

RFI Suppression Kit



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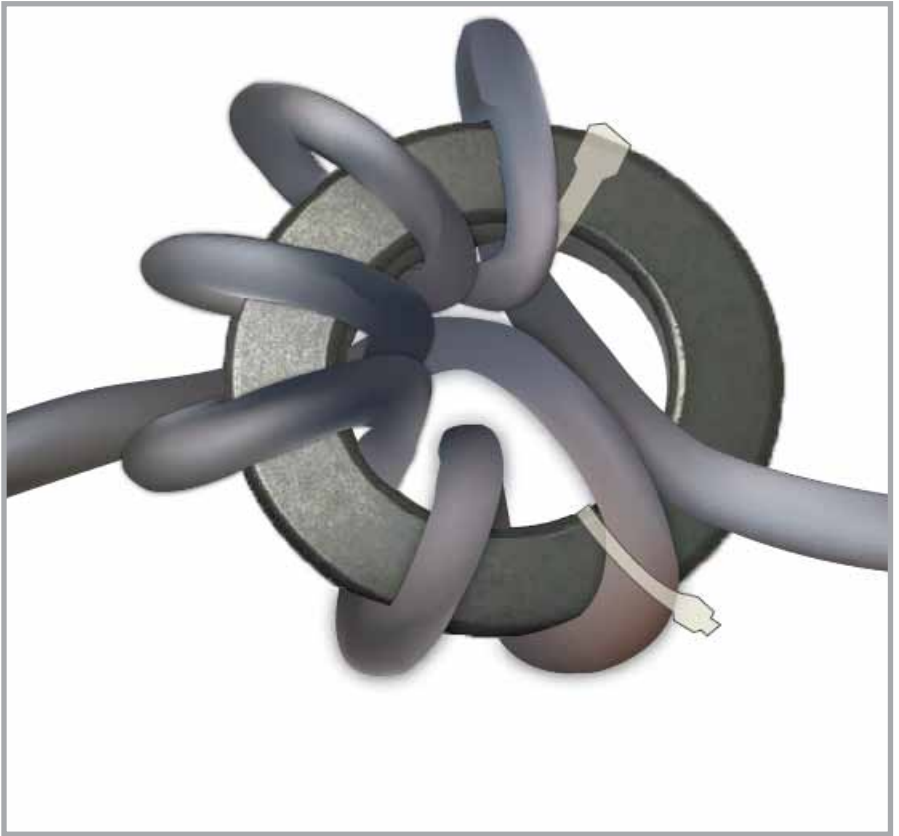
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An example of a cable wound through and around a ferrite toroidal core.



INTRODUCTION

Thank you for choosing the **RFI Suppression Kit** that was created as an inexpensive remedy for many types of issues encountered when excessive RF is getting back into the shack.

One may not even be aware of an RFI (Radio Frequency Interference) problems that subsequently attribute effects to other causes. For example: The computer, mouse, or digital mode interface which becomes non-responsive could easily be a software problem; but, it could be RFI as well. Another example of too much RFI in a shack is when the radio shuts down unexpectedly when transmitting at full-power.

Many of these problems can be resolved with judicious use of filters like the toroidal cores and snap on chokes supplied in the RFI Suppression Kit. The table below provides some ideas on possible remedies to situations. This kit does not provide any guarantees of eliminating all RFI problems, but may provide a better chance.

INSTALLATION and USAGE

Included in the RFI Suppression Kit:

- 3 toroidal cores*
 - 2 are type 43 ferrite material (useful at higher HF bands, VHF & UHF)
 - 1 is type 31 material (very effective throughout the HF spectrum)
- 2 snap-on type 31 chokes which can be easily placed around cables or coax.

Some antennas are more likely to bring high levels of RF into the shack. End-fed “long wires” with a manual tuner close to the radio is one example. The feed point impedance is often very high which means large HF voltages at the tuner. In cases like this, it is often better to feed the “long wire” with an 9:1 balun mounted outside and run coax into the shack from the balun to the tuner. Adding some of the snap-on chokes on this coax may help to keep RF out.

When winding cables through the toroid the more turns the better. Use a cable tie to anchor the cable at one end then proceed to wind the cable through the toroid. Use another cable tie to anchor the other end.

* A quick way to tell the toroids apart is to use your DMM on the resistance setting. Put your probes on the side of the toroid about 1cm apart. Type 31 will have a much lower measurable resistance depending on your probe spacing and pressure (typically 200KOhm - 1MOhm). Type 43 will likely not register on your meter as the electrical resistance is much higher.

* The ARRL maintains a very useful web page with articles and web links dealing with RFI.

Symptom	Possible Explanation	HF Remedy	VHF Remedy	Other Ideas
Radio locks up or shuts down when transmitting SSB/FM voice at full power.	RF could be getting into your PSU or radio power cable.	Try a snap-on choke on the PSU AC cord. Try winding the radio power cable through the type 31 toroid.	Wind the PSU AC cord through a type 43 toroid. Try winding the radio power cable through a type 43 toroid.	Try reducing power and/or try a dummy antenna to prove it is an RF issue.
Computer or peripherals (e.g. mouse, keyboard) stop working/become unresponsive when radio transmits.	RF is getting into the computer or peripheral.	Try a snap-on choke on the computer AC cord and/or or laptop adapter cord. Try winding affected peripheral cable through the type 31 toroid.	Wind the computer AC cord or laptop adapter cord through a type 43 toroid. Try winding affected peripheral cable through a type 43 toroid.	Try reducing power and/or try a dummy antenna to prove it is an RF issue. Moving the computer and/or peripheral further from the radio, tuner or linear amplifier may help.
Radio gets stuck in transmission during digital mode operation and can only be "unstuck" by unplugging the interface.	RF is getting into the computer or digital interface and crashing the computer's usb bus.	Try a snap-on choke on the computer AC cord and/or or laptop adapter cord. Try winding the digital interface USB cable through the type 31 toroid.	Wind the computer AC cord or laptop adapter cord through a type 43 toroid.	Try reducing power and/or try a dummy antenna to prove it is an RF issue. Moving the computer and/or digital mode interface further from the radio, tuner or linear amplifier may help.

<p>Others report "RF" in your signal</p>	<p>RF may be coupling back into the radio microphone or radio itself.</p>	<p>Try winding the radio power cable through the type 31 toroid.</p> <p>Try adding one of the snap-on chokes to the microphone cable.</p>	<p>Try winding the radio power cable through the type 43 toroid.</p> <p>Try adding one of the snap-on chokes to the microphone cable.</p>	<p>Moving the radio further away from a linear amplifier or tuner may help.</p> <p>Placing a manual tuner on top of the radio is usually not a good idea.</p>
<p>Other household equipment malfunctions when operating your ham radio e.g. TV, Telephone, HiFi</p>	<p>RF may be coupling back into AC house wiring, telephone line wiring or domestic antenna wiring.</p>	<p>Try winding affected device power cords through the type 31 toroid.</p> <p>Use a snap-on choke with multiple turns of telephone line through it.</p>	<p>Try winding affected device power cords through the type 43 toroid.</p> <p>Use a snap-on choke with multiple turns of telephone line through it.</p>	<p>Quite often the proximity of your ham radio antenna is to blame when other devices malfunction.</p> <p>Try to ensure your antenna is far from the electrical house wiring, telephone wiring as possible.</p> <p>Vertical antennas are more likely to interfere with house wiring.</p>

RFI Suppression Kit Warranty

RFI Suppression Kit is warranted against failure due to defects in workmanship or materials for 30 days after the date of purchase from West Mountain Radio. Warranty does not cover damage caused by abuse, accident, misuse, improper or abnormal usage, failure to follow instructions, improper installation, alteration, lightning, or other incidence of excessive voltage or current. If failure occurs within this period, return the *RFI Suppression Kit* or accessory to West Mountain Radio at your shipping expense. The device or accessory will be repaired or replaced, at our option, without charge, and returned to you at our shipping expense. Repaired or replaced items are warranted for the remainder of the original warranty period. You will be charged for repair or replacement of the *Epic PWRgate* or accessory made after the expiration of the warranty period.

West Mountain Radio shall have no liability or responsibility to customer or any other person or entity with respect to any liability, loss, or damage caused directly or indirectly by use or performance of the products or arising out of any breach of this warranty, including, but not limited to, any damages resulting from inconvenience, loss of time, data, property, revenue, or profit, or any indirect, special incidental, or consequential damages, even if West Mountain Radio has been advised of such damages.

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