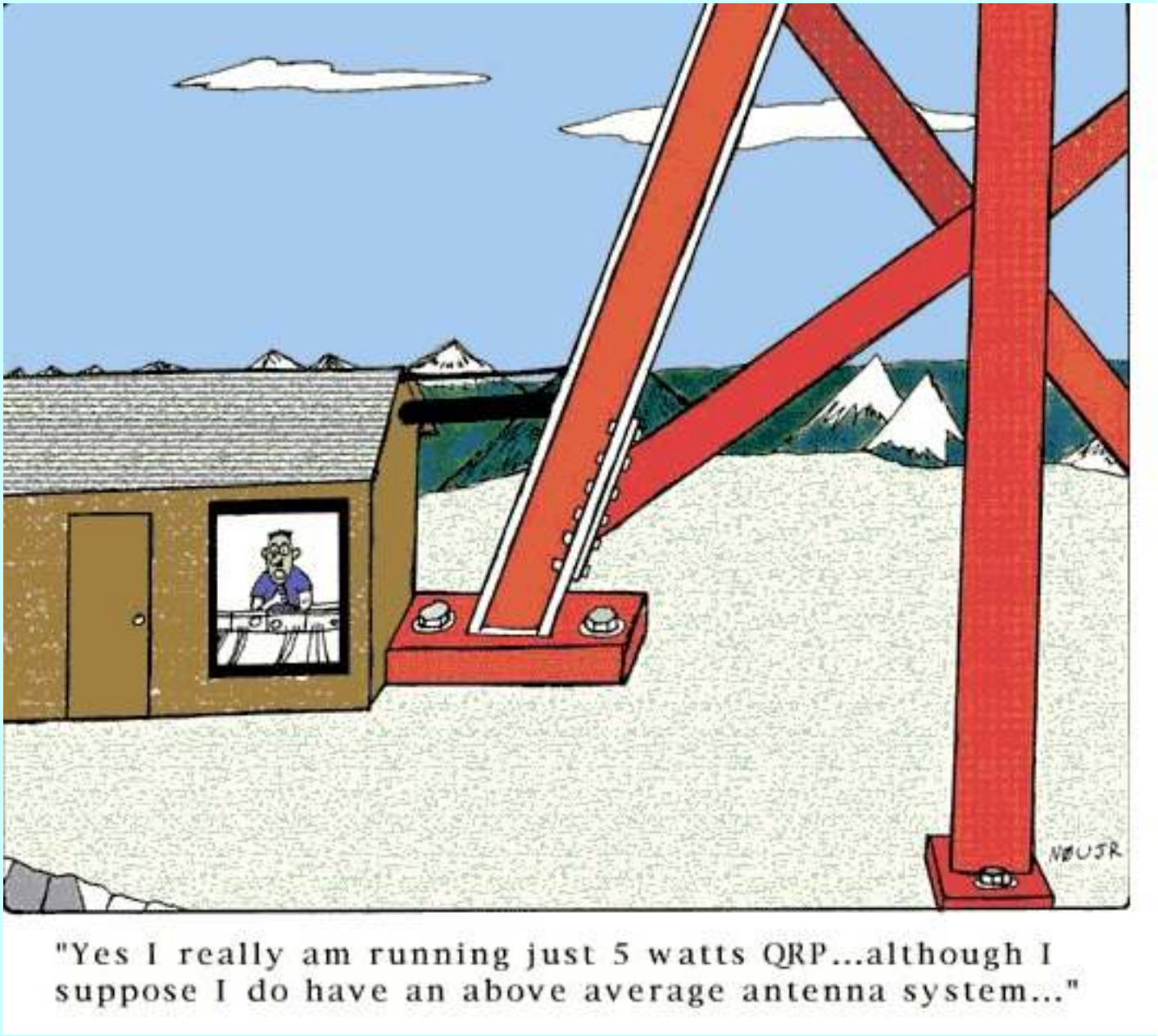
QRP

is

Low Power, but

High Fun!

K6UFO Mark Aaker



"Yes I really am running just 5 watts QRP...although I suppose I do have an above average antenna system..."

“QRP” is an old telegraph signal meaning “lower your power.”

(QRP? = Can you lower your power?)

Today the standard meanings are :

- **QRP** = 5 watts or less transmitter power
- **LP** = Low Power, up to 100 watts, a “barefoot” radio. (up to 150 watts in some contests)

- **QRO** = High Power, over 150 watts

Why QRP?

- Greater satisfaction and sense of accomplishment per contact
- Excellent way to improve your skills
- Less interference to telephones, stereo,…
- FCC Rules 97.313(a) “An amateur station must use the minimum transmitter power necessary to carry out the desired communications.”

Why QRP?

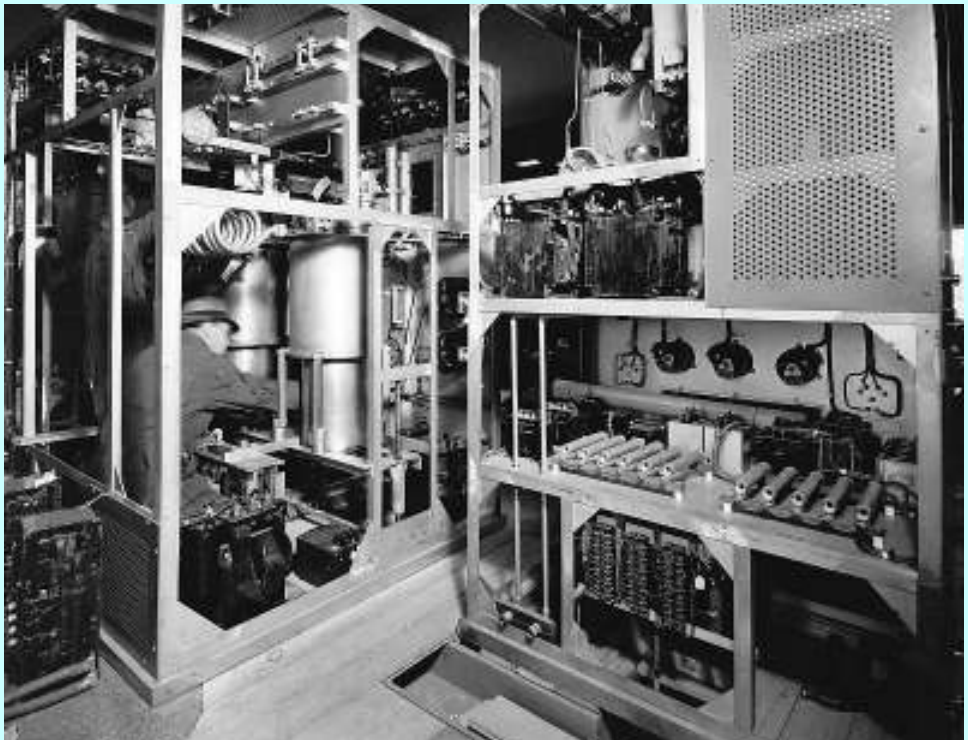
- Quality and simplicity of equipment
- Joys of home-brewing & kit-building

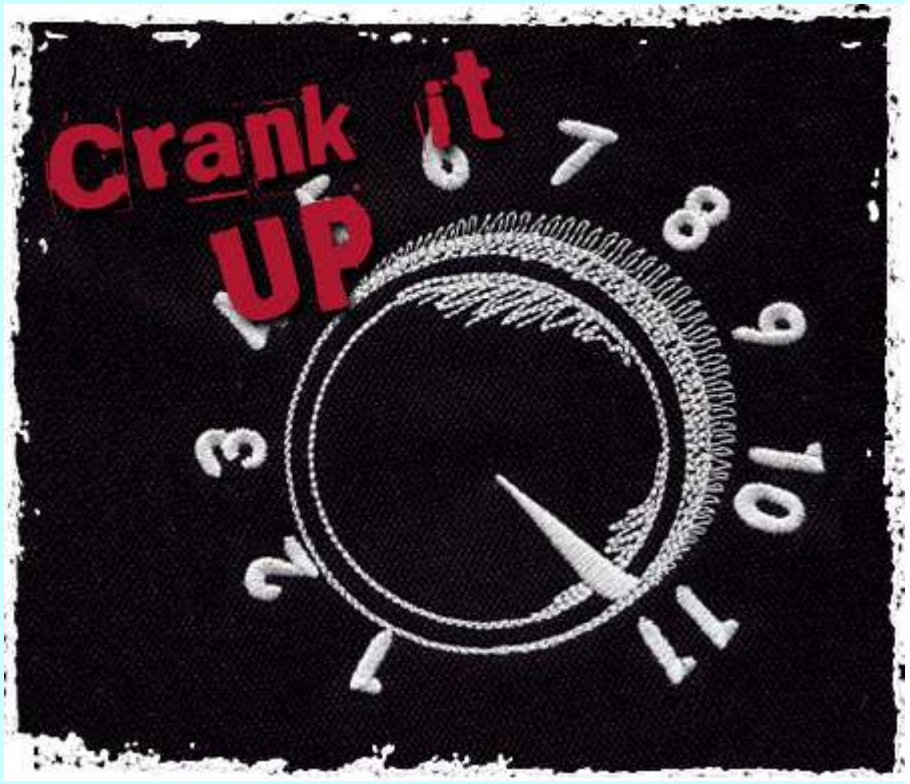
Why QRP?

- Backpacking and portable operation
- Light weight and Low power consumption

Alternate Views:

- Life is too short for QRP!
- All knobs to “11”
- Loud is good. Louder is better!



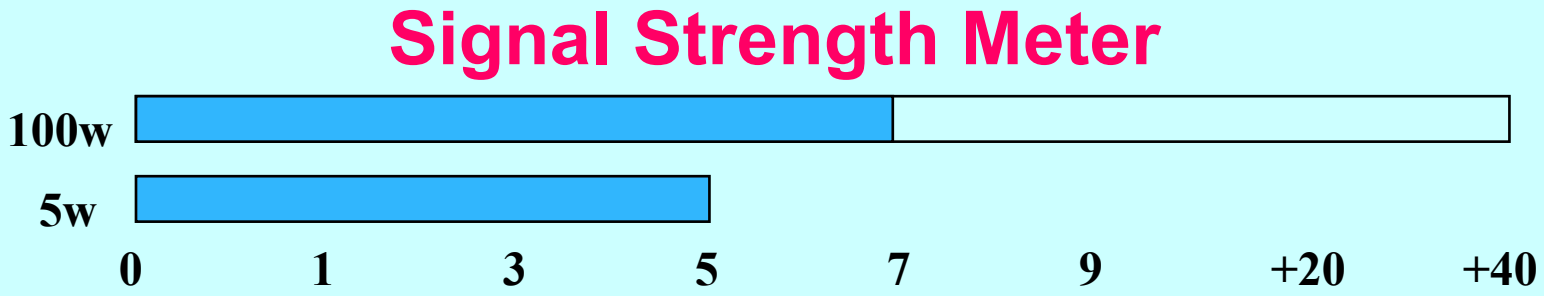


Many Kinds of QRP Operating

- Handheld radios (VHF/UHF) almost all at 5 watts or less. Often 1 watt or 0.1 watt.
- Simple equipment, simple antennas
- Standard Equipment, Standard Antennas – but QRP power.

Can QRP really work?

- 5 watts is only two S-units below 100 watts



Your 5 watt signal *CAN* be heard!

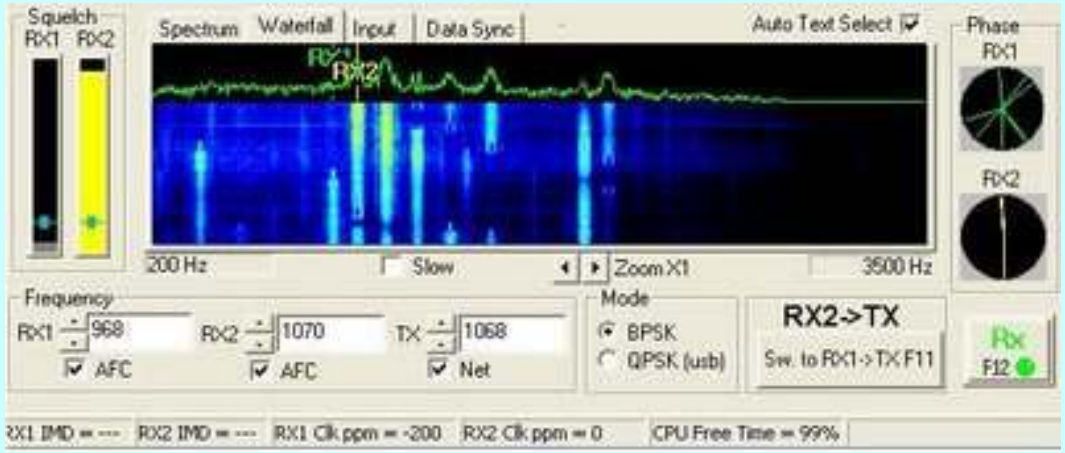
The 2011 ARRL Field Day results show #3 and #4 highest scores used QRP 5 watts, working 2,200 and 1,900 contacts. (K6EI, W0CQC)

Can QRP really work?

- TI5N in Costa Rica in the 2009 ARRL DX CW contest worked **2,033 contacts** with USA hams in 40 Hrs using only 5 watts.
- NN7SS in Washington in 2011 CQ WW CW contest worked **126 Countries** in one weekend using only 5 watts.
- QRP ARCI offers an award for working **1,000 Miles per Watt!** Has been awarded to several hundred amateurs. (SF to Tokyo, Japan is 5,100 miles – use 5 watts.)

Digital Modes and QRP

- Narrow bandwidth, clever encoding and slow rate make some digital modes very, very, very efficient at low power.
- 5 watts of CW is equivalent to 100w SSB.
- 5 watts of PSK is equivalent to 400w SSB
- 5 watts of JT-65 is equivalent to 2000w



Voyager 1 Spacecraft

- February 8, 2012, NASA reported that *Voyager 1* is over 10 Billion miles from the Earth … Radio signals traveling at the speed of light between *Voyager 1* and Earth take 16.5 hours.

- The Voyager 1 spacecraft uses a 23 watt radio.

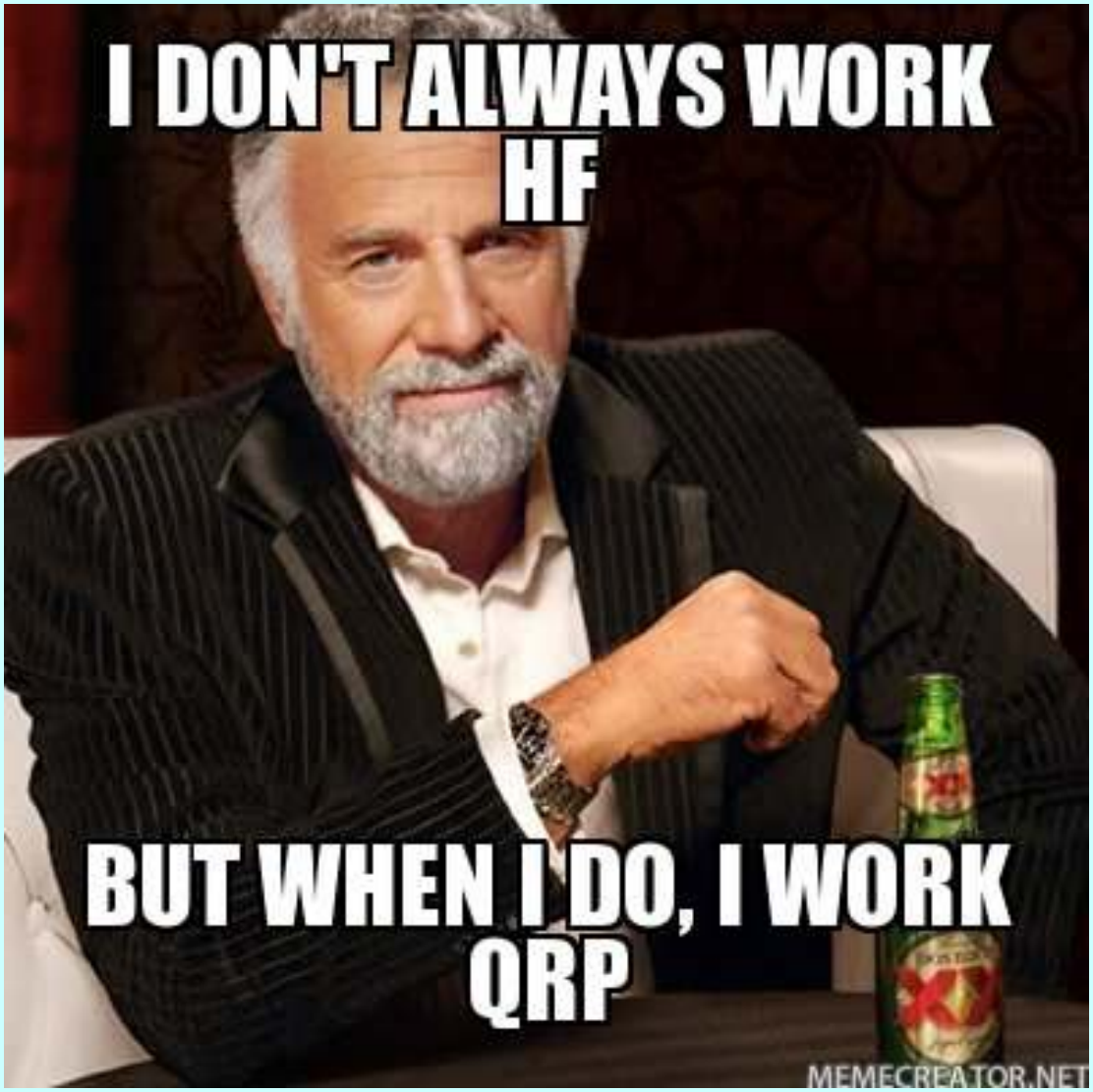
- 400 Million Miles per watt!

Sorry NASA, It's not Rocket Science

The long-distance low power record is held by KL7YU and W7BVV using one micro-watt over a distance of 1,650 mile on a 28 MHz path between Alaska and Oregon in 1970.

- According to Rich Arland, K7YHA (now K7SZ), in World Radio magazine (Feb. 1990, pp. 46-47.)

1.6 Billion Miles per watt!



QRP – When you care enough to use the very least!

"Power is no substitute for skill"

"Use wits, not watts"

"73" = Best Regards
"72" = Best Regards QRP!

Thank you!