

Simple Test Equipment

Here's some of the test gear at G3PHO

- This is after over 30 years of being a microwaver !
- It is not expensive stuff
- Much is second hand surplus
- Some is home-made and calibrated on professional gear elsewhere
- It's available through the UKuG Elmer scheme for local microwave "newbies" to test their newly built gear



Racal Dina Frequency counter

Marconi microwave Power Meters

Gould scope and Thandar spectrum analyser adapter

HP 8750A Normaliser

HP 8555B/HP182T SPECTRUM ANALYSER

Gould Microwave Sweeper oscillator

Wayne Kerr wavemeters for 1 to 12GHz

Sun noise amplifier and meter

Temperature controlled, fine tip soldering iron

G3PHO 2003

0-50dB
10GHz
attenuator

Adret 90-120MHz
synthesized oscillators
locked to highly accurate
frequency standard

Multiplier to
give
markers on
all
microwave
bands to
47GHz.
Accurate to
within a part
of 1kHz

Hi-stability frequency standard giving
outputs at 10MHz, 5MHz and 1MHz.
Accurate to 0.03Hz at 10MHz

FREQUENCY MEASURING AT G3PHO





Above: Frequency counter, HP power mete

Below: HP141 spectrum analyser system to 47GHz



Above: Marconi power meter to 24GHz

Below: Ailtech 7514 Noise Figure Meter to 12GHz



Do you need all this?

- Keep it simple
- Not everyone needs everything – share test equipment
- Testing sessions at the VHF conferences

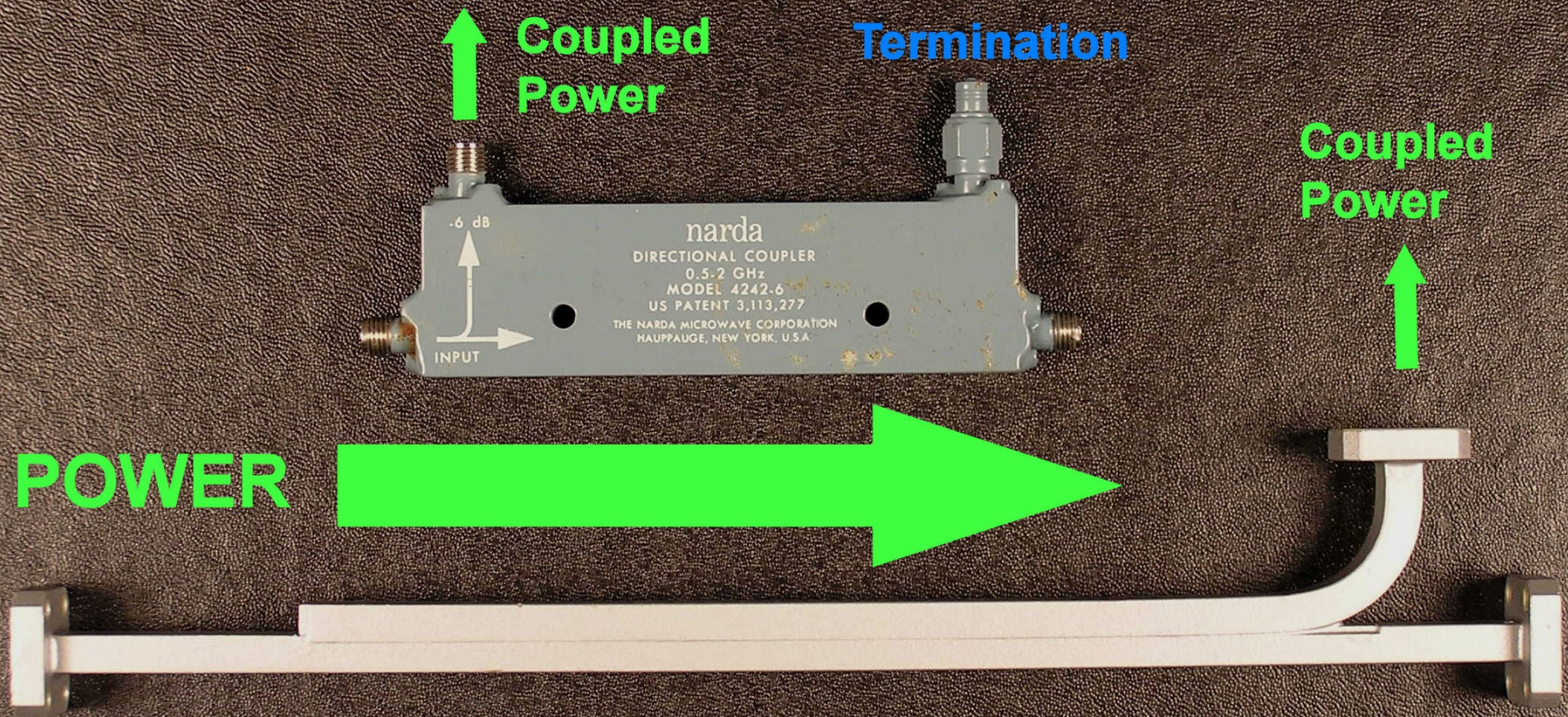


Many
problems
are just
DC

Power Measurement



Directional Coupler Samples Power

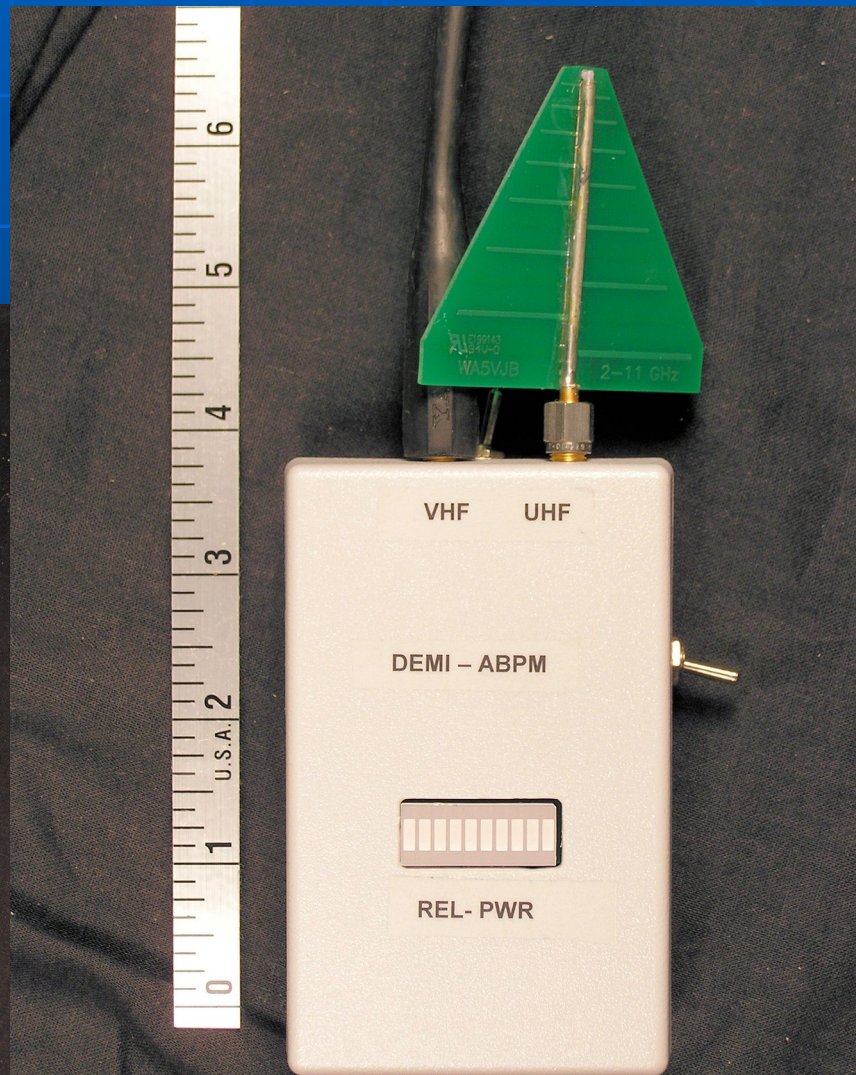
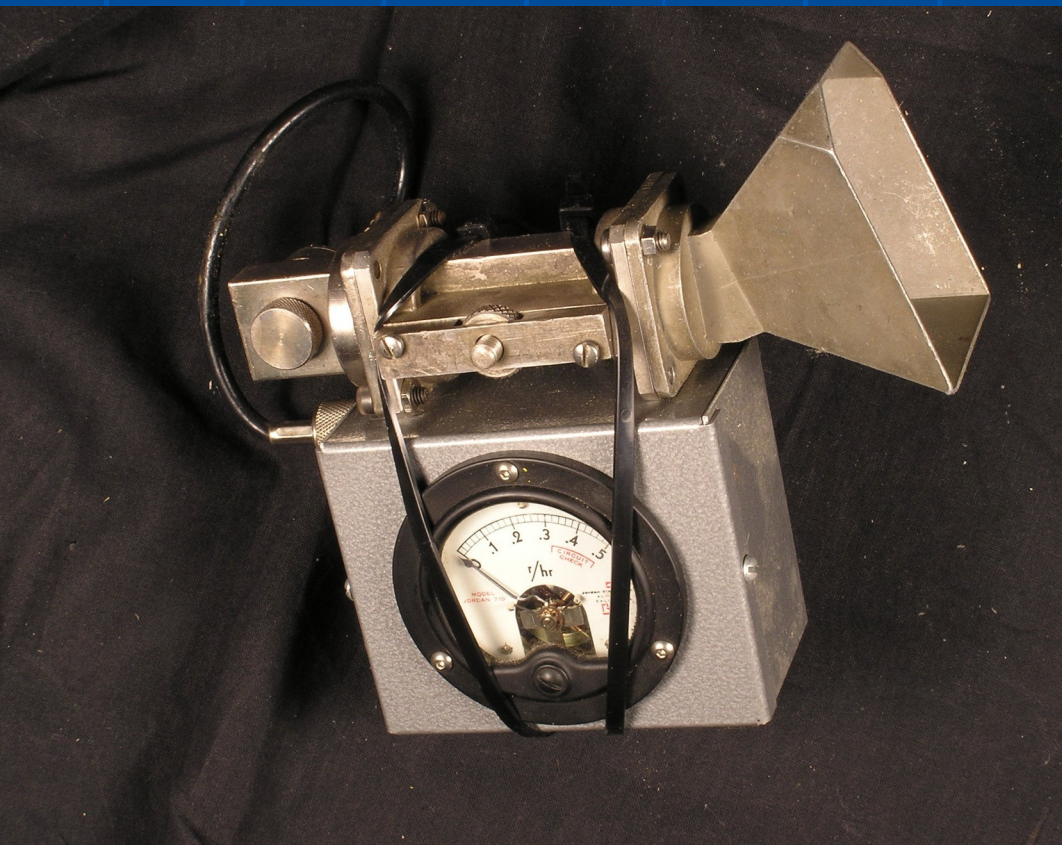


Frequency – GPS-locked Oscillator



Use to
generate
frequency
marker

Is it radiating?



Beacons

- If you hear it, receiver is working
- Frequency calibration
- True antenna heading

Beacons in Northeast

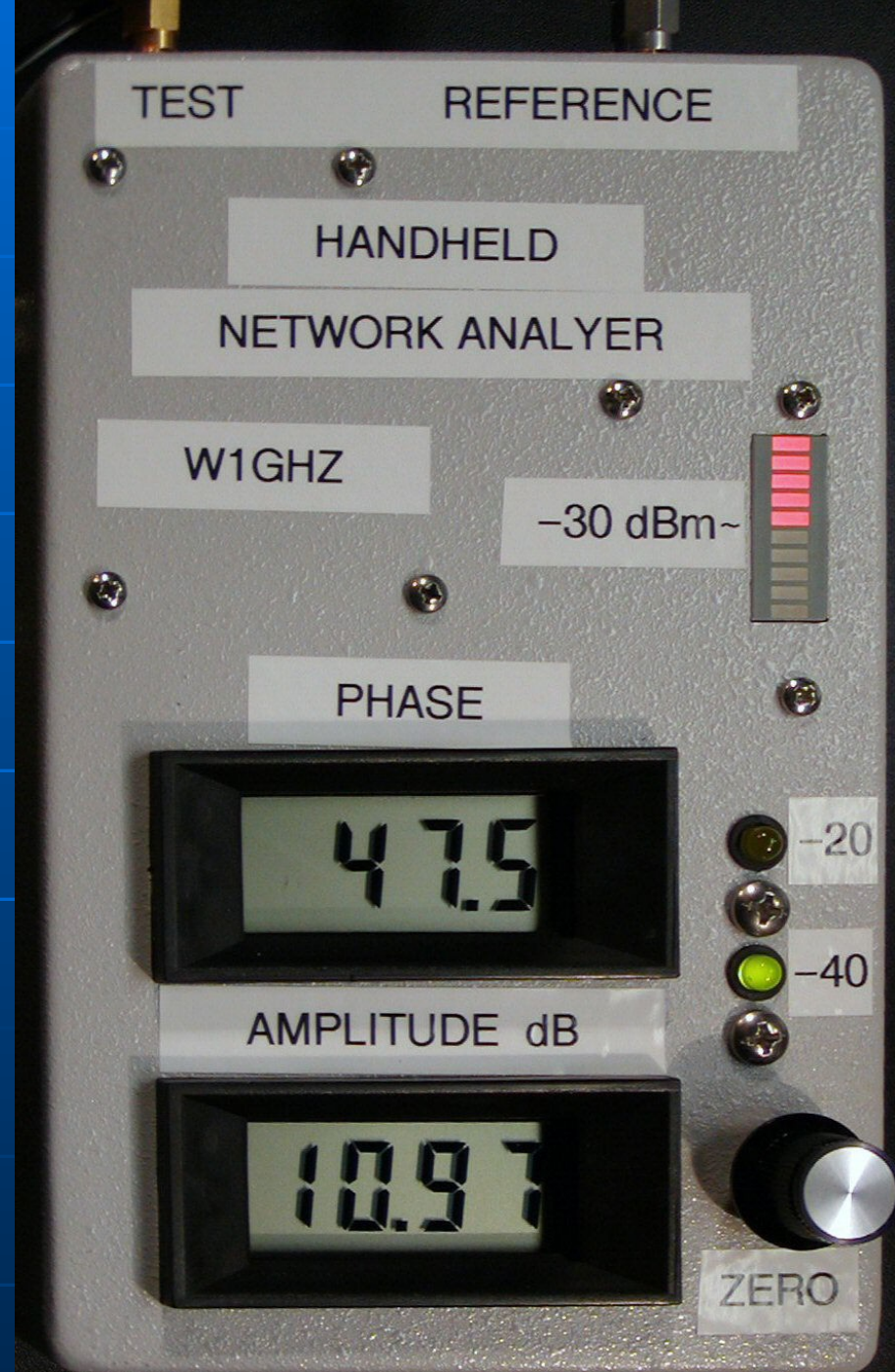
- WA1VVH FN42eq 10 GHz and 3456
- Greylock FN32jp 10 GHz
- WA2UMX FN23xc 1296
- K1TR FN42iv 903
- W3CCX FM29jw 903 thru 10 GHz

Receiver – Sun noise



Homebrew Network Analyzer

Measure Gain, Loss,
VSWR, Phase,
Antennas



PAL

- More fun if two or more working together
- The best test is making contacts
- Start out close together

Caution – everything works across driveway

- Move further apart, testing at intervals
- When it doesn't work, figure out why