

RFI 103: RFI Tips, Tricks and Techniques Q & A Session



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How to Choose an effective feed line choke

Suppress TRANSMITTER RFI, reduce RECEIVER RFI/NOISE



Common Mode Feed Line Choke Recommendations

- Choke impedance should be $> 10X$ feedline impedance
(> 500 ohms for 50 ohm feedline)
 - Use choke at antenna feed point to keep RF on antenna and off feedline
- Use choke at receiver end of feedline to choke off common mode noise from neighborhood

Ham Shack RFI Solutions

PICK YOUR RFI SOLUTION KIT

MY RADIO ROOM



ANTENNA RFI



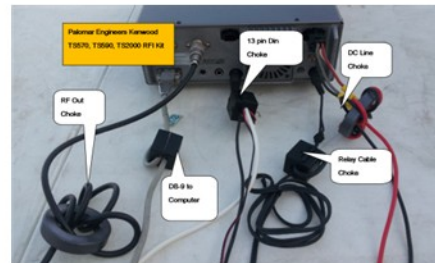
AMPLIFIER RFI



COMPUTER RFI



POWER LINE RFI



TRANSCEIVER RFI



NOISE REDUCTION

RFI Chokes for feed line path

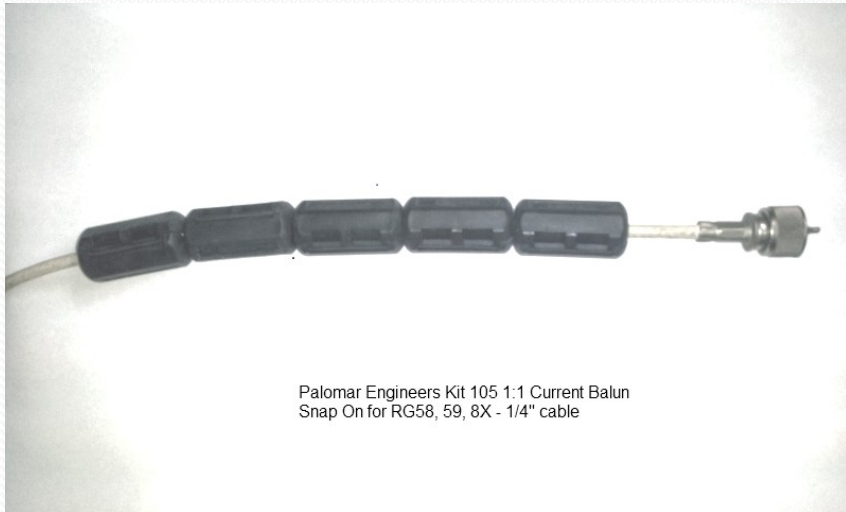
- Path
 - Antenna feed line choke (aka 1:1 balun, 1:1 unun, line isolator, line choke, sleeve baluns)
 - Coax Air Wound – frequency dictates # turns for Z (5-10 turns at VHF, small diameter, 15-30 turns large diameter at HF)
 - In line (ferrite – toroids, split beads, sleeve beads)
 - 1:1 balun (voltage (DC grounded) or current)
 - Line isolators (w or w/o ground lug)
 - Examples

Coax Balun (aka “Ugly” balun)



Picture: Ugly balun at 7 Mhz, 16 turns,
4.5" diameter = 3,000 Z - 20 feet of coax

Sleeve Baluns (Snap on)



RG-8X (1/4" size)
150-500 ohms



RG-213 (1/2" size)
150-500 ohms

Large Clamp On (FSB-1) = 1" ID



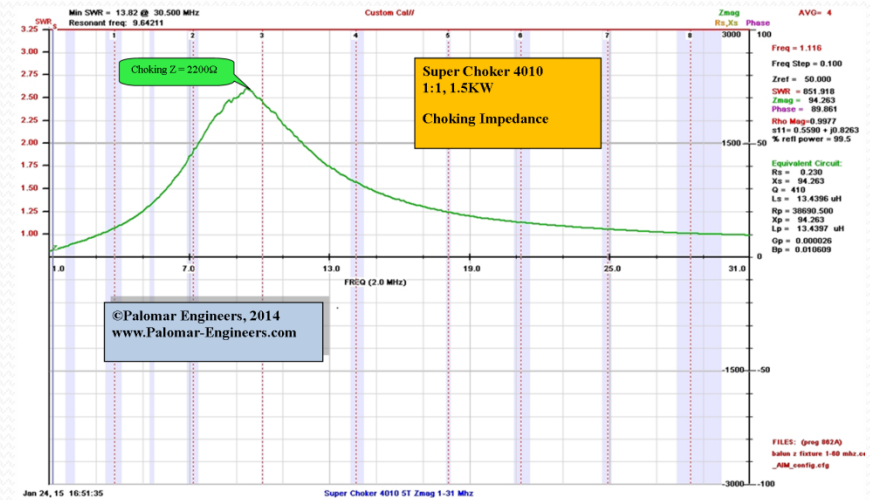
3 turns =
1K ohms

Sleeve Baluns (Slip on)



Palomar BA-8 Balun on Beam Antenna (RG-213)

Super Choker (40-10 Meters)



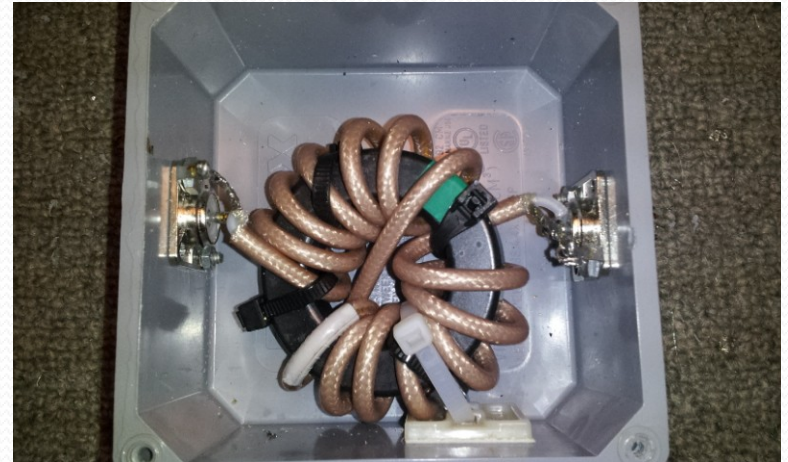
$Z = 1,500$ at 7Mhz , $2.2K$ at 10 Mhz, $1K$ at 14 Mhz,
 300 at 28 Mhz – 5 Turns, 3 cores

CUBE Baluns



BA-1-1500 (1:1, 1500w)
Z = 2k-10k
Feedline choke and
noise filter

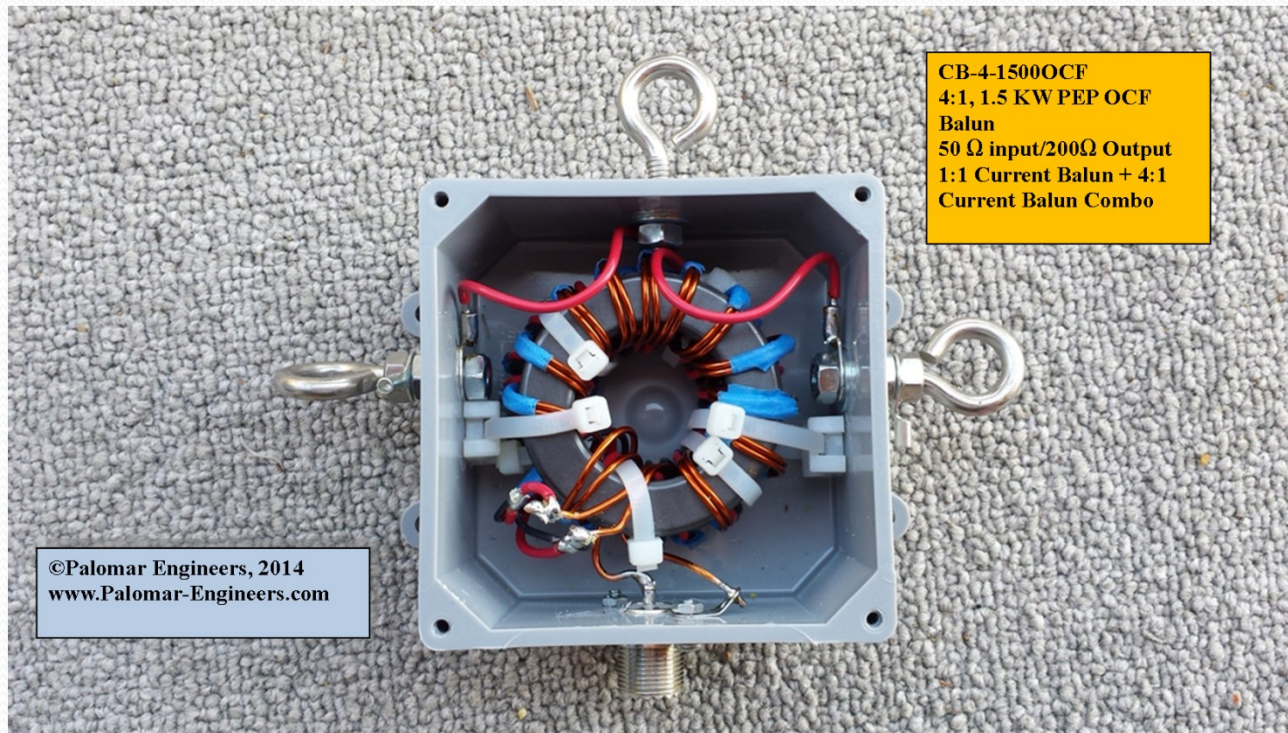
Do It Yourself KIT



CB-1-5000 (1:1, 5000w)
Z = 3k-12k
Feedline choke and
noise filter

ASSEMBLED

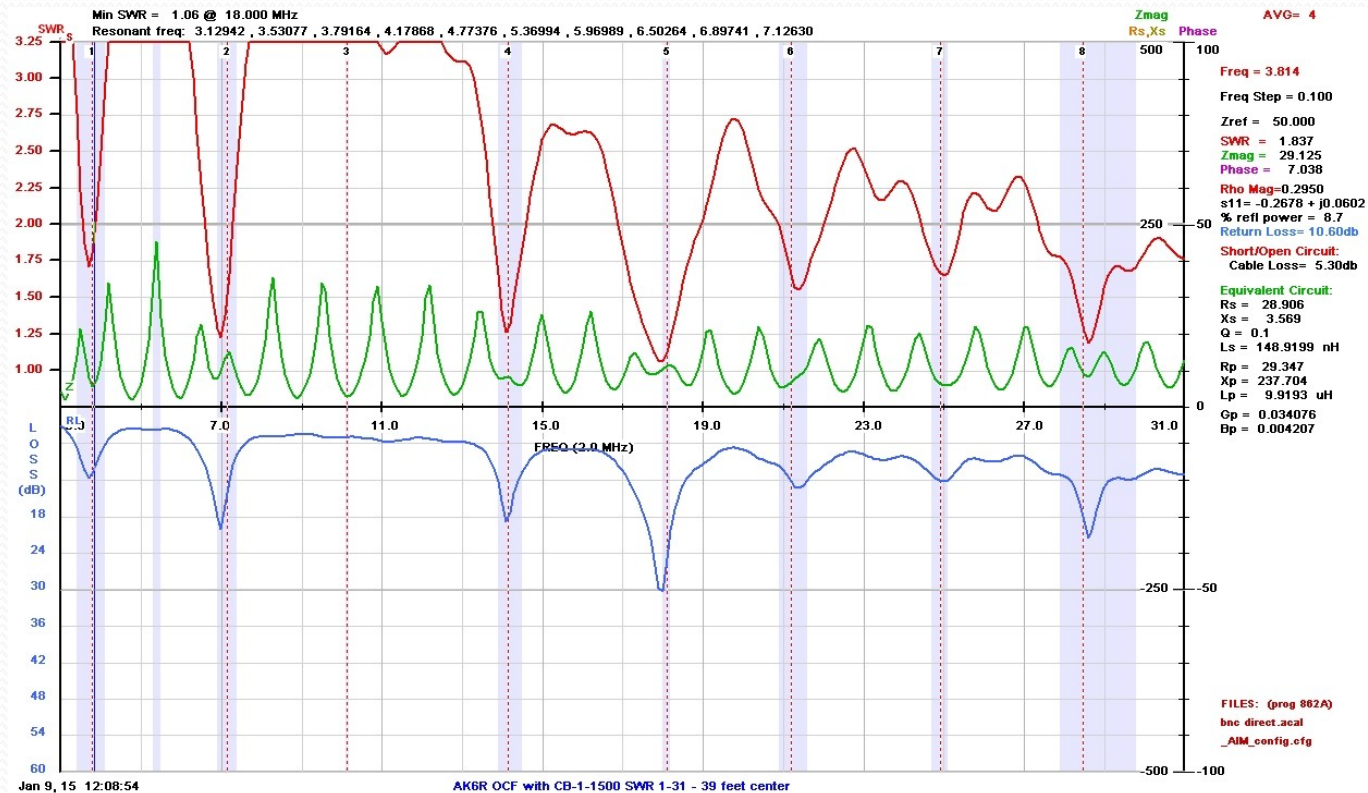
OCF Antenna 4:1 Balun + Choke



Palomar CB-4-1500OCF Balun + Common mode choke in single enclosure

AK6R OCF Antenna

19%/81% Feedpoint



Antenna uses Palomar CB-4-1500OCF Balun + Common mode choke in single enclosure. 36' at feed point, 12' at ends. 80-40-20-17-15-12-10-6 meters

OCF/Carolina Windom Notes

- No vertical radiator
 - Use 4:1 current balun & choke at feedpoint. You need at least 2000 ohms of choking. 10 bead sleeve baluns do NOT provide enough choking!
- With vertical radiator
 - Use 4:1 voltage balun at feed point and > 2K feedline choke at bottom of vertical radiator to stop radiation from continuing on rest of feedline.

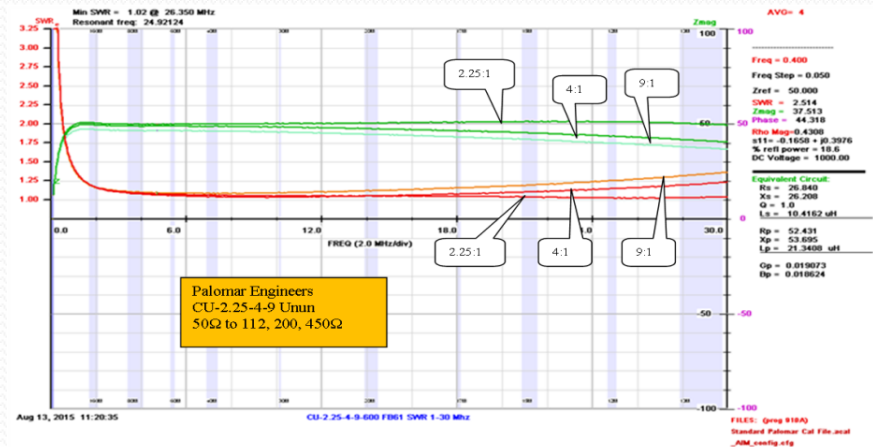
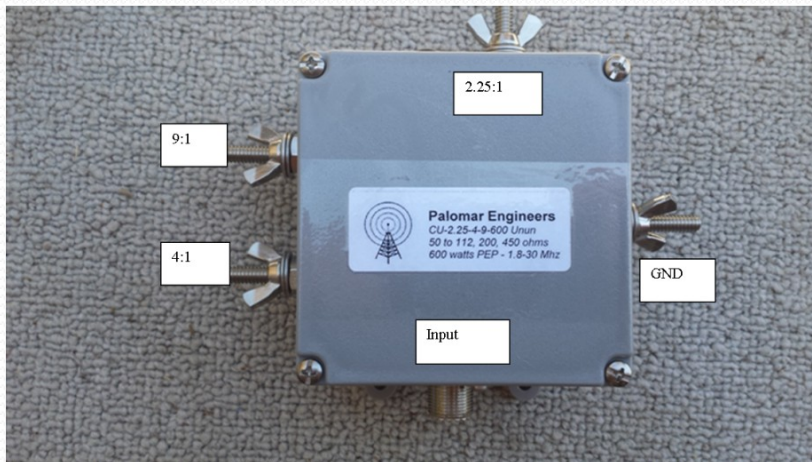
Palomar Engineers Porta-Pole™



Palomar Porta-Pole™ - 27 feet tall – Special unun
for 40-10 meters vertical operation

Palomar Engineers Porta-Pole™

- Special Unun for impedance matching for higher signal strength



Palomar Porta-Pole™ with CU-2-4-9-600 unun

Prize Question?

- Who is the strangest case of RFI you have experienced?

Contact Info

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- This presentation available on the website.