

**HAM RADIO
RFI
CHEAT SHEET**



RFI Solutions from KHz to GHz





My Station Causes RFI – What do I do?



All RFI problems have a SOURCE, a PATH, and a VICTIM. You have to identify the source, choke off the path, and protect the victim. In most cases of mobile/home/portable ham radio operation or commercial broadcast, the transmitter is the source, the path is the “receiving” antenna disguised as the AC/DC wiring, phone lines, cable/satellite feeds of the VICTIM, and the VICTIM(s) are electronic devices that amplify the received signal and create the disturbance in the form of sounds, buzzes, non-operation or scrambled video.

RFI Solution Kits

#1: Clean up the SOURCE OF RFI and Choke the PATH

<p><u>Transceiver RFI KITS</u> Choke RFI into AC/DC lines, Coax, interconnecting lines</p>	<p><u>Amplifier RFI Kits</u> Choke RFI into AC/DC lines, coax, interconnecting lines</p>	<p><u>Multi Ring+Snap On Combo</u> Choke RFI into AC/DC lines, coax, interconnecting lines</p>
		<p>Multi Ring + Snap On Combo Pack—Mix 31</p>  <p>Ring: F240-31(6) 1.4" ID Snap On: 3/8"(6), 1/2"(5) RFI Range 1-300 MHz</p>

Antenna RFI Kits – feed line chokes configured as baluns (balanced output) or ununs (unbalanced output)

Slip On	Snap On	CUBE™	Super Choker	Tube
				

#2: Protect the VICTIM OF RFI (shack, home, neighbor)

Home Theater System RFI Kit – audio, video, speaker, sub-woofer RFI protection

Computer RFI Kits – laptops, desktops, DSL/Routers, network boxes, CAT5 cables, wireless devices

Alarm System RFI Kit – multi sensor, multi alarms, home automation, dimmer light RFI Kits

Garage Door Opener Kit – AC power and sensor protection

Generic RFI Kit for electronic projects and small RFI problems including LED and garden lighting

AC/DC Power Line Chokes – kitchen, household appliances, Heating/air conditioning, sprinkler systems

Ferrite Snap On's – Mix 31 (1-300 MHz), Mix 61 (200-2000MHz), Mix 77 (150 KHz-10 MHz)

Got a tough RFI problem and need a quick solution? Call RFI Hotline at 760-747-3343 or check out the RFI tutorials on our website at Palomar-Engineers.com

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My Station is a VICTIM of RFI – What do I do?



CAUSE: RFI, or a high noise level, to ham radio receivers can be caused by broadband signal hash or “birdies” from consumer electronic devices including computers, routers, DSL/cable modems, plasma flat screen TV’s, HVAC control circuits, switching power supplies (wall warts), battery chargers, and other low power “transmitters” coupling their RFI into your AC power line, speaker cables and RF cables. Common mode noise can also be picked up on coax feed lines, rotor/antenna control lines and equipment interconnect cables.

#1: Clean up the SOURCE, choke the PATH, protect the VICTIM

Determine the primary interfering frequency of the source and [select a ferrite mix](#) that is effective at the fundamental interfering frequency. Select a ferrite form (Snap On, Slip On, or toroid ring) with a diameter that will allow one or more turns thru the center. Remember that the choking impedance increases with the SQUARE of the number of turns. If 1 turn = x, 2 turns = 4X, 3 turns = 9X, etc.

Wall Wart Noise Filters	Computer/DSL/Router Noise Suppressors	Appliance Noise filters – AC/DC line chokes
		

Common Mode Coax Noise Filters – neighborhood noise suppression picked up on coax braid

	<p>Suppress Common mode RFI in coax line of transmitter</p> <p>Install at transceiver or amplifier output</p>	<p>CMNF-500 – 500 Watts PEP .1-150 MHz</p> <p>CMNF-1500 – 1.5KW PEP 1-61 MHz</p> <p>CMNF-5000 – 5KW PEP 1-61 MHz</p>
	<p>Suppress common mode RFI in coax line to receiver</p> <p>Install at receiver antenna input</p>	<p>CMNF-TV – Satellite/Cable coax lines</p>

Individual Ferrites – [Toroids](#), [Slip On](#), and [Snap On](#) – for 1/8” wire to 3” cables available in convenient 10, 25 and 100 packs and combination packs of various mixes and sizes for general RFI troubleshooting.