30 or 40 meters
- SuperHet Receiver
- Stable VXO – 10KHz / no RIT
- 3-pole Xtal filter
- 1-2 watts output
- 15 ma receiver
- Fast / clean QSK
- Utilizes mixer / amp ICs
- Very good performance
- Not Quite a TFR
- \$90 -- still available



From Wilderness Radio: <http://www.fix.net/~jparker/wild.html>

The Nor Cal 40



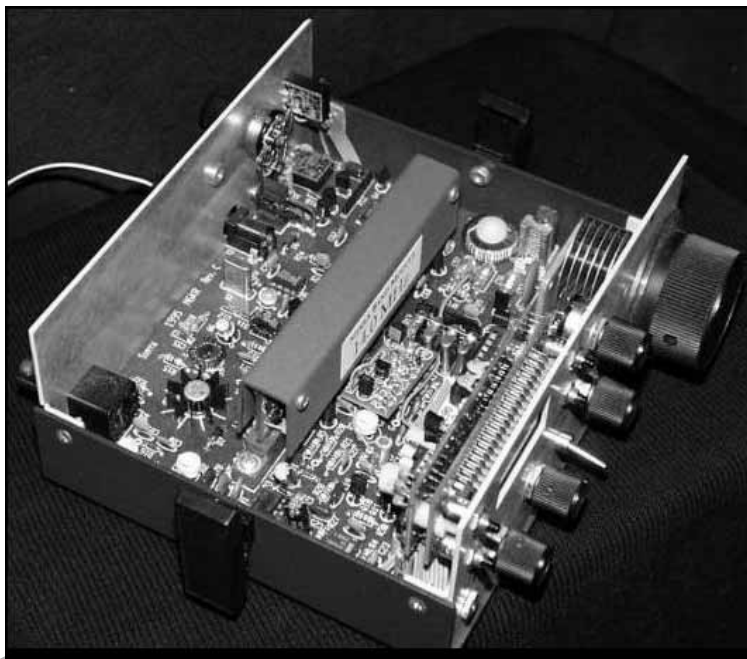
- Started as a Nor Cal QRP Club Project
- Third generation QRP Kit...
- SuperHet 5 MHz IF
- Leverages ICs
 - NE602 mixer / amplifiers (3)
 - LM386 Audio amp
- 2 watts output
- 20 ma on receive
- Audio AGC
- Audio and RF Gain
- 4-pole Xtal Filter
- VFO – 40 KHz
- Internal Keyer
- RIT
- Good performance – very popular
- \$140

From Wilderness Radio: <http://www.fix.net/~jparker/wild.html>

Sierra



- Signal path same as Nor Cal 40
- 1.5 - 2 watts Output
- 35 ma receive current
- Multi-band w/ plug-in modules
- 80, 40, 20, 17, and 15 meters
- VFO – 150KHz
- Frequency read-out
- \$245 w/one band +\$30 / additional band



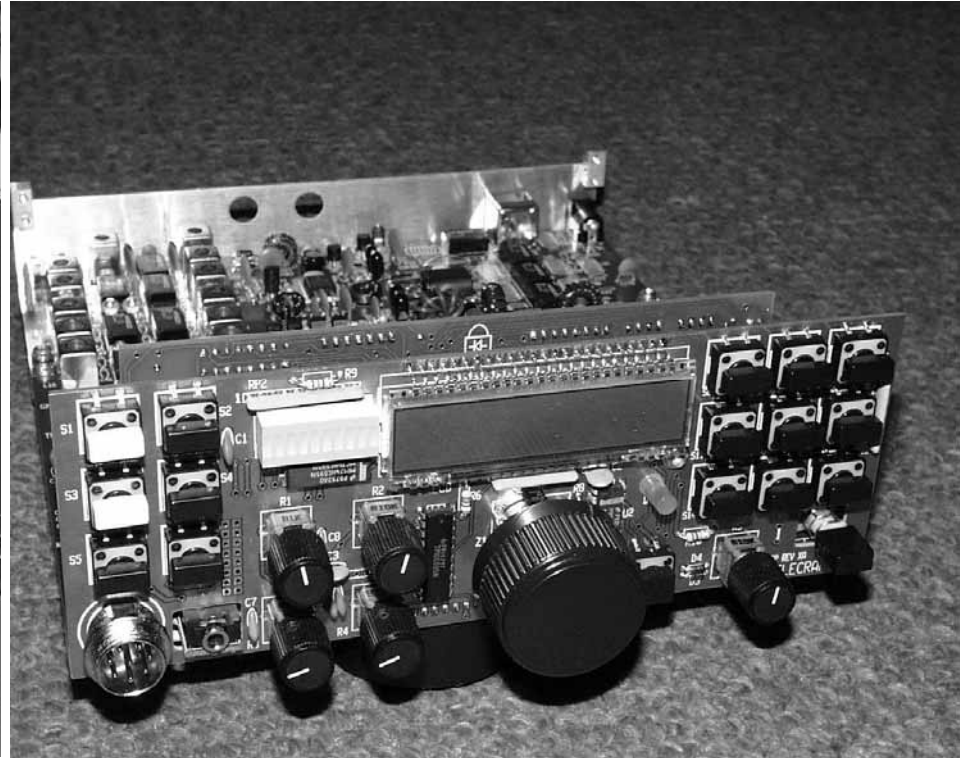
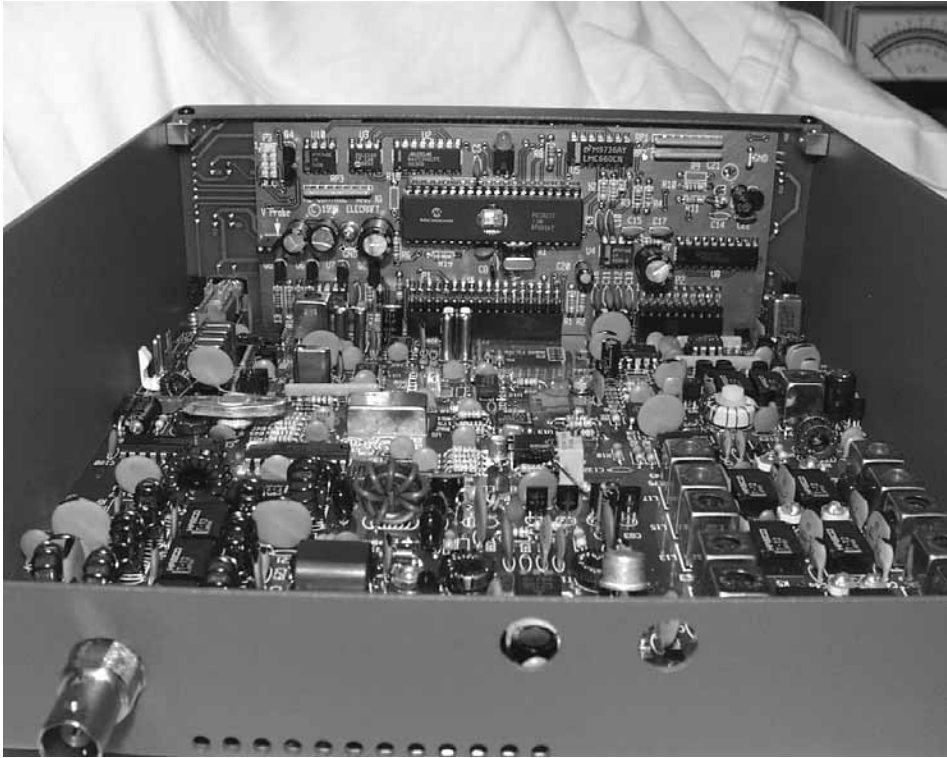
From Wilderness Radio: <http://www.fix.net/~jparker/wild.html>

And Then, The Elecraft K2



From Elecraft: <http://www.elecraft.com>

K2 Interior



From Elecraft: <http://www.elecraft.com>

K2 Design Info...

- Start with the time proven
 - Signal Path & features,
 - Full QSK,
 - Light weight,
 - Low power, etc.
- Achieves superb sensitivity, S/N & BDR
 - Pre-Amp, low noise front end & receive mixer –
 - Low noise, PLL Synthesizer – Full Ham band coverage
 - Superb filtering – great BDR.
- Great UI and flexibility
 - Multiple PIC controllers for UI, I/O and control.
 - Latching relays to minimize current
 - IF based AGC loop
- Pricing...
 - Starts at \$700 for 15 Watt CW rig...
 - Fully loaded rig can double price...
- Great features...
 - CW Full Break-in; Diode Switched TX/RX
 - Programmable Memory Keyer (*9 memories*)
 - 'Hunt and Pounce' Band Search Mode
 - 120ma Low Current RX Mode
 - Built in Test: Freq. Counter, Volt/Amp Meters
 - Self Calibration Firmware
- Lots of Options...
 - SSB w/ 7 pole xtal filter
 - Internal Battery
 - DSP
 - 10:1 Antenna Tuner
 - 100 Watt Amp
 - Transceiver extendibility...

K2 is not exactly a TFR, but it is very portable, and gives Elecraft technical & business **field position**...

Elecraft K1



- Same NE602 signal path
- Uses PIC controller for I/O, control and display functions – Big increase in UI...
- Latching relays to minimize current requirements
- 80, 40, 30, 20, 17, 15
- VFO -- 150KHz
- w/ 2 or 4 switched bands per module
- 5 watts out (minimum)
- 55 ma receive current
- 4 pole Xtal filter (5Mhz)
- Internal antenna tuner & battery pack
- Starts at \$370 w/ one four-band module

- Near TFR...



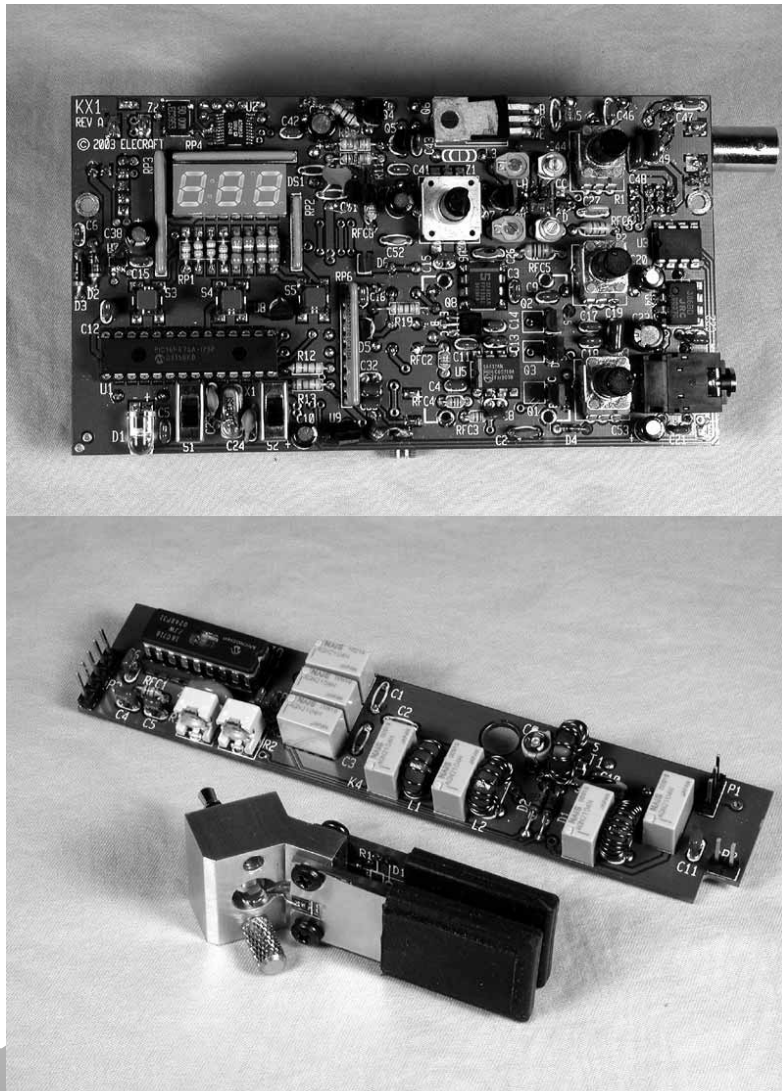
KX1 The Ultimate TFR



- TFR Features...
- 2, 3 or 4 Bands
- SWL Bands Rx.
- Up to 4 watts out
- 9 oz + batteries
- Plug-in paddle
- DDS VFO – full band coverage
- 3 digit display
- Log lamp



KX1 Continued...



- DDS
 - simplifies design
 - Increases flexibility
- 80, 40, 30 & 20 meters – complete
- Plus SWL bands
- Optical encoder tuning
- Antenna tuner (lower Picture)
- Starts at \$365 for four band unit.

- Meets most TFR requirements

ARS – Spartan Sprint

- First Monday of each month
- 9pm - 11pm eastern time
- 5 watts max
- Score
 - Contacts / pound, or
 - Number of contacts
- Features portable ops

Band	QSOs This Month	QSOs Last month
80m	132	109
40m	1287	723
20m	1055	842
15m	7	1
10m	1	2
Total	2482	1677

The Flight of the Bumble Bees

- Last Sunday in July
- 1PM - 5PM Eastern time
- BBs get number and must operate portable
- Contacts with BBs get 3x multiplier
- Best view and best adventure gets featured

Band	2006	2005
40M	753	939
20M	2339	3213
15M	98	248
10M	1	5
Total	3191	4405

Some Ops are Intense



From ARS Web Site <http://www.arsgrp.com>



And Some Ops are Less So



From ARS Web Site <http://www.arsgrp.com>



Some URLs

Kits:

Elecraft

<http://www.elecraft.com/>

Oak Hills Research

<http://www.ohr.com/>

Small Wonder Labs

<http://www.smallwonderlabs.com/>

TenTec

<http://radio.tentec.com/kits/>

Wilderness Radio

<http://www.fix.net/~jparker/wild.html>

Antennas:

The N2CX HALFER

<http://www.njgrp.org/n2cxantennas/halfer/halfer.html>

BuddiPole Antennas

<http://www.buddipole.com/>

Societies:

Adventure Radio Society

<http://www.arsgrp.com/>

American QRP Club (was NORCAL & NJQRP)

<http://www.amgrp.org/>

Other Links:

<http://www.wb8nut.com/links.html>

